RESEARCH STUDY TO IDENTIFY NEEDS, OPPORTUNITIES AND CHALLENGES OF SMALL AND MEDIUM ENTERPRISES IN THE TRADITIONAL MEDICINE SECTOR

Final Report

16 November 2012
Executive Summary

This report was commissioned by Seda to identify opportunities for Seda to support the Traditional Medicines sector, and to develop a strategy to seize such opportunities in order to create new and support existing enterprises with potential to create jobs. The following were the objectives of the study:

1. Identify areas of specific demand and opportunity for provision of products and services by local SME’s in this sector;
2. Identify challenges or barriers faced by SMEs and critical factors to operate successfully in this sector;
3. Identify key sector segments and value chains and analyse key developments in such segments;
4. Identify products and services that Seda could provide to SMEs to enable growth in this sector.

The findings in this report are based on interviews with the following participants and stakeholders:

i. Researchers and Product Developers
ii. Growers and Suppliers
iii. Traders and Exporters
iv. Traditional Health Practitioners
v. Manufacturers
vi. Distributors and marketers
vii. Consumers, clients and healthcare workers
viii. Industry bodies
ix. Government and agencies

In total more than 200 participants and stakeholders were interviewed. The interviews included focus group discussions with THPs and consumers, while other stakeholders completed questionnaires administered either through face-to-face interviews, telephonically by the research team, or completed by the individual stakeholder.

The study identifies key themes that emerged from the interviews such as lack of a sector strategy, and funding, market size and growth, the different perspectives along the value chain, fragmentation and poor communication within the sector, and with and between key stakeholders, the perceived marginalisation of
THPs, the constraints faced by many SMEs in accessing scientific research on specific plant species, and the challenges for SMEs in accessing market intelligence and market distribution channels.

The study concludes with recommendations regarding Seda’s current portfolio of services, and identifies new service offerings that should be developed to support SME development. It also identifies other actions that Seda could take to facilitate sector development, in particular the partnerships that could be established to mobilise support more effectively.
# Research Study to Identify Needs, Opportunities and Challenges of Small and Medium Enterprises in the Traditional Medicine Sector – FINAL REPORT

## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Executive Summary</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Acknowledgements</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Abbreviations and Acronyms</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>SECTION 1: BACKGROUND AND INTRODUCTION</td>
<td>10</td>
</tr>
<tr>
<td>1.1</td>
<td>Objectives of the study</td>
<td>10</td>
</tr>
<tr>
<td>1.2</td>
<td>Methodology</td>
<td>10</td>
</tr>
<tr>
<td>1.2.1</td>
<td>Consultation Method</td>
<td>11</td>
</tr>
<tr>
<td>1.2.2</td>
<td>Sampling and Sample Size</td>
<td>11</td>
</tr>
<tr>
<td>1.2.3</td>
<td>Geographic Location</td>
<td>12</td>
</tr>
<tr>
<td>1.2.4</td>
<td>The Stakeholder Consultation Schedule</td>
<td>13</td>
</tr>
<tr>
<td>1.2.5</td>
<td>Primary Data Collection from Informal Sector</td>
<td>13</td>
</tr>
<tr>
<td>1.3</td>
<td>Limitations of the study</td>
<td>14</td>
</tr>
<tr>
<td>1.3.1</td>
<td>Lack of coverage in all provinces</td>
<td>14</td>
</tr>
<tr>
<td>1.3.2</td>
<td>Lack of quantitative data</td>
<td>14</td>
</tr>
<tr>
<td>1.3.3</td>
<td>Tight timeframes of the project</td>
<td>14</td>
</tr>
<tr>
<td>1.3.4</td>
<td>Refusal to participate in the study</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>SECTION 2: FINDINGS OF THE SURVEY</td>
<td>16</td>
</tr>
<tr>
<td>2.1</td>
<td>Value chain perspectives</td>
<td>16</td>
</tr>
<tr>
<td>2.1.1</td>
<td>Researchers and Product Developers</td>
<td>16</td>
</tr>
<tr>
<td>2.1.2</td>
<td>Growers and Suppliers</td>
<td>18</td>
</tr>
<tr>
<td>2.1.3</td>
<td>Traders and Exporters</td>
<td>20</td>
</tr>
<tr>
<td>2.1.4</td>
<td>Traditional Health Practitioners</td>
<td>21</td>
</tr>
<tr>
<td>2.1.5</td>
<td>Manufacturers</td>
<td>23</td>
</tr>
<tr>
<td>2.1.6</td>
<td>Distributors and marketers</td>
<td>24</td>
</tr>
<tr>
<td>2.1.7</td>
<td>Consumers</td>
<td>24</td>
</tr>
<tr>
<td>2.1.8</td>
<td>Industry bodies</td>
<td>33</td>
</tr>
<tr>
<td>2.2</td>
<td>Government Departments and Agencies</td>
<td>38</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Department of Agriculture, Forestry and Fisheries (DAFF)</td>
<td>38</td>
</tr>
<tr>
<td>2.2.2</td>
<td>Agricultural Research Council (ARC)</td>
<td>39</td>
</tr>
</tbody>
</table>
2.2.3 Department of Environmental Affairs (DEA) ................................................................. 40
2.2.4 Department of Trade and Industry (dti) ......................................................................... 42
2.2.5 SEOBI (Essential Oil Business Incubator)..................................................................... 42
2.2.6 South African Bureau of Standards (SABS) ................................................................. 43
2.2.7 South African National Biodiversity Institute (SANBI).................................................. 44
2.2.8 Department of Health (DoH) ......................................................................................... 46
2.2.9 Medicines Control Council (MCC) ................................................................................ 47
2.2.10 Medical Research Council (MRC) ................................................................................ 47
2.2.11 Department of Research Council (DST) ...................................................................... 49
2.2.12 CSIR ............................................................................................................................... 50
2.2.13 Technology Innovation Agency (TIA) .......................................................................... 56
2.3 Development Agencies ..................................................................................................... 57
  2.3.1 Eastern Cape Development Corporation (ECDC) ......................................................... 57
  2.3.2 ilembe Enterprise .......................................................................................................... 59
2.4 TM Sector SWOT analysis ................................................................................................ 61
3 SECTION 3: COMMERCIALISATION PROCESS ................................................................. 62
4 SECTION 4: EMERGING THEMES .................................................................................... 66
  4.1 Sector size, strategy and funding ...................................................................................... 66
  4.2 Market Size and Trends .................................................................................................... 67
  4.3 The Value Chain ............................................................................................................... 68
  4.4 Fragmentation and barriers ............................................................................................... 69
  4.5 Key Role of the Department of Health ........................................................................... 70
  4.6 THP Perspectives ............................................................................................................ 70
  4.7 Scientific Research; Coordination and Access .................................................................. 70
  4.8 Access to the Market ........................................................................................................ 71
5 SECTION 5: Seda and the TM sector ..................................................................................... 72
  5.1 TM Sector Awareness of Seda ......................................................................................... 72
  5.2 Current service offerings and resources .......................................................................... 72
    5.2.1 Informal sector ............................................................................................................. 72
    5.2.2 Formal sector .............................................................................................................. 72
5.3 Potential scope for new services for the TM sector .......................................................... 73
  5.3.1 Informal sector ............................................................................................................... 73
  5.3.2 Formal sector ............................................................................................................... 73

6 SECTION 6: RECOMMENDATIONS ................................................................................. 76
  6.1 Facilitation of Sector Strategy ......................................................................................... 76
  6.2 Facilitation of Sector Dialogue ........................................................................................ 76
  6.3 Identifying and Packaging Relevant Funding Support ..................................................... 76
  6.4 Creation of Key Partnerships .......................................................................................... 77
    6.4.1 Agricultural Research Council .................................................................................... 77
    6.4.2 Technology Innovation Agency .................................................................................. 77
    6.4.3 Department of Environmental Affairs .......................................................................... 78
    6.4.4 Provincial and District Enterprise Development Agencies .......................................... 78
    6.4.5 DST, CSIR, MRC and Universities ............................................................................. 78
    6.4.6 DRDLR and DAFF ........................................................................................................ 78
  6.5 Promotion of current service offerings to the TM Sector ................................................ 79
  6.6 Development of new service offerings ............................................................................ 79
    6.6.1 Informal Sector ........................................................................................................... 79
    6.6.2 Formal Sector .............................................................................................................. 79

7 SECTION 7: REFERENCES .................................................................................................. 82

8 SECTION 8: ANNEXURE .................................................................................................... 83
  8.1 Sector Database ................................................................................................................ 84
Acknowledgements

We wish to express our sincere thanks to all the respondents who took their time to answer the questionnaire. They have provided valuable information.

We thank many individuals and organisations who assisted with giving time and venues for focus group meetings, these include among others:

AIDS Foundation of South Africa
Hospice and Palliative Care Association
Mr Mabena (Mamelodi)
Mr Z Dweba, Eastern Cape Department of Health
NIKSO, Department of Science and Technology
South African Bureau of Standards
Zululand District Office, KwaZulu-Natal Department of Health
### Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADA</td>
<td>Agricultural Development Agency</td>
</tr>
<tr>
<td>ARC</td>
<td>Agricultural Research Council</td>
</tr>
<tr>
<td>ASNAPP</td>
<td>Agribusiness in Sustainable Natural African Plant Products</td>
</tr>
<tr>
<td>BABS</td>
<td>Bioprospecting, Access and Benefit Sharing Regulations</td>
</tr>
<tr>
<td>BBBEE</td>
<td>Broad Based Black Economic Empowerment</td>
</tr>
<tr>
<td>BEE</td>
<td>Black Economic Empowerment</td>
</tr>
<tr>
<td>BRICS</td>
<td>Brazil, Russia, India, China and South Africa</td>
</tr>
<tr>
<td>CAMs</td>
<td>Complementary and Alternative Medicines</td>
</tr>
<tr>
<td>CE</td>
<td>European Conformity</td>
</tr>
<tr>
<td>CBD</td>
<td>Convention on Biological Diversity</td>
</tr>
<tr>
<td>CITES</td>
<td>Convention on International Trade in Endangered Species of Wild Fauna and Flora Regulations</td>
</tr>
<tr>
<td>CSIR</td>
<td>Council for Scientific and Industrial Research</td>
</tr>
<tr>
<td>DAFF</td>
<td>Department of Agriculture, Forestry and Fisheries</td>
</tr>
<tr>
<td>DANIDA</td>
<td>Danish International Funding Agency</td>
</tr>
<tr>
<td>DEA</td>
<td>Department of Environmental Affairs</td>
</tr>
<tr>
<td>DED</td>
<td>Department of Economic Development</td>
</tr>
<tr>
<td>DoH</td>
<td>Department of Health</td>
</tr>
<tr>
<td>DRDLF</td>
<td>Department of Rural Development and Land Reform</td>
</tr>
<tr>
<td>DST</td>
<td>Department of Science and Technology</td>
</tr>
<tr>
<td>dti</td>
<td>Department of Trade and Industry</td>
</tr>
<tr>
<td>DTP</td>
<td>Dube Trade Port</td>
</tr>
<tr>
<td>ECDC</td>
<td>Eastern Cape Development Corporation</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>F2P</td>
<td>Farmer to Pharma</td>
</tr>
<tr>
<td>FDA</td>
<td>Food and Drug Agency</td>
</tr>
<tr>
<td>GAHP</td>
<td>Good Agricultural and Harvesting Practice</td>
</tr>
<tr>
<td>GMP</td>
<td>Good Manufacturing Practice</td>
</tr>
<tr>
<td>Acronym</td>
<td>Full Form</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>GSPOA</td>
<td>WHO Global Strategy and Plan of Action for Public Health Innovation and Intellectual Property</td>
</tr>
<tr>
<td>HACCP</td>
<td>Hazard Analysis and Critical Points</td>
</tr>
<tr>
<td>HPASA</td>
<td>Health Products Association of South Africa</td>
</tr>
<tr>
<td>IKS</td>
<td>Indigenous Knowledge Systems</td>
</tr>
<tr>
<td>IKSBD</td>
<td>Indigenous Knowledge System Bioprospecting and Product Development Platform</td>
</tr>
<tr>
<td>ISO</td>
<td>International Standards Organisation</td>
</tr>
<tr>
<td>JVs</td>
<td>Joint Ventures</td>
</tr>
<tr>
<td>KZN</td>
<td>KwaZulu-Natal</td>
</tr>
<tr>
<td>LRAD</td>
<td>Land Redistribution for Agricultural Development</td>
</tr>
<tr>
<td>MCC</td>
<td>Medicines Control Council</td>
</tr>
<tr>
<td>MRC</td>
<td>Medical Research Council</td>
</tr>
<tr>
<td>MTA</td>
<td>Material Transfer Agreement</td>
</tr>
<tr>
<td>NBP</td>
<td>National Bioprospecting Platform</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-governmental Organisation</td>
</tr>
<tr>
<td>NHRC</td>
<td>National Health Research Committee</td>
</tr>
<tr>
<td>QA</td>
<td>Quality Assurance</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
</tr>
<tr>
<td>SA</td>
<td>South Africa</td>
</tr>
<tr>
<td>SABS</td>
<td>South African Bureau of Standards</td>
</tr>
<tr>
<td>SAEOPA</td>
<td>South African Essential Oils Producers Association</td>
</tr>
<tr>
<td>SAHPRA</td>
<td>South African Health Products Regulatory Authority</td>
</tr>
<tr>
<td>SAHTA</td>
<td>South African Honey bush Tea Association</td>
</tr>
<tr>
<td>SANBI</td>
<td>South African National Biodiversity Institute</td>
</tr>
<tr>
<td>Seda</td>
<td>Small Enterprise Development Agency</td>
</tr>
<tr>
<td>SEOBI</td>
<td>South African Essential Oil Business Incubator</td>
</tr>
<tr>
<td>SMEs</td>
<td>Small and Medium Enterprises</td>
</tr>
<tr>
<td>STP</td>
<td>Seda Technology Programme</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>THRIP</td>
<td>Technology and Human Resources Programme</td>
</tr>
<tr>
<td>THPs</td>
<td>Traditional Health Practitioners</td>
</tr>
<tr>
<td>TIA</td>
<td>Technology Innovation Agency</td>
</tr>
<tr>
<td>TISA</td>
<td>Trade and Investment South Africa</td>
</tr>
<tr>
<td>TM</td>
<td>Traditional medicine</td>
</tr>
<tr>
<td>TK</td>
<td>Traditional knowledge</td>
</tr>
<tr>
<td>UCT</td>
<td>University of Cape Town</td>
</tr>
<tr>
<td>UWC</td>
<td>University of the Western Cape</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>
1 SECTION 1: BACKGROUND AND INTRODUCTION

1.1 Objectives of the study

The study was commissioned by the Small Enterprise Development Agency (Seda) in recognition that Traditional Medicine (TM) plays a strong potential role in the development of local economies in South Africa. The overall objective of the assignment was to undertake a research study on businesses that operate within the Traditional Medicine sector with the aim of creating a better understanding of this sector as well as to form a coherent support strategy for Seda in order to support this sector in a targeted and sustainable manner.

The specific terms of reference for the study are reproduced below:

i) To conduct a comprehensive desktop study research study which will give an overview of the traditional medicine sector, its current developments and market performance.

ii) To review published literature on this sector

iii) Examine how the Traditional Medicine Sector is aligned, or relevant, to National, Provincial and Local government growth strategies

iv) Prepare an analytical report incorporating findings and indicative strategies for Seda

v) Present the desktop research findings to Seda internal stakeholders.

The outcome of this work will be to recommend the development and support that could be rendered to the Traditional Medicine sector in the country ensuring that it contributes to local economic development in a coherent and sustainable manner.

1.2 Methodology

The aim of the consultation process was to consult with key sector participants and stakeholders, using a sizeable and representative sample of the actors in the TM sector. The objective of the study and the interactions was to establish the status quo of this sector (in terms of quantitative data) as well as to identify present issues and possible solutions (qualitative data). The section below discusses in detail how the interactions took place. The team engaged with more than 200 actors and stakeholders in the TM sector.
1.2.1 Consultation Method

The study primarily took the form of a survey employing a questionnaire administered to a wide range of participants and stakeholders in the TM sector. In addition, focus group discussions and key informant interviews were conducted. There are certain instances where specific discussions were held without direct reference to the questionnaire.

Different types of questionnaire were designed to cater for the needs of each targeted group of interviewees: for SMEs, THPs and Market traders, Consumers, Researchers, Industry Bodies, Government Departments and Agencies. Although each questionnaire had different sections that are relevant to the actor concerned, they all followed a standard format of five sections as follows:

- General Information
- Supply side
- Demand side
- Support requirements
- General observations

The total number of interviews and engagements was over 200 (150 being the target at the beginning of the assignment). The interviews were either conducted face-to-face or telephonically where this was not possible. Some respondents preferred to complete the questionnaire in their own time and return electronically. The interviews took between 30 minutes and 60 minutes to complete, and were carried out in the language preferred by the interviewee.

1.2.2 Sampling and Sample Size

The stakeholder consultation and market survey was based on both questionnaires and market observations during the site visits. Several key groups, both formal and informal, were identified and targeted throughout the value chain for the survey, as indicated in the following table:
Table 1: Sector Respondents

<table>
<thead>
<tr>
<th>Industry Participants and Stakeholders</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researchers/Product Developers</td>
<td>4</td>
</tr>
<tr>
<td>Growers and Suppliers</td>
<td>16</td>
</tr>
<tr>
<td>Traders and Exporters</td>
<td>9</td>
</tr>
<tr>
<td>Traditional Health Practitioners (THPs)</td>
<td>73</td>
</tr>
<tr>
<td>Manufacturers</td>
<td>11</td>
</tr>
<tr>
<td>Distributors/Marketers</td>
<td>3</td>
</tr>
<tr>
<td>Consumers, Clients and Healthcare workers</td>
<td>50</td>
</tr>
<tr>
<td>Industry Bodies</td>
<td>10</td>
</tr>
<tr>
<td>Government Departments and Agencies</td>
<td>25</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>201</strong></td>
</tr>
</tbody>
</table>

1.2.3 Geographic Location

It is understood that TM sector participants and consumers are distributed throughout the country in both rural and urban areas. There are however certain areas that have a large concentration of activity (whether informal or formal), and these are the provinces of KwaZulu-Natal, Gauteng, Eastern Cape, Western Cape, Northern Cape and Limpopo. The number of THPs in these provinces represents a majority and formal business activity in this sector is concentrated in Gauteng and Western Cape (Gqaleni et al, 2007). In addition, the recent Census 2011 indicates that Gauteng and KwaZulu-Natal have the largest percentage of the population (StatsSA, 2012). As a result the respondents consulted largely reflect this state of affairs and is hence deemed to constitute a representative sample for this study.
1.2.4 The Stakeholder Consultation Schedule

The fieldwork took place during October and early November 2012. This period was used to consolidate the list of actors and stakeholders identified during the first phase of the project and also to conduct consultation sessions with them.

1.2.5 Primary Data Collection from Informal Sector

Several approaches were used in undertaking the interviews, depending on the preference and circumstances of the respondent. As most THPs keep few or no records of transactions, the study was not able to utilise any business data, but had to capture information which traders had internalised and also record observations from the site of operation.

THPs, market traders and shopkeepers were visited either at the place of work or at meetings where several THPs were gathered. THPs were particularly difficult to interview as many were reluctant to commit time to the interview. There was also a certain level of reluctance by some THPs due to concerns that the information may be used for other purposes. This aspect of the interviews was time intensive requiring considerable introductory discussion prior to any interview taking place. Since these interviews were conducted during practice hours, it was also difficult to find uninterrupted time to conduct the entire interviews as priority was given to patients. In addition, 5 focus group meetings with THPs were organised in KwaZulu-Natal and Gauteng on 11 October (Durban), 17 October (Pietermaritzburg), 27 October (Johannesburg Faraday), 1 November (Ulundi), and 7 November (Mamelodi), respectively.

Consumers or clients were also interviewed at the THPs practice to develop further understanding of the use of traditional medicine. Some clients also demonstrated some level of reluctance to be interviewed, especially in divulging personal details. As a result very few clients were interviewed. It was however felt that the sample taken could be used to indicate the broader public’s use of TM. Where health care workers were present during focus group meetings with THPs, and willing to participate, they were also interviewed on their perspectives as potential consumers of TM.
Apart from collecting data through questionnaires, an important part of the survey was to make observations during the course of the work. The researcher took notes during formal and informal discussions, at public meetings and during field work. This helped to provide insights into the market which were not possible to obtain from the structured interviews. Several lengthy unstructured interviews were also undertaken with various market players and helped to provide a depth of detail not obtainable from the structured questionnaires.

### 1.3 Limitations of the study

#### 1.3.1 Lack of coverage in all provinces

It was not possible to interview participants and stakeholders in all provinces due to time and logistical constraints. Stakeholders from 5 provinces have been interviewed.

#### 1.3.2 Lack of quantitative data

One of the major challenges in this study was to develop an understanding of the quantitative characteristics in the informal market where there was little or no recorded trade information. It was difficult to source answers to questions relating to quantities of stock, sales, distance and number of patients per day as an example, since most of the THPs do not keep strict record of their trade. Data on the formal market is also limited, since there is no single industry body, and it is difficult to disaggregate available official data on trade and exports.

#### 1.3.3 Tight timeframes of the project

We had targeted to consult with at least 150 actors and stakeholders within a period of four weeks. In practice this proved very difficult as consultation involved a lot of preparation, logistics arrangements and travel time. Also the respondents take time to return the questionnaires which necessitated at least three follows with each respondent. While at the end the project team managed to exceed the target by a considerable margin, some SMEs and other stakeholders could not be reached or did not respond within the timeframes of the project.
1.3.4 Refusal to participate in the study

The majority of respondents were willing participants in the study and appreciated its purpose. A very small percentage either refused to participate or failed to respond, including some SMEs who did not wish to reveal confidential data, and mainstream retailers and pharmacy chains.
2 SECTION 2: FINDINGS OF THE SURVEY

2.1 Value chain perspectives

2.1.1 Researchers and Product Developers

At first all researchers indicated that they were not involved in the business aspects of traditional medicines but only conduct research and, where applicable, enter into relations with private companies who handle the business side of things. The respondents indicated that there has been no real culture of product development and commercialization in South African institutions. The introduction of technology transfer offices and the principle of protection of intellectual property will possibly change this. The respondents had each formulated 2-5 products in their recent career, some of which have been patented. Some consider patenting fees a constraint. In one case, a spin-off company has been established and is doing well as a business. Others hand over their products to existing companies to produce and market.

It does not appear that there are strong relations between the research community and industry or THPs. This trend may change though, in respect of what the Department of Science and Technology is advocating through the establishment of a National Bioprospecting Platform (NBP) that will manage a coordinated research and development of all publicly funded bioprospecting research.

Researchers see as threats to South Africa’s research and development in this field:

- the uncontrolled proliferation of untested/unregistered commercial products and supplies
- the poor quality of untested commercially available herbal products
- the rampant advertising of unsubstantiated claims (for efficacy and safety) made for herbal products
- Traditional medicine becoming a political and cultural “football” since not all researchers understand the politics and cultural issues behind traditional medicine

They also perceive the following opportunities:
• High level research in this area can help guide/develop effective regulation and control of herbal medicines; can help develop personnel with such expertise
• Opportunity for South African companies to become competitive in the global semi-refined herbal (natural) product market; further development of the pharmaceutical industry
• Possible therapies for medical conditions (especially chronic lifestyle illnesses such as diabetes) that require multi-drug solutions
• Development of skilled researchers – (from basic to translational research)
• For international collaboration, e.g. with African countries and within BRICS

They feel that promises of commercialisation can create a problem in that high expectations are generated among rural communities and THPs (as potential benefit sharers) that inevitably lead to disappointment and decreased collaboration if the product does not reach the market or become a success. Unnecessary pressure is placed on researchers.

Ethics Review Bodies are considered generally quite supportive, while the MCC is trying its best (as indicated by the recent formation of a Task Group on Plant Based Medicine Clinical Trials by the MCC Clinical Trials Committee, formulation of guidelines for registration of CAMs, etc.) Much of their efforts, however, are not yet fully implemented or they struggle with its implementation. As can be expected these organisations and/or bodies do not have sufficient expertise to cover some aspects of clinical trials of traditional medicines, but they are improving.

Researchers consider that commercialisation should be best and most efficiently done by companies, since this is their core business. Scientists like to focus on the research and development aspects. However, they feel that partnership and close collaboration with the industry will lead to industry led outcomes from research and improve the commercialisation process. A programme such as the NRF/DST/dti THRIP program would seem a useful vehicle for this but so far it has not been used optimally. THRIP requires matching funds from industry and government based on a partnership between researchers and industry. Could dti perhaps create a special fund to support SMEs in this sector who cannot afford funds for research?
Researchers find that this is a very fragmented area of research. If a central national programme with clearly spelt out and agreed goals can be formed, a programme where the inputs of all working in this area can be noted, acknowledged and supported a faster, more efficient realisation of the true place and potential of TM can be found in the present society of South Africa and become globally competitive.

The South African Medicines Research Group has developed the first sixty monographs of South African medicinal plants. They comprise mainly new information from the results of research conducted by researchers in the laboratories of the School of Pharmacy and Department of Microbiology at the University of the Western Cape (UWC), together with data from published scientific literature. An initial species list was compiled on the basis of suitability for the treatment of common, self-limiting ailments, unlikely toxicity and ready availability. The developing of monographs for these species is familiar territory to pharmacists, whose training encompasses the discipline of pharmacognosy (the study of natural-product medicines). The laboratories of the School of Pharmacy at the University of the Western Cape (UWC) are equipped to carry out the procedures basic to monographing, which are well-documented and span botany, chemistry, microbiology and pharmacology. However, it does not appear that these are widely accessible to the industry. In addition, the monographs recommend that THPs should use them with the permission of a pharmacist. Quite an absurd situation when the reverse should be true for TM.

2.1.2 Growers and Suppliers

Most growers interviewed operated on a relatively small scale, with the exception of the large vertically integrated companies producing rooibos products, for example, which either own the cultivation component, or have very close links to farmer contractors.

Small scale growers are generally based in rural areas, for obvious reasons, and state that they find it difficult to access market information including species in demand, potential buyers, and current prices. This has resulted in some cases in plants remaining in the ground (e.g. African potato) until a buyer finally materialises, or in wastage of valuable plant material, and abandonment of projects.
Some growers had received initial funding support, but were in need of additional external support to scale up cultivation to commercial levels in order to supply commercial customers on a sustainable basis. Many indigenous medicinal plants take 2-3 years or more to mature, which puts strain on small enterprises which need to cover operating costs for a prolonged period before generating income.

Many growers expressed interest in accessing better information on market demand, appropriate quality plant material for propagation, technical support, advice on best practice in cultivation, harvesting and agro-processing, and access to laboratory testing to verify plant actives.

Processing equipment can be expensive to acquire and under-utilised for small-scale producers, and there is potential to establish open access processing facilities in different locations. Particular interest was expressed by some of the THPs interviewed, who were keen both to cultivate and process raw material.

One manufacturing company involved in the production and distribution of rooibos products emphasised the urgent need for coordinated government support to set up emerging farmers and other rural enterprises to grow rooibos; this would be a low risk investment, given the availability of off-take agreements, would be beneficial both in creating new black-owned enterprises, and would also benefit the customer in terms of potential BBBEE scorecard ratings.

It is clear from interviews with manufacturers and traders that there is also broader potential to link growers directly with customers through partnerships and off-take agreements, thus benefiting both parties. This will become more important if the bioprospecting permits and Material Transfer Agreements (MTAs) required under the current bioprospecting regulations are enforced, because manufacturers, traders and others will be obliged to prove that they are sourcing from suppliers with whom they have MTAs, and who possess the appropriate permits. At present very few suppliers have such permits.

There is generally a significant premium for raw materials and finished products that have organic certification, notably in the export market (and particularly for nutraceuticals and cosmeceuticals). However, very few growers appear to have either applied for or received organic certification.
2.1.3 Traders and Exporters

Many of the formal sector traders and exporters of raw materials are based in the Western Cape, and operate on a small scale, with a few notable exceptions. Some are also engaged in manufacturing, distributing and marketing their own finished herbal products.

In general, traders said they had established relationships with 4-5 suppliers of raw material. We were not able to ascertain what percentage of raw material sourced by traders was cultivated, and what percentage wild harvested (sustainably or otherwise).

The majority of those interviewed had received no external support for their businesses at any stage, despite, in some cases, having lobbied for support from Government for several years. The consensus was that such support would be welcome provided it was responsive to the actual needs of established SMEs.

Many interviewees stressed their concern over two issues; firstly, the difficulty in accessing relevant scientific research on plants, which would greatly assist in marketing products, especially in terms of export. Secondly, the confusion and potential negative effect created by the new bioprospecting regulations, which could make it more challenging for them to source raw materials from South Africa.

One exporter mentioned his concern about restrictive legislation in the EU which had reduced his ability to export indigenous products. He suggested that this was an issue for the dti to address with the EU, and with other key markets that could also follow a similar route.

All exporting companies had to meet stringent quality specifications from customers both for raw materials and finished products, and said that it would be beneficial for the sector to have clear quality standards, and also access to affordable laboratory services for plant and active verification, and quality testing.
2.1.4 Traditional Health Practitioners

Two types of interviews were conducted with this group. To one group who had access to email, questionnaires were sent. They were based in major cities such as Cape Town, Durban, East London, Johannesburg, and Pretoria. In addition, one-on-one interviews were held in various locations. The second group also participated in focus group discussions in Durban, Johannesburg, Pretoria, Pietermaritzburg, Empangeni and Ulundi.

Individual THPs interviewed were rendering comprehensive services ranging from consultation on personal health issues, counseling on social/family related problems and traditional house call procedures. In the end they would make a prescription. Some have thriving community based herbal shops with many clients. They tend to focus on the local market although a few sell nationally through chains such as Boxer supermarkets and Clicks pharmacies. Their businesses grow at about 20% annually and aspire to export.

The main challenges experienced include lack of capacity and efficient systems to deal with large numbers of clients, competition from ‘fly by night’ fraudsters, need to have their products scientifically tested, access to funding and laboratories for these tests, and lack of government support for trade. They process the plants themselves with varying levels of equipment and require support to scale up in order to be able to sell nationally or export. Some recommended that pharmaceutical companies should be compelled to adopt well developed concepts from THP/TM based business interests as BBBEE partners. Banks and independent financial institutions should be educated to consider proposals from ATM based businesses.

The major support required included development of the industry such that it becomes credible, professional, and can access finance to grow; research institutions to do research that will allow the products to be procured by the Department of Health; and for THPs to be trained in entrepreneurship.

The Warwick Junction muthi market in Durban and Faraday Street market in Johannesburg provided useful information. Market traders and/or THPs in these two markets choose them because they have increased access to customers and because the markets are well known to THPs who come to buy medicinal plants. All those interviewed were owners of their businesses and were sole providers of their household income. Some of
the market traders employed assistants, with the majority indicating a strong preference for and confidence in employing a family member for such purposes. The most popular products included medicines for cleansing and steaming both for culture-bound illnesses (izifo zesintu, ubulawu) and for wellness.

Market traders regarded THPs as their most frequent customers, followed by general customers buying plant material (this would include commuters through the market), muthi shop traders and finally patients seeking treatment. This suggests that the muthi markets have more of a wholesale/retail function rather than a service to patients seeking treatment. The major setback of selling at these markets was that the plants were exposed to the elements, and were prone to theft since all sorts of people walked past. Plant wastage was also a major issue, since many of the plants are fresh, and perish rapidly if not sold fast.

As far as could be ascertained all plants sold by market traders and dispensed by THPs were wild harvested. The majority come from the East coast and the Cape floral region, also from Zimbabwe, Swaziland and Mozambique. Most THPs buy from the markets, or direct from wild harvesters, although some indicate that they go to the rural areas themselves to buy plants. The plant parts purchased vary from bark and roots which have a longer shelf-life to bulbs/corms and leaves with a shorter shelf-life. The frequency of purchase is determined by the demand. All THPs add value to the products through processing and formulation. There are challenges with sourcing some medicinal plants as they are seasonal or overharvested.

Focus group discussions with almost 70 participants were by their nature dynamic and deeper in engagement. There was always an interesting debate on whether THPs saw themselves and/or were seen by the public as running businesses; there was eventual consensus that this was the case. However, they do so with no training and despite this some excelled. The sometimes negative public perception will persist if they do not professionalise their work. Some of the training required would include company registration, compliance with legislation such as permits, marketing, pricing, dosage formulation, and processing if they are to scale up. The introduction of National Health Insurance presents an opportunity for professionalisation.

While in Warwick Junction muthi market in Durban we interviewed two female harvesters from northern KwaZulu-Natal. They collected plants in the wild based on the orders placed at the market. They place the
medicinal plants into sacks and sell by the sack. They would not survive without the market. Once they harvest enough they organise transport (taxi or truck) to bring the plants to Durban and sell to their clients. The challenge is to obtain permits to be able to access parks, but they said they have no problems in harvesting on communal land. It is important to note, though, that many harvesters face a real risk of arrest and confiscation of their produce by the police or wildlife authorities en route to market.

2.1.5 Manufacturers

Manufacturers raised a range of issues. Some, particularly those supplying TM (rather than herbal) products to black consumers, were concerned about the many “fly by night” producers who produce poor quality products and who make unsubstantiated claims, jeopardising legitimate producers and bringing the whole sector into disrepute. They noted that enforcement is currently very limited.

Some of the larger manufacturers are fully vertically integrated from cultivation through to finished product (including marketing and export), others conduct in-house research and product development only. Some produce their own branded products exclusively, others produce for third parties on a contract basis. Some sector stakeholders have suggested that the number of suitably accredited manufacturers (particularly in Gauteng) is limited, and that this could present a bottleneck in the value chain. In practice, this does not seem to be the case. However, it would appear that there is a demand for training and technical support for smaller SMEs (and THPs) on commercialisation pathways to develop understanding of manufacturing processes, and of registration, quality and labeling requirements. Contract manufacturers may also need to market themselves more effectively to attract new customers.

Suggestions made by manufacturers interviewed were broad-ranging, and included the need for investment in a phyto-medical research laboratory to meet the commercial needs of sector, not only those of research institutions; that the Department of Health should finalise a herbal product registration system, and enforce compliance; to develop closer partnerships with emerging farmers and producers to guarantee raw material supplies of the right quality and quantity; and to facilitate technology transfer of obsolescent machinery from developed markets in order to reduce capital investment costs.
2.1.6 Distributors and marketers

Multiple distribution channels exist for TM products, both formal and informal. Few mainstream retailers, including pharmacy chains, had either interest or inclination to respond to the questionnaire.

However, based on visits to different retail outlets, manufactured TM products are not homogenous; those targeting the majority African market appear to be sold through distribution channels including the major Cash and Carry stores, network marketing, direct sales based on radio and press advertising, internet sales, through independent and small chain pharmacies, and through small urban herbal stores selling TM products exclusively.

Products produced for a wider market are often presented as generic herbal products, with more emphasis on the ‘scientifically proven’ properties of the product. Often products comprise extracts of one herb (e.g. Hoodia, Sutherlandia, Aloe ferox) rather than more complex formulas often used in TM products. These are sold through mainstream retail channels such as Dischem, Clicks, and other major chains, through health shops and direct internet sales.

Several product developers and manufacturers emphasised the difficulty in accessing mainstream distribution channels, which had in some cases led them to set up their own web-based marketing channel. Some marketers (e.g. iheal.co.za) had also established a niche in marketing and distributing third party herbal products from small-scale manufacturers. Others said that, given the size and known demand of the majority African market, they would be keen to access that market, but did not know how to go about doing so.

2.1.7 Consumers

The majority of users of indigenous African medicine in South Africa and in all major trading centres interviewed are black. At present there is limited use of indigenous medicinal plants by other population groups in South Africa, although herbal remedies of various sorts are used by most population groups. They represent a diverse group, with a wide range of social and economic characteristics. Interviews and observations indicated the range
of consumer characteristics amongst the TM users; the range includes both people from rural areas (traditional homesteads, peri-urban (townships) and the affluent. This demonstrates that the majority of the black population in South Africa is making use of indigenous medicine irrespective of religion, age, education and economic status. The direct consumers and the THPs’ clients represent a large consumer population with considerable socio-economic diversity within the group. This has important implications for the future development and support of this sector.

This segment of the population can be further divided into two – regular and non-regular users of TM. Both types were interviewed. All indicated that they use traditional medicines because of their culture and have used since they were children. Regular users tend to require muthi to dispel evil spirits, for culture-bound illnesses, and general wellbeing. It was also interesting to note that some users also make use of traditional medicine to treat modern era ailments such as diabetes, kidneys, high blood pressure etc. This group would naturally come for repeats as the treatment forms part of their chronic medication regime. They would come to the muthi markets to buy the plants they need to use and prepare them at home. The scarcity of some of the plants compelled them to travel long distances. For this reason, they would buy for neighbours and friends during such trips. They also tend to have an allegiance to a particular THP who would be regarded as a specialist in treating particular ailments. Their knowledge of plants makes them unconcerned about presentation.

Non-regular users first consult a THP and take a prescription. They have no knowledge of medicinal plants. This group tends to have mixed views about presentation of the products. Some would be happy with improved and professional presentation such as packaging and are concerned with privacy when in need of traditional medicine. Others are not that bothered since they consult THPs they have known for a long time and with whom they have a good relationship.

It was not possible to conduct in-depth research with consumers within the scope of this study. The potential range of consumers is wide (including patients of THPs, customers buying herbs at the muthi markets, network marketing customers, and retail customers buying a range of TM and herbal products) and would require a separate study, with clearly defined objectives, by specialist market researchers.
Table 2 below summarises perspectives from different components of the value chain.
<table>
<thead>
<tr>
<th>TM Value Chain</th>
<th>Participants</th>
<th>Comments</th>
<th>Proposed action/support</th>
</tr>
</thead>
</table>
| Researchers and product developers | • Academic Institutions  
• Commercial companies  
• Herbalists/THPs | • Lack of comprehensive TM pharmacopoeia based on systematic evaluation of properties of SA medicinal plants  
• Lack of shared research findings  
• Lack of applied research on high yield varieties  
• Delay in product commercialisation often due to problems in scaling up cultivation to guarantee raw material supply, and lack of commercialisation experience  
• Access to funding for clinical trials  
• Limited commercialisation experience of THPs, although some have produced own product ranges | • Dissemination of available pharmacopoeia from government funded research to industry, and funding research of more plants  
• Creation of a central research database-open access  
• Allocation of funding to applied research to facilitate commercialisation  
• Development of more partnerships between research institutions, commercial entities and THPs |
| Cultivators/Harvesters  | • Herbalists  
• Commercial cultivators (e.g. rooibos)  
• Community enterprises  
• Individual farmers  
• Wild harvesters | • Difficulty in obtaining plant material for propagation (correct genetic strains, quality, cost, volume)  
• Lack of access to market intelligence/buyers in order to identify marketable plants and establish off-take agreements  
• Lack of technical knowledge and support on propagation, cultivation, harvesting and compliance  
• Inadequate scale and consistency of supply (economies of scale) to meet customer needs  
• Difficulty in funding appropriate processing equipment including freeze drying  
• Lack of know-how on alternative processing techniques (measuring impact of different processes) | • Access to market information and potential customers, also to eliminate middlemen and thus increase producer prices  
• Access to technical support and training for propagation, cultivation, harvesting and processing (GAHP/GMP)  
• Attracting research partners to provide support in terms of applied research relating to cultivation, yields, actives etc.  
• Potential to establish hubs in order to aggregate raw material supply, provide agro-processing services and match buyers and producers (Cooperative model)  
• Access to scientific data, and to plant analysis |
## TM Value Chain

<table>
<thead>
<tr>
<th>Participants</th>
<th>Comments</th>
<th>Proposed action/support</th>
</tr>
</thead>
</table>
|              | • Competition with growers and wild harvesters operating without bioprospecting permits and therefore undercutting legitimate suppliers. Little enforcement visible  
• Concern over lack of alignment between provincial and national government on permits required  
• Lack of Communication resources and access to transport  
• Scientific data needed on actives of cultivated vs. wild plant material, and protocols for cultivated plants on timing of planting and harvesting for optimal levels of required actives  
• Concern about presence of middlemen in value chain who reduce producer prices and add limited value  
• Consideration to be given to enabling THPs to purchase direct from producers rather than sourcing from muthi markets in order to reduce demand for wild harvesting | • Financial support and subsidies to establish and sustain cultivation enterprises in development phase  
• SABS standards and certification for raw material cultivation and processing  
• Access to appropriate government, agency and donor funding (rural development funds, Jobs fund, Green fund) |

## Traders/Exporters

<table>
<thead>
<tr>
<th>Comments</th>
<th>Proposed action/support</th>
</tr>
</thead>
</table>
| • Difficulty of accessing relevant research  
• Concern over availability of supply  
• Quality and quantity of supply  
• Concern over competition by fly-by-nights who | • Central research database- open access  
• SABS standards and certification for raw material cultivation and processing  
• Facilitation of access to laboratory testing |
<table>
<thead>
<tr>
<th>TM Value Chain</th>
<th>Participants</th>
<th>Comments</th>
<th>Proposed action/support</th>
</tr>
</thead>
</table>
|                | supplying manufacturers with bulk raw material (SA/intl.)                    | supply poor quality at low prices, and compromise reputation of SA suppliers  
- Access to affordable laboratory testing  
- Limited availability of certified organic raw materials (premium prices)  
- Poor communication along value chain (language and geography)  
- Wish to get support to take part in national and international trade shows, although some SMEs are participating in data EMIA programmer  
- Concern over bioprospecting regulations and over-restrictive impact on sector  
- Concern over EU and other market moves to restrict access for ‘exotic’ plant material and products; need for data lobbying in these markets  
- Multiple industry associations (HPASA, Essential Oils, THP associations) need to combine forces  
- Need for improved dti support for export finance |  
- Support to participate in international trade shows (dti)  
- Review and amendment of bioprospecting regulations  
- dti support to access international markets  
- Development of Brand SA for the sector, combined with systematic support for sector  
- Funding for one industry association  
- Review access to export finance (Seda) |
|                | Exporters supplying bulk raw material                                         |                                                                                                                                                                                                          |                                                                                          |
|                | Herbalists/THPs                                                               |  
- Individual practitioners may both consult with patients and manufacture own  
- Perceived marginalisation in terms of healthcare system and access to scientific knowledge  
- Concern about protecting traditional IP  
- Lack of resources/knowledge to register |  
- Facilitation of partnerships with commercial entities and research institutions for research and product development and commercialisation  
- Development of tailored training courses |
<table>
<thead>
<tr>
<th>TM Value Chain</th>
<th>Participants</th>
<th>Comments</th>
<th>Proposed action/support</th>
</tr>
</thead>
</table>
|                | formulas     | • Interest in commercialisation of own formulas  
• Strong interest in training on basic skills to run a healthcare practice/small business  
• Many THPs express interest in cultivation of medicinal plants  
• Strong interest in participating in national healthcare system  
|                |              | for THPs in practice management |
|                | formulas     | • Need access to phyto-medical research laboratory that can test raw materials and finished products to international standards  
• Some manufacturers would like support to establish new emerging farmers to produce their raw material under contract, in preference to vertical integration  
• Concern that bioprospecting regulations may limit manufacturer usage of SA raw materials  
• Perception is often that there are few contract manufacturers for TM products. Manufacturers exist, but there is need to train new product developers on processes and technical requirements, and to ensure funding available for production  
• Concern that there are many “fly by night” manufacturers who produce poor quality products and make unsubstantiated claims, |
| Manufacturers  | Primary processing (may be on rural site)  
• Secondary processing -commercial companies complying with GMP (own brand or contract)  
• Small scale informal manufacturers | • Facilitation of partnerships between manufacturers and emerging farmers/producer cooperatives  
• Provision of training in product development, manufacturing and marketing for SMEs and interested THPs  
• Investment in phyto-medical research laboratory to meet commercial needs of sector, not only those of research institutions  
• DoH to decide on registration system for TM products, and to enforce compliance  
• Review and amendment of bioprospecting regulations  
• Assess potential for technology transfer programme to reduce SME capital investment requirements  
• Establish accessible database of contract |
<table>
<thead>
<tr>
<th>TM Value Chain</th>
<th>Participants</th>
<th>Comments</th>
<th>Proposed action/support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>jeopardizing legitimate producers and bringing sector into disrepute. Current enforcement too limited.</td>
<td>manufacturers and their capabilities for potential customers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Would be interested in technology transfer programme e.g. access to outdated manufacturing equipment from EU</td>
<td></td>
</tr>
<tr>
<td>Distributors and Marketers</td>
<td>Wholesalers (cash and carry, pharmacy distribution)</td>
<td>Several SMEs handle own distribution through network marketing, or online marketing, but do not necessarily have expertise or resources to do so</td>
<td>Technical, market research and funding support for SMEs to facilitate access to and use of appropriate distribution channels</td>
</tr>
<tr>
<td></td>
<td>Commercial retailers</td>
<td>Several SMEs engage in both wholesale and retail distribution</td>
<td>Facilitation of ‘crossover’ from informal to formal market distribution channels, and vice versa</td>
</tr>
<tr>
<td></td>
<td>Pharmacies</td>
<td>Challenges in accessing mainstream retail distribution channels (technical, competition, funding)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health Shops</td>
<td>Several formal manufacturers and distributors indicate that they would like to access the informal market, but do not know how to do so</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wellness centres</td>
<td>There appears to be a clear distinction between TM products targeted at the majority African market, as opposed to those presented as herbal products (using African plants) for the affluent population or for export. The distribution channels are also different e.g. Boxer Cash and Carry and network marketers for TM products, Dischem, Clicks, health shops</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mail order/internet</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Small muthi retailers/herbalists</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network distributors</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exporters selling finished product internationally</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
and wellness centres for herbal products. Independent pharmacies may cater for both segments.

**Consumers**

- Regular users with extensive knowledge of medicinal plants
- Non-regular users who consult THPs and use their prescriptions (may be prone to fly-by-night)
- Sceptics who would use scientifically proven products

- Require constant supply of quality medicinal plants
- THPs must be registered with the Council
- MCC would assist with publishing regulations
- Integration of TM in the public health system in particular the NHI

- Consumers are part of the growth of the growth of this sector
- Industry needs support with compliance and basic business principles to consumer confidence

**Table 2: Value chain perspectives**
2.1.8 Industry bodies

2.1.8.1 SA Honeybush Tea Association (SAHTA)

The South African Honeybush Tea Association (SAHTA) is the representative body that coordinates activities in the industry. Its aim is to help more farmers to grow and market honeybush successfully, and also to ensure that farming and wild-harvesting is done sustainably. Its membership includes wild harvesters, farmers, nurseries, processors and marketers. Honeybush species are mostly harvested in the wild, while other species are cultivated commercially in the fynbos areas in the Western Cape and the Eastern Cape. Currently the global demand for honeybush is greater than the supply. SAHTA’s view is that the industry is growing and very strong as the honeybush is endemic to South Africa. As a result more farmers have expressed interest in getting into the industry. Lack of funding is however viewed as hindering further development in this sector.

There are about 10 commercial growers who contribute approximately 30% to the total annual production, the rest is harvested from the wild. About 20% of the commercial plantations are being managed by emerging farmers of the Haarlem, Ericaville and Groendal communities. There is willingness by farmers to enter into BEE arrangements with their farm workers but they lack information on government requirements and standards in order to structure the deal in a proper manner. Workshops are therefore required in this field.

Strategic partnerships have been established with the ARC and other research institutions to further the commercialisation of honeybush, as an indigenous South African fynbos plant, traditionally used as a herbal tea. Other partnerships have been forged with Stellenbosch University, Department of Agriculture – Western Cape and the Medical Research Council. As a result research has been undertaken on topics relating to production of honeybush and product research.

SAHTA identified the following barriers for growth of the industry:

- Reliable supply of raw and processed product
- Reliable standards and consistent product quality
- Consumer education in use of honeybush tea
- Marketing campaign for honey bush tea
2.1.8.2 SA Rooibos Council

Like SAHTA, the SA Rooibos Council is also a Section 21 company established to serve the interest of its members. Members range from farmers, marketers, and manufacturers to exporters.

In partnership with the ARC, MRC and several universities, they conduct research on the production of rooibos, product health research and information systems for rooibos (export figures and market trends). The Western Cape Department of Economic Development has previously assisted with limited funding for market development studies, and business plans. They are currently engaging with stakeholders on the idea of establishing a Natural Products Cluster to look into common issues relating to the sector.

South Africa is the biggest consumer of rooibos, followed by Germany. According to the Council, there is a very high local demand which is unfortunately not supported by sufficient local supply. The industry has witnessed a growing demand for rooibos among South Africans in the last two to three years. There has been a notable shift from 55% exports / 45% local consumption to 55% local consumption/ 45% export demand. The country has a very good consumer base, the challenge being to keep the product affordable to an average South African, especially the mass market. There are opportunities to grow the market and to promote rooibos tea as a niche product.

The two main challenges cited relate firstly to satisfying a growing demand for rooibos; being a dry crop rooibos is reliant on nature for the yield. Droughts in the past 3-4 years have led to rooibos shortage which then has an effect on pricing. The fact that most of the rooibos farmers do not farm the crop exclusively renders them susceptible to farming crops that are not adversely affected by the weather. A better management plan should be devised to deal with balancing growing demand with diminishing supply.
Secondly, there is a need for assistance to embark on a big marketing drive for the product; the export market for rooibos has very big international potential. International marketing is very expensive and funding is required to promote rooibos overseas targeting especially Germany as the biggest importer. Currently, rooibos is exported in bulk form as the international markets do their own packaging and format as they often blend it with other sorts of properties and flavours. There is a need for government to support value adding in South Africa.

Rooibos Tea comprises about 300 commercial farmers and 200 small farmers who do collaborate on a number of areas, for instance agro-processing. As with the honey bush producers, commercial farmers have expressed willingness to enter into meaningful BEE deals with their farmers but lack information on how such deals can be structured and the processes to be followed. As a result each commercial farmer engage own consultant individually and each provides different models and approaches which then discourages actors in this process. It was suggested that Seda could provide workshops on the subject for commercial farmers.

There are a number of rooibos production enterprises and individual farmers who have joined the agricultural empowerment programme assisting black farmers to access the LRAD grant system, selling land to black farmers and entering into business partnerships with them.

### 2.1.8.3 SA Essential Oils Producers Association (SAEOPA)

Essential oils are often seen as separate from the TM sector. However, the extraction of essential oils is just another form of agro-processing, and several of the indigenous plants used for extraction are also used in TM products.

The essential oils sector is suited to both formal large scale farming operations and small scale operations within rural communities in need of economic upliftment. The SAEOPA is an association that is actively involved in community-based production of essential oils for sale into
the pharmaceuticals and cosmeceuticals markets. The South African essential oils industry comprises over 100 small producers of which only a dozen or so of the commercial farmers and a couple of community projects are regular producers. Most oil production is in the Eastern Cape, KwaZulu-Natal, Western Cape, Limpopo and Mpumalanga.

SAEOPA is a voluntary association, administered on a part-time basis using small annual subscriptions. SAEOPA’s stated objective is to support its members, who primarily comprise producers of essential oils. By pooling their information and experiences, the members hope to promote the industry and the interest of their members. SAEOPA supports its members throughout the value chain, from the dissemination of information on agricultural issues to marketing. With regards to the latter, representatives of SAEOPA have attended various trade missions sponsored by the Department of Trade and Industry (dti). These trade missions are largely considered to have been successful with the prospect of orders being placed. However, in the process, SAEOPA has identified several issues that need to be addressed in order to secure market access:

- The need to consolidate production in order to supply sufficient quantities with consistency. The market requires large volumes in order to get serious international attention.
- The need to have basic testing facilities (e.g. gas chromatography) in order to test oils and to be able to give assurances with regard to quality and characteristics.

Other challenges cited included biodiversity regulations, labour productivity and land claims leading to fewer producers entering the industry. Competition from cheap labour and high production countries e.g. India and China also poses a threat to the local industry. Support is required to undertake continuous research and development, and also for quality assurance.

Opportunities were identified as follows:

- Essential oils offer opportunities to market locally produced products and to uplift the community by creating jobs and provide training to the youth.
• There is potential for small, emerging farmers to enter the sector
• It is a new sector which means all the latest and best technologies can be incorporated
• South Africa has established itself in the global industry which has built international confidence in its producers
• Leveraging potential production from other African countries
• Can respond to global consumer trends and increased demand for specific types of essential oils
2.2 Government Departments and Agencies

2.2.1 Department of Agriculture, Forestry and Fisheries (DAFF)

The main focus for DAFF is alleviating poverty, creating employment and improving food security. Food security and food safety are key priority areas for the department against the background of an increasing population, high price volatility in agricultural commodity. Added to this, the Department focuses on the conservation and sustainable use of our natural resources in the agricultural, forestry and fisheries. From the Agricultural front, the Department offers both financial and technical support whereby mentorship is offered especially to smallholder farmers, the youth and women through the services of extension officers. For example, the Cooperatives and Rural Enterprise Development directorate provides facilitation and support towards the implementation of programmes and initiatives to ensure the promotion and participation of the agriculture. The view is that this is programmes can easily be leveraged to support product specific initiatives within the agricultural sector, TM being one of them. Although focused attention in the main is being offered to crop production and livestock farming, there is scope for involvement in the TM sector where the Department currently does not have a presence.

DAFF is the custodian of forestry resources, and is responsible for the promotion of the sustainable management of the country's forest resources for the national benefit. During the 2010/2011 financial year, the Directorate of Forestry Development (Participative Forestry) in conjunction with the Danish International Development Agency (DANIDA) supported the establishment of community projects through regional Forestry staff to support the establishment of projects on the ground. These projects included beekeeping and the establishment of medicinal nurseries, in partnership with various stakeholders. Unfortunately many of these projects failed to survive after the initial funding period as there was lack of capacity among the project beneficiaries to sustain the projects on their own. Access to markets proved to be the biggest challenge as the Department was the main buyer of plants while the project was under implementation. While the Department expressed willingness and capacity to...
continue supplying traditional medicine seedlings to the TM sector, they prefer to provide such support in instances where other partners are involved in the TM value chain. This would require involvement of other institutions involved in business planning, community facilitation, marketing and processing.

The Department through its Forestry Enterprise Development Programme supports community based sustainable harvesting projects whereby legal harvesting permits are being issued to communities, thus promoting sustainable and comprehensive utilisation of forest resources by means of appropriate harvesting methods.

2.2.2 Agricultural Research Council (ARC)

The ARC reports directly to the Department of Agriculture. The Roodeplaat Institute (responsible for vegetables and ornamental plants) leads on the medicinal plants programme, but other ARC Institutes also work on indigenous plants (e.g. Nelspruit on fruits, Stellenbosch on rooibos, honeybush etc.) and on essential oils. Main activities are research, training and technical assistance. The research component is largely funded by the DST, and funding is currently increasing.

The ARC has two important cross-cutting programmes; working to support small-scale/emerging farmers, and agro-processing. Both of these have recently received funding support from the Department of Rural Development (DRDLR), and the ARC now has funds both for the training of emerging farmers, and to establish medicinal plant nurseries and medicinal plant agro-processing facilities in two or more provinces (most likely KwaZulu-Natal and Eastern Cape). It envisages that it can be the ‘keeper’ of genetic resources for growers (as it was for the potato industry) supplying disease free resources. ARC has indicated that the DRDLR has additional resources that it wishes to invest in the sector.
The Medicinal Research team works in consortia with CSIR and universities that do plant research (including Universities of Pretoria, Zululand and Venda) in order to develop propagation and cultivation capability to create a sustainable supply of plant material once products are commercialised; this covers not just yield optimisation but also optimisation of medical compounds through best practice.

ARC does not scale up cultivation itself but focuses on technology transfer. The ARC highlights that propagation and cultivation research take time, and should be initiated in parallel with laboratory research on plants/product development so that upscaling of cultivation does not delay the commercial product launch.

ARC is working with large companies such as Afriplex to research specific plants. ARC is also starting to work with THPs who are involved with DST projects, for example, to assist them in small-scale cultivation. It would also like to work with other small-scale producers.

### 2.2.3 Department of Environmental Affairs (DEA)

The Department has recently restructured to create a new unit, Biodiversity Economy and Sustainable Use, under Dr. Moscow Marumo. At present the unit is not fully staffed, but the two key drivers of the unit will be wildlife (on which there is extensive data) and bioprospecting, on which data is poor. Baseline studies have therefore been commissioned, including a study on TM/herbal products on sale in South Africa, their constituents, and who produces them. The expectation is that the unit will evolve to support specific projects and job creation linked to biodiversity (one project is already in development to establish an integrated development plan in Bushbuckridge, Mpumalanga, in order to create jobs).

The DEA’s Community Based Natural Resources Management programme has over the years been collaborating with provincial departments and communities on rural economic development and sustainable use of natural resources. The Department supports projects that
promote the conservation of natural resources, which includes medicinal plants. Various projects have been funded through this programme, for example in Umhlabuyalingana (KZN) and in Limpopo. The Department funded the infrastructure which included establishment and fencing of medicinal plants gardens, installation of boreholes, storage rooms and offices. Hands-on support is also provided in the establishment and registration of Trusts and in facilitating accredited training for Trust boards. The Department stated that the sustainability of these initiatives always remain a challenge and therefore support from local municipalities to commit to maintaining facilities once the initial phase is completed is important.

The DEA is responsible for the issuing of permits under the National Environmental Management: Biodiversity Act 2004 (NEMBA) and regulations. However, only a handful of bioprospecting permits have been issued to date, with no more than 60 applications pending, none of which come from the major industry players. No applications have been received for export permits, so the DEA is fully aware that there is a major challenge in terms of compliance.

Having consulted this year with key stakeholders, the Department is in the process of amending the regulations to make the permit process less onerous, but is still constrained by the terms of the Act. It is also preparing to undertake a comprehensive review of the Act, but notes that this is likely to take up to five years to complete.

The DEA is very supportive of the need to develop a TM sector strategy, and suggests that the key Departments that should collaborate on this would be the DEA, DST, DAFF and the dti (with dti leading). It was also suggested that the DST should take a much stronger lead in coordinating scientific research within the framework of a national TM strategy.

The DEA would also support the creation of virtual and physical sector hubs, and would like to engage more with other stakeholders, in part because it sees so many potential commercial opportunities in the TM sector. Specific suggestions included arranging a joint workshop with Seda and SABS to present their respective studies on different aspects of the sector and map a
way forward; and working with Seda to tailor its export training programme for SMEs to the TM sector by incorporating industry-specific information on bioprospecting export permits, procedures, and quality issues, for example.

### 2.2.4 Department of Trade and Industry (dti)

The dti, in particular Trade and Investment South Africa (TISA), has an established chemical sector desk that has identified essential oil exports as a potential growth area. dti has been working with SAEOPA to improve the international profile of the South African industry. SAEOPA has sent representatives on trade missions to various trade fairs, with varying degrees of success. The Rooibos Council also stated that they have had opportunities to participate in trade mission and overseas exhibitions.

The dti also established the SA Essential Oil Business Incubator (SEOBI) in 2006 through the Seda Technology Programme (STP) to establish and support emerging essential oil farmers.

### 2.2.5 SEOBI (Essential Oil Business Incubator)

SEOBI is a Section 21 company whose main goal is to establish and support sustainable SMEs in the essential oils industry throughout the country. As an incubator, it provides business development support through training, mentorship, market facilitation and commercialisation of enterprises in the essential oils industry. It supports projects in Tzaneen, Mpumalanga, Eastern Cape and KZN and currently has 26 communities being supported from these areas. Their current focus is geranium and rosemary. Strategic partnerships have been formed with provincial government through DED in Limpopo and the Agricultural Development Agency (ADA) in KwaZulu-Natal.

The incubator provides technical and business development support to farmers growing, or interested in growing, essential oils. It supports the social, technical and marketing aspects
associated with the production of essential oils, focusing on community development, agronomy, agro-processing, business development and marketing. A key focus of the SEOBI support model is the development of bankable business plans that can be funded by private or public sector funds.

Key challenges identified are as follows:

- Lack of coordination and cooperation between and among role-players (government, NGO and private sector)
- Coordination of grower groups to establish legal entities, secure land use rights and develop sufficient volumes to justify capital expenditure is key to promoting SMEs in this sector.
- There is limited uptake and support by agencies for primary production as compared to finished products
- The difficulty of achieving entrepreneurial collaboration between the private sector and community growers

2.2.6 South African Bureau of Standards (SABS)

SABS has two main business units, Standards (including the Design Institute) and Commercial (Testing and Certification, Training). TM relates to both units, for example, support for the establishment of the marula industry and promotion of standards to be able to test and certify marula products. However the TM unit is currently located within Standards because it does not yet generate testing income.

The SABS Design Institute is currently mapping the TM value chain (with support from working group and consultants) with a specific focus on where good design can support the sector and have most economic impact. The TM consultant is also starting to coordinate with players in IKS and TM, and engaging with government departments, the WHO, THPs and NGOs such as Phytotrade and ASNAPP with a view to establishing a framework within which SABS standards can be established for TM products (both raw materials and finished products). SABS cannot
create standards without consultation and agreement among industry players and others on what the basis for such standards should be.

SABS sees existing Seda resources as relevant to sector development, for example the Seda Learner academy, funds available for product development (once SABS has developed standards and certification) and access to dti funds to purchase equipment.

SABS suggests that it is important to sort out the basics first, meaning the development of standards appropriate to herbal remedies, not to medicines. It notes further that the DoH has a key role to play in the registration of THPs, and in setting up processes to include THP consultations under medical aid. However, the DoH does not appear to be active.

SABS has been consulting with THPs, many of whom express enthusiasm for training, access to resources, and product commercialisation but do not know where to go and how to access these.

SABS suggests that another major challenge for the sector is the lack of incentives and technical support for cultivation. She mentioned that in India there are initiatives such as a ‘medical garden in each home’. ARC offers technical support but faces logistical challenges in covering the whole country. There is a greater need for representation from different provinces, not just Gauteng. SABS is working with ARC to develop processing standards for raw materials, and harvesting and post-harvesting certification (i.e. working both on raw materials and on finished product certification). SABS would be very supportive of the establishment of a processing hub that could demonstrate best practice for medicinal plant processing.

### 2.2.7 South African National Biodiversity Institute (SANBI)

SANBI is a parastatal, established by Act 10 of 2004. SANBI engages in research on the sustainable use of biodiversity, and to a very limited degree is involved in bioprospecting. It
Research Study to Identify Needs, Opportunities and Challenges of Small and Medium Enterprises in the Traditional Medicine Sector – FINAL REPORT

assists the DEA with Access and Benefit Sharing (ABS) issues and routinely inputs to policies and legislation on all matters pertaining to biodiversity. SANBI also engages with DST on IK issues, including those pertaining to medicinal plants.

SANBI is involved in research, education, monitoring, policy development, and limited bioprospecting for anti-TB drugs as part of a broader TIA-funded consortium.

SANBI has commented that the main challenges for the sector include the unsustainable extraction of bio-resources (genetic erosion) and concomitant lack of government response to addressing this issue in a coordinated, trans-departmental manner (Health, Education, Agriculture, Trade and Industry, Water Affairs, Environmental Affairs). Another prominent challenge is ensuring fair and equitable sharing of benefits from the development of biodiversity and/or associated traditional knowledge (TK) (a concern also expressed by THPs).

However, SANBI suggests that opportunities lie in the development of (safety-tested) herbal products with limited claims for efficacy and quality, since it could be argued that the medicines regulatory authority arguably protects the pharmaceutical industry at the expense of smaller sectors.

SANBI proposes that a national TK repository be developed, which industry can refer to in terms of Access and Benefit Sharing issues, since industry needs to be provided with greater certainty as it moves products along a development pipeline. It also suggests that subsidised cultivation of selected medicinal crops would take pressure off remaining wild stocks. Agronomic support could be provided by the Department of Agriculture, focusing on species with commercial application.

SANBI carries out some relevant applied research within its Applied Biodiversity Research unit. The unit is currently conducting a study on the TM sector, and further details are being sought.
2.2.8 Department of Health (DoH)

The Department of Health (DoH) White Paper for transforming the health system in South Africa recognised the importance of traditional medicine in primary healthcare (RSA, 1997). It has further developed the Patients Charter emphasising the right of patients to choose a particular health care provider for services (DoH, 2002). The Traditional Health Practitioners Act No.22, 2007 was signed into law by the President in 2008 (ref). This Act provided a regulatory framework to ensure the efficiency, safety and quality of traditional health care services and the establishment of the Interim Traditional Health Practitioners Council of South Africa. Traditional medicine day, on August 31, is a constant feature on the national health calendar dedicated to the celebration of traditional medicine. The DoH has appointed a Ministerial Task team to review the draft policy on traditional medicine and advise the Health Products Regulatory Authority on registration and regulations of traditional medicines. It is funding the Medical Research Council’s IKS Health Unit which conducts research on traditional medicines. It has established a Traditional Medicine Directorate. Several Provincial Departments of Health and Local Municipalities have also created management positions responsible for traditional medicine.

A National Health Research Summit convened in 2011 under the auspices of the DoH and the National Health Research Committee (NHRC) identified among others that the search for medicines to address the quadruple burden of disease remains among the top priorities for health research in South Africa (Mayosi et al 2011). The Summit also found that there is a cumbersome regulatory system for registration of new medicines and conduct of clinical trials under the Medicines Control Council (MCC). Researchers identified this as a major impediment to the development of indigenous health research and innovation in South Africa. The Summit discussed how South Africa can build its health innovation system and ensure that the objectives of the WHO Global Strategy and Plan of Action for Public Health Innovation and Intellectual Property (WHO GSPOA) are fulfilled. A Public Health Innovation Forum was formed to carry out the mandate of the WHO GSPOA under the auspices of the NHRC and the Health Innovation
Unit of the DST. The recommendations will be presented to the Ministry of Health for consideration for incorporation in the 10 Point Plan, and for implementation. The outcome of the Summit will serve as the Programme of Action for the NHRC for the remainder of its term.

2.2.9 Medicines Control Council (MCC)

The MCC has an expert committee in their structure that is meant to deal with African traditional medicines. However, since the THP Council has not yet been appointed by the Minister of Health this committee cannot finalise its work and come up with regulations. The MCC relies on the support and endorsement by the professional councils of its regulations before it interacts with the industry. They have developed regulations for complementary medicines (CAMs) which is an indicator that it will not be long before TM regulations are completed once the due processes have been finalised and sent to industry for comment.

2.2.10 Medical Research Council (MRC)

The MRC is a statutory science council formed through an act of Parliament to do biomedical research. The MRC formed the Indigenous Knowledge Systems of Health Unit (IKS [Health]) to address health research priorities which have in the past been neglected. These neglected health research priorities included traditional health systems and practices. The IKS [Health] Unit has 6 goals:

- Facilitate Research & Development
  - To identify relevant research areas, develop proposals in partnership with stakeholders, source funding, implement and manage research teams.

- Develop IKS Research Support Systems
  - To develop appropriate systems for:
    - Validating the safety and efficacy of botanicals
    - Intellectual property, equitable benefit sharing and information transfer systems
Research Study to Identify Needs, Opportunities and Challenges of Small and Medium Enterprises in the Traditional Medicine Sector – FINAL REPORT

- Attracting funds
- Identifying critical IKS-related research issues and developing action plans.

• Support Policy Formulation to assist the government and stakeholders in the formulation and development of national & regional policies for the utilisation, protection and management of IKS (Health)

• Assist in the Commercialisation of Health IKS to facilitate the development of appropriate technology transfer and commercialisation processes of structures for the equitable and fair utilisation of IKS (Health) innovations.

• Play a leading advocacy role in promoting IKS (Health)
  - To promote the value/awareness and protection of beneficial scientifically verified traditional claims for cures.
  - To add value to knowledge base
  - To empower communities of practice (information).

• Develop functional IKS networks
  To develop and maintain functional networks to promote and advance IKS amongst various stakeholders including the following:
  - Government through DoH, DST, Education, Agriculture
  - IKS practitioners
  - Funders
  - Health Researchers (Universities, Science Councils)
  - Communities
  - Professional Associations
  - Institutions (Health & Development)
  - MRC Staff

Further to its activities, the MRC has been mandated by the Minister of Health to validate and evaluate health claims made for traditional medicines used for life-threatening diseases and chronic conditions.
2.2.11 Department of Science and Technology (DST)

The Department of Science and Technology (DST) has developed the Indigenous Knowledge Systems (IKS) policy which is managed by the National IKS Office (NIKSO). In 2007, DST developed a Ten-Year Innovation Plan (DST, 2007), which identified five Grand Challenges that the country will pursue for science, engineering and technology development. One of these Grand Challenge interventions was coined the Farmer to Pharma (F2P) Grand Challenge. The F2P Grand Challenge identified three main pillars as its drivers, i.e. biodiversity, Indigenous Knowledge Systems (IKS) and biotechnology. The main objective of the F2P Grand Challenge was to utilise the country’s National Systems of Innovations landscape to enhance the establishment of the third largest pharmaceutical industry in the world. The F2P strategy is currently being expanded towards a more inclusive and bigger strategic intervention that was named the Bio-economy Strategy.

NIKSO established the IKS Bioprospecting and Product Development (IKSBPD) Platform in 2007 to steer pilot studies in the field of bioprospecting. The IKSBPD Platform was intended to undertake and expedite research and product development to improve the coordination of scientific research on the country’s biodiversity [mainly plants] and indigenous knowledge associated with it. One of the envisaged pillars of the F2P was a fully functional National Bioprospecting Platform (NBP) that will manage a coordinated research and development of all publicly funded bioprospecting research.

NIKSO has a dedicated fund for research on IKS which is managed by the National Research Foundation. Researchers in universities, business, and communities may submit research proposals for funding. Through the NRF, DST has established research Chairs in universities who will dedicate their time to research and supervision of postgraduate students on IKS and traditional medicine at three universities; KwaZulu-Natal, Tshwane University of Technology and Walter Sisulu.
The Taxation Laws Amendment Act 2011 introduced specific enhancements to the existing scientific and or technological research and development (R&D) tax incentive provided under Section 11D of the Income Tax Act. These changes are effective from 1 October 2012. A company undertaking R&D in the Republic of South Africa qualifies for a 150% tax deduction of its operational R&D expenditure. This incentive is available to businesses of all sizes in all sectors of the economy that are registered in South Africa.

All the eligible R&D expenditure will qualify for an automatic 100% tax deduction. An additional 50% uplift applies to expenditures on R&D activities that have been approved by the Minister of Science and Technology, based on the provisions of Section 11D of the Income Tax Act.

The incentive is aimed at encouraging businesses to undertake and invest in R&D in South Africa. The objective is to help companies build capabilities to create new products, processes, devices and techniques, and/or significantly improve existing ones. This incentive is part of a package of measures that the government of South Africa has introduced to support R&D led innovation, industrial development and competitiveness.

To access the programme, a company must submit an application to the Department of Science and Technology (DST), which is responsible for the administration of the process.

2.2.12 CSIR

The Natural Products and Agro-processing platform stimulates a combined value chain for natural products, providing a competitive position for the development and commercialisation of products based on locally-produced plants as functional and nutritious foods, herbal and complementary medicines, cosmetics and selected industrial products.

CSIR Biosciences has traditionally been involved in the gathering and management of information concerning the traditional use, chemical composition, biological properties and
nutritional value of plants from South Africa. This information is complemented by the capacity to access a repository of >30 000 extracts from South African plants, state-of-the-art facilities to determine the chemical composition of biomarkers and bioactives for these plants, as well as a pilot scale facility to manufacture botanical products to market specifications.

Associated with the platform are the necessary business, project management and administrative support to effectively manage large projects with other national stakeholders to create market-ready products.

Natural Traditional Medicines
The group focuses on taking biotechnology, agro-processing and chemistry-based project leads from proof of concept to a tangible commercial product through stringent process development and piloting. The group acts as a conduit for developing concept technologies for external clients such as universities and the private sector.

There are three main research fields that constitute the group. These are: herbal products, food and agro-processing; as well as algal biotechnology. The projects within the group range from the less complex community-based projects to the more complex projects that include national and international consortium members. The group also provides a key service of pilot scale development and toll production of products in our food pilot plant, chemistry pilot plant, and the clinical and botanical supplies units. These services are available to both local and international public-private companies as well as to other groups within the CSIR.

The team consists of bioprocess engineers, process chemists, natural product chemists, as well as food and chemical engineers. The group has extensive expertise in the areas of process chemistry; protein and plant extractions; food and feed engineering; and algal biotechnology. The team’s skills range from process and product development and optimisation; process trouble-shooting; process flow sheeting; process design; techno-economic (feasibility) assessments; technology packaging; technology transfer; and implementation.
The team’s competitive advantage lies in its strong product and development skills as well as its experience-based knowledge of industry needs and challenges. The group boasts a combined process and product development knowledge gained over 50 years with a long track record of successful project execution and completion.

Infrastructure
There are four (4) fully-equipped pilot production plants within the group:

- Chemistry pilot plant
  The chemistry pilot plant houses various organic and inorganic reactors, centrifuges, condenser/evaporator (scrubber/vacuum system) 40 L solvent recovery, Wiped Film Evaporator (WFE), Short Path Distillation, 6 inch fractionating column, Continuous Counter Current extraction (CCE) and many more. The facilities can accommodate research and production from as little as 10 L scale up a pilot scale of about 400 L/batch.

- Food pilot plant
  The food and feed pilot production facility undertakes research for the food, beverage, fishing and agro-processing industries. In addition, technology-based services and support to these industries are offered. This is a fully-equipped food and feed-processing plant, with both a twin screw extruder and a single screw extruder suitable for production of specialised foods and feeds. The aqua feeds can be manufactured in a multitude of shapes, sizes, densities and textures and can be both floating and sinking feeds. It also has a small fish tank system for dedicated studies on live fish that is used to assist in developing novel aqua feeds for specific species.

The facility also has access to supporting laboratories for specific analytical and microbiological studies. It is also used to provide training for food science and engineering students as well as training local communities in agro-processing and food processing methods. Core competencies include product development and formulation as well as value addition to by-products from oil, fish and fruit industries. Support to the food and aqua feed industry is also offered in terms of
expertise and knowledge in routine and complex product and process development. Other pilot-scale processing equipment available includes the following:

- Pre-processing units such as rotary or shaker sieves; grain separator and grader; impact de-huller; and maize de-germer
- Milling units such as hammer, roller, stone, colloid, bead, ball and pin mills; bakery-related units such as a retarded proofer, pastry sheeter, bunformer, and dough mixer
- Mixing and cutting units such as a piston homogeniser; bowl cutter; blade and dough mixer; a powder and premixes ribbon blending unit; and a gramec mixer
- Conditioning and pulping units such as steam blanching tunnel; steam pots; paddle and brush pulper; and an apple press
- Oil pressing units such as a double barrel oil, screw press and hydraulic table press
- Dryers such as convection ovens, fluidised bed dryer, bench to pilot-scale spray dryers, microwave dryer, drum dryer, and freeze dryer
- Final processing units such as a coating pan, rotary retort, a UHT unit, and climate cabinets for shelf-life testing
- Packaging units such as a vacuum and heat sealer
- A pilot-scale food microwaving reactor system

The Botanical Supplies Unit (BSU) and Clinical Supplies Unit (CSU) are state-of-the-art medicinal plant processing facilities designed to produce pharmaceutical grade herbal products, bridging the gap between laboratory research and clinical trials. The facility is HACCP-accredited and geared with equipment capable of developing and demonstrating technologies that are beyond laboratory scale up to a 100 L scale. The facility has 150 L reactor (extraction vessel), herb dryer, drum drier, automated vibratory washing machine, automated slicer (1-45 mm thickness), Industrial mincer, HPLC, bench top capsule-making machine, spray drier (8-15 L per hour), and hydraulic press (50 L capacity, 400 Bar maximum pressure).
• Algal research laboratory
The group also boasts a fully-equipped algal research laboratory with flow cytometer; fluorescent spectrophotometers; UV/VIS spectrophotometer; GC/GC MS; LC and LC MS; and lipid extraction equipment and many more. The group also has various scales of laboratory raceway ponds as well as a 1000 L photo-bioreactor

Functional Foods & Ingredients
The Food Science group focuses on research aimed at the discovery and development of nutraceuticals, functional foods and food ingredients from indigenous and other plants, microorganisms and algae. The group is also involved in research on the application of biotechnology techniques on food crops aimed at improving their nutritional value, safety and their further development for the food market. The main aim of the research group is to produce market-ready food products, ingredients with health benefits, as well as to facilitate and guide research in the application of technology in food processing and other value-addition operations.

Some of the projects the Food Science group has been involved in include: food product and ingredient development from indigenous and exotic edible plants; formulation and fermentation to produce nutraceutical ingredients like omega-3 fatty acids; microbiological and chemical analysis; shelf life testing and prediction; investigating packaging and product presentation options; and other novel ways of processing traditional food products. Some of the projects are conducted in collaboration with a wide range of partners, including universities, communities, food industry, government departments and international agencies like the European Union (EU).

Scientists in the group have skills and competencies in food chemistry; food microbiology; post-harvest technologies; formulation and production of food products and ingredients from indigenous biodiversity; food processing (including canning, fermentation, food dehydration, extrusion cooking and microwave processing); chemical and microbiological analysis of food; and application of biotechnology in food crops aimed at improving nutritional value, safety and
functionality. The group also has expertise in value addition of food processing by-products for example: the use of brewer’s spent grain to produce omega-3 fatty acids using fermentation, formulation of fish feed using plant protein such as oil press cake, and also extraction of cereal protein to be used to formulate vegetarian-based edible coatings.

**Infrastructure:**
The group has well-equipped food chemistry, microbiology and analytical laboratories for testing food product and ingredient quality, as well as access to the food pilot plant and a range of analytical techniques such as GC for fatty acid profiling, HPLC-MS and other assays for profiling and quantification of carotenoids and phytochemicals with potential nutraceutical benefits. The food pilot plant is equipped with equipment used for up scaling processes for newly-developed or re-formulated products such as mixers, milling units, spray driers, extruders, microwave generators for specialised processing and canning equipment.

**Cosmeceuticals**
The Natural Products Chemistry group focuses on the search and sustainable use of chemical and genetic components of biodiversity and IK which can lead to the creation of economic and social benefit for the nation and the region. The research involves the transformation of African traditional medicines into minimally-processed, scientifically-validated herbal medicines; the discovery of new active ingredients; and providing opportunities for the establishment of agro-processing businesses for the production of medicinal crops. This value addition to biodiversity and IK through scientific innovation is conducted through interactive collaborative; and multidisciplinary research projects with tertiary institutions, industry and stakeholders aimed at the discovery and development of commercially-valuable products.

Scientists within the group are primarily natural product chemists by training and are competent in the preparation and separation of plant extracts using a combination of chemical and chromatographic methods; active and biomarker identification; IK management and protection; sample and information management; biodiversity collections; quality control with
active/biomarker; stability and process optimisation; bioassaying and formulation; clinical evaluation; and cultivation of medicinal plants.

**Infrastructure:**
In addition to laboratories dedicated to the isolation and characterisation of active ingredients in medicinal plants, the group has specialised equipment such as Counter Current and semi-preparative purification instruments, as well as an accelerated high pressure Buchi extraction apparatus. The group also has access to analytical equipment and facilities such as UPLC QTOF MS, a 600 MHz NMR instrument (part of a collaboration initiative with UNISA) and accredited processing facilities for the supply of plant extracts to be tested. The group provides research support to controlled horticulture of medicinal plants and runs an innovative information management system for capturing and safeguarding indigenous knowledge on traditional medicines.

### 2.2.13 Technology Innovation Agency (TIA)

The TIA is an initiative of the Department of Science & Technology (DST) that came into existence through the promulgation of the Technology Innovation Agency Act No. 26 of 2008. It merged seven DST entities that were previously responsible for supporting and promoting innovation in South Africa. These entities were: The Innovation Fund, Tshumisano Trust, Cape Biotech Trust, PlantBio Trust, Lifelab, BioPAD Trust, and the Advanced Manufacturing Technology Strategy (AMTS).

TIA’s mandate is to support and enable technology innovation across all sectors of the economy in order to achieve socio-economic benefits for South Africa, thereby enhancing its global competitiveness. This entails supporting the development and commercialisation of research outputs from higher education institutions, science councils, public entities and private research institutions, with a view to bringing them to the market.
Areas of possible collaboration include among others opening new market opportunities in the TM sector, easing the burden of diseases, and human capacity development in the field of science and technology, and supporting SMEs.

TIA has expressed a specific interest in the TM sector, and has invited consortia to apply for funding for the development and commercialisation of innovative TM products.

### 2.3 Development Agencies

The Development Agencies are established to drive economic growth initiatives in defined areas such as Provinces, Districts and Local Municipalities. During the study contact was made with a number of development agencies operating mainly at a Provincial and District level such as the ECDC, Limpopo Agribusiness Development Corporation, KZN TIK, and iLembe Enterprise. The ECDC for an example is supporting the establishment of a high value essential oil industry within the Eastern Cape, while Ilembe Enterprise is also engaging potential investors in essential oils.

#### 2.3.1 Eastern Cape Development Corporation (ECDC)

The ECDC aims to stimulate economic development and provide support for projects that open new markets in the Eastern Cape. In collaboration with a range of institutional partners (from the public and private sector), the ECDC is assisting in the establishment of the high value essential oil industry within the province. The Corporation is supporting the emergence of a number of essential oil clusters in the Province, and has provided technical support and advice to those involved. The nature of support being provided by the ECDC in this sector involves funding trials, research, business planning infrastructure and operating capital costs for new entrants into the essential oils sector. Essential oils being piloted include rosemary, spearmint and rose geranium.
The Agency however feels that its strength lies in its ability to facilitate bringing together a range of institutional partners to support the course thereby ensuring that the project has the technical and financial support it requires. Through the Corporation, the national Department of Science and Technology (DST), and the CSIR are collaborating to transfer the knowledge and technology for the commercial propagation of essential oil-bearing plants, as well as the means to distil essential oils from harvested produce, to farmers in the region.

As an example, the Essential Amathole project involved key institutions including Amathole District Municipality which provided financial and technical support during the trials, the Nkonkobe Municipality (a local municipality within which the project is located) made land available to be utilised by the company for cultivation purposes, Department of Agriculture through its agricultural research unit provided provided advice, Earthoil South Africa (Pty) Ltd supported the company with plant, technical skills and advice on distillation and agricultural practices, and the commercial phase of operations. The University of Fort Hare supports social facilitation, skills development crop science and oil as a means of supporting the emerging cluster of essential oils projects.

The ECDC intends developing the area into an essential oils hub, with the establishment of a number of essential oil extraction sites, and related or complementary businesses, such as manufacturers of cosmetic and medicinal products, in the vicinity. It is hoped that businesses in the cluster will be able to share specialised infrastructure, labour, market and skills. Several Eastern Cape regions have been earmarked for possible cluster locations. These include Langkloof/Tsitsikamma, Graaff-Reinet to Middelburg, Greater Bathurst, the R63 route from Keiskammahoek to Fort Beaufort, Port St Johns to Mthatha, and the Tsolo and greater Butterworth area.

The ECDC plans to have up to six essential oil clusters operational throughout the province whereby each cluster will have a distillation plant serving at least 30 hectares.
The Honeybush tea production also is another crop that has a presence in the Province, within which the ECDC is supporting the participation of small farmers in promoting a cluster of essential oil projects in the district.

2.3.2 Ilembe Enterprise

Ilembe Enterprise has taken bold steps placing TM as a strategic priority for Ilembe District. The entity has identified the establishment of medicinal plant production and processing capacity as an economic opportunity for engaging those involved in the production and processing of medicinal plants. The aim is to contribute towards promoting and strengthening broader participation in agriculture as an economic sector, which is very strong in the district. Its view is that the production and sale of raw material at wholesale prices does not create a viable business while there is still material available for wild harvesters to collect. The projects must engage in some level of processing if they are to generate meaningful returns. They also expressed a strong need for partnership formation between the project participants and the local private sector who have already invested in advanced and more complex processing activities, such as Impilo Drugs. Such partnerships will also ensure that raw materials are of good quality thereby ensuring higher product yields.

According to the enterprise the suitability map for the area shows that most parts of the rural hinterland areas of the district are suitable for thyme and rosemary, while lavender production could take place in some of the other areas in the municipality. One project that is being supported by Ilembe Enterprise is the Essence of Mangete project which is an essential oil distillation plant supporting about 12 lemongrass out-growers in the area. Essence of Mangete handles the land preparation, planting, mentoring and training through to quality control and the final marketing of the product. Although Ilembe Enterprise was not the initial funder of the project, it has come on board and is supporting the out-growers who wish to be part of the project.
A bigger scale project spearheaded by the Ilembe Enterprise is the agro-processing hub in partnership with the Department of Economic Development and Tourism. Among the agricultural commodities that will be processed in the proposed hub are the aromatic plants for the production of essential oil, medicinal plants, fruits and vegetables and sub-tropical herbs and spices. The Ilembe District commissioned a feasibility study which also included how the producer out-grower programme could be established for the benefit of the rural communities. The integrated processing hub is aimed at encouraging further emergence of local farmers, allowing them opportunities in the commercial sector.

The Dube Trade Port (DTP) offers unique opportunities to the iLembe District Municipality by providing new airfreight support capacity for manufacturing and agricultural perishable goods through the King Shaka Airport. It also offers new prospects for locally produced goods as well as support in the production of organic goods through an organic pilot farm project situated on its grounds. The proposed hub was conceptualised to take full advantage of benefits presented by the DTP with the green houses for cut-flower production and other related indigenous flowers. Ilembe is currently marketing the hub concept with the aim of attracting investors.

Table 3 below summarises the perspectives of industry stakeholders.
<table>
<thead>
<tr>
<th>TM Chain</th>
<th>General Observations</th>
<th>Potential intervention</th>
</tr>
</thead>
</table>
| Industry Bodies | • TM is a growing sector and presents opportunities within the country and internationally  
• The lack of a policy framework presents challenges in guiding the development of the sector  
• Frustration at the lack of coordinated support from the government. At times it appears as if government departments are competing amongst themselves  
• Competition from countries of cheap labour and high production volumes e.g. India and China pose a threat to local producers and their products | • Development of the TM sector strategy  
• Appropriate dissemination of information  
• Formation of strategic partnerships between emerging producers and commercial producers would assist the industry to thrive and create new SMEs |
| Government and Agencies | • Absence of national TM strategy hampering coordinated input by departments and agencies  
• Absence of appropriate national fora for dialogue between Departments, and with commercial sector  
• DST offers up to 150% on R&D to companies registered in South Africa regardless of size  
• Limited partnerships for product research and development established with major companies, e.g. Afriplex with DST/CSIR, limited knowledge of or interaction with SMEs  
• Some partnerships with significant potential (e.g. DST/ARC/Universities of Venda and Zululand on cultivation, DRDRLR with ARC on training for small-scale farmers and agro-processing)  
• Department of Health not playing a pivotal enabling role in establishing a regulatory framework for TM products | • Formulation of national TM strategy a priority  
• Establishment of national and provincial fora a priority  
• Development of real-time database on industry participants and of government/industry initiatives to facilitate dialogue and partnerships  
• Database of government/agency funding relevant to TM sector, with advice on how to access  
• The tax incentive of research in this field needs to be shared with SMEs |
### 2.4 TM Sector SWOT analysis

#### Table 4: SWOT Analysis

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Active and growing R &amp; D base</td>
<td>o Negative perceptions of Traditional Medicine</td>
</tr>
<tr>
<td>o Strong sustained growth in global herbal market</td>
<td>o Absence of national strategy for TM sector development</td>
</tr>
<tr>
<td>o Strong domestic demand</td>
<td>o Limited strategic/coordinated investment in sector</td>
</tr>
<tr>
<td>o South African biodiversity and traditional knowledge</td>
<td>o Barriers to knowledge sharing and collaboration</td>
</tr>
<tr>
<td>o Aligned with government policy on priority sectors and rural development</td>
<td>o Lack of market intelligence and access</td>
</tr>
<tr>
<td></td>
<td>o Lack of comprehensive pharmacopoeia</td>
</tr>
<tr>
<td></td>
<td>o Bottlenecks in establishing commercial cultivation</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Opportunities</strong></td>
<td><strong>Threats</strong></td>
</tr>
<tr>
<td>o Strong and sustained growth in global herbal market</td>
<td>o International competitors (Chinese, Ayurvedic, other herbal products)</td>
</tr>
<tr>
<td>o International interest in new products, commercialisation of African herbs</td>
<td>o Cheaper imports, synthetic substitutes</td>
</tr>
<tr>
<td>o Consensus that time is right to coordinate initiatives and investment to grow sector</td>
<td>o Regulatory uncertainty</td>
</tr>
<tr>
<td>o Potential to create new SMEs and jobs</td>
<td>o Protectionist regulation in key international markets</td>
</tr>
<tr>
<td>o Potential to develop rural enterprises</td>
<td>o Unintended consequences of regulations e.g. bioprospecting in limiting sector growth</td>
</tr>
<tr>
<td></td>
<td>o Environmental issues</td>
</tr>
</tbody>
</table>
SECTION 3: COMMERCIALISATION PROCESS

In order for any business to optimise opportunities to trade with their products it is necessary that they understand the regulatory requirements and ensure that they comply. Table 5 provides a summary of relevant regulations towards commercialisation. It must be understood that regulations are created in the interest of protecting consumers. It is important to emphasise the following definitions:

- **i)** Herbal medicines include herbs, herbal materials, herbal preparations and finished herbal products that contain as active ingredients parts of plants, or other plant materials, or combinations. They carry a claim for curing a particular ailment.

- **ii)** Herbal product refers to preparations made from one or more herbs. If more than one herb is used, the term mixture herbal product can also be used. Generally, these do not carry a claim for cure.

- **iii)** Cosmeceuticals are cosmetic products with biologically active ingredients purporting to have medical or drug-like benefits.

A herbal product with no claim for cure does not have the same stringent requirements though any business must consider their advertising to conform to the Advertising code of the Advertising Standards Authority ([http://www.asasa.org.za/](http://www.asasa.org.za/)). The plants contained in the product must be identified and verified, be free of any contaminants, and must have a HACCP and ISO certificate. HACCP is a systematic preventive approach to food safety and pharmaceutical safety that identifies physical, allergenic, chemical, and biological hazards in production processes that can cause the finished product to be unsafe, and designs measurements to reduce these risks to a safe level. In this manner, HACCP is referred as the prevention of hazards rather than finished product inspection. The HACCP system can be used at all stages of a food chain, from food production and preparation processes including packaging, distribution, etc.
The International Standards Organisation (ISO) international standards ensure that products and services are safe, reliable and of good quality. For business, they are strategic tools that reduce costs by minimising waste and errors and increasing productivity. They help companies to access new markets, level the playing field for developing countries and facilitate free and fair global trade.

The Medicines and Related Substances Control Act (Act 101 of 1965) does not adequately provide for the regulation, registration and control of traditional medicines. It is more appropriate for the regulation of allopathic medicines. For this reason, Table 5 below is meant to guide a potential trader in planning their course of action, in particular herbal medicines and cosmetics. Every producer must assume that regulations for herbal medicines will follow the same course as conventional drugs. The involvement of the MCC as far as TM is concerned revolves mainly around two issues. Firstly, is the claim for cure. The moment a plant is claimed to cure a disease, the claim must be substantiated. Included in this issue are clinical studies on patients. Section 21 of the Medicines and Related substances Control Act (Act101 of 1965) provides scope for clinical trials. Any such trials have to abide by the MCC’s rules and regulations. Secondly, is the actual registration of a medicine. The MCC’s criteria for the registration of a product or compound as a medicine are stringent. The product to be registered would have to meet the safety, efficacy and quality requirements. The therapeutic use, side effects and toxicity have to fall within strict parameters.

It is important to note that many SMEs in the sector are uncertain about what is required in terms of what regulations are applicable to their products, and how they should comply.
<table>
<thead>
<tr>
<th>Approval and testing requirements (RSA)</th>
<th>Relevant legislation/regulations or guidelines</th>
<th>Herbal Medicine pathway</th>
<th>Herbal Product Pathway</th>
<th>Cosmeceutical pathway</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Raw materials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration</td>
<td>• None</td>
<td>• MCC</td>
<td>• MCC if medicinal claim being made</td>
<td>• None</td>
</tr>
<tr>
<td>Cultivation and agro-processing</td>
<td>• WHO GACP guidelines</td>
<td>• None</td>
<td>• None</td>
<td>• None</td>
</tr>
<tr>
<td>Quality testing</td>
<td>• WHO GMP guidelines</td>
<td>• Plant identification according to Pharmacopoeia</td>
<td>• Plant identification</td>
<td>• Plant identification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Plant active verification</td>
<td>• Contaminants</td>
<td>• Plant active verification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contaminants</td>
<td>• Uniformity</td>
<td>• Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Uniformity and stability</td>
<td>• Uniformity</td>
<td>• Uniformity</td>
</tr>
<tr>
<td>Safety and toxicity testing</td>
<td>• WHO GMP guidelines</td>
<td>• Toxicity</td>
<td>• None</td>
<td>• None</td>
</tr>
<tr>
<td>Efficacy testing</td>
<td>• WHO GMP guidelines</td>
<td>• Clinical trials</td>
<td>• Scientific proof if medicinal claim being made</td>
<td>• None</td>
</tr>
<tr>
<td>Other</td>
<td>• None</td>
<td>• Organic accreditation (optional)</td>
<td>• Organic accreditation (optional)</td>
<td>• Organic accreditation (optional)</td>
</tr>
<tr>
<td>Finished products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration</td>
<td>• Medicines and Controlled Substances Act</td>
<td>• MCC</td>
<td>• MCC if medicinal claim being made</td>
<td>• None</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>• WHO guidelines</td>
<td>• Registration with MCC</td>
<td>• ISO certification</td>
<td>• ISO certification</td>
</tr>
<tr>
<td></td>
<td>• Pharmacy Act (1974)</td>
<td>• GMP</td>
<td>• HACCP certification</td>
<td>• HACCP certification</td>
</tr>
</tbody>
</table>
| Quality testing | • Medicines and Controlled Substances Act  
|                 | • WHO GMP guidelines | • None | • None | • None |
| Safety and toxicity testing | • Medicines and Controlled Substances Act | • None | • None | • None |
| Efficacy | • Medicines and Controlled Substances Act | • Clinical trials | • None | • Clinical trials |
| Labeling | • Medicines and Controlled Substances Act | • Specific labeling requirements | • Limited labeling requirements | • Specific labeling requirements |
4 SECTION 4: EMERGING THEMES

This section reflects on common issues that were expressed during the consultation stage with key informants whose individual views have been discussed in the previous chapters of this document. These views collectively shape the recommendations made to Seda in section 6 below.

4.1 Sector size, strategy and funding

The size of the TM sector is generally underestimated, partly because significant elements of the value chain operate informally and therefore provide limited data, and partly because the definition of the TM sector varies. If one defines the TM sector broadly to include all the entities covered in this study other than mainstream retailers, there may be up to 400,000 people currently working in the sector. This total estimate is based on; 30,000 employed in cultivation; 144,000 informal harvesters and traders; 200,000 THPs; 10,000 informal manufacturers/distributers; 5,000 employed by formal traders and exporters, manufacturers, distributers and marketers; and finally those involved in ancillary activities such as transport. This means that the sector must be taken seriously in terms of the need for a coherent national strategy and investment plan.

A common theme from stakeholders was the absence of a national strategy for the sector, which would provide a framework within which to structure and coordinate government and agency initiatives. Opinions differed as to who should initiate such a strategy; the Department of Trade and Industry (dti) would be the obvious choice in terms of developing a sector strategy to promote enterprise and job creation, and to boost exports, but participation by other departments such as Department of Science and Technology, the Department of Environmental Affairs, the Department of Agriculture and their associated agencies was also seen as important given the need to develop the scientific knowledge base on indigenous plants, to consider environmental sustainability, and to develop cultivation and agro-processing capacity.

Such a strategy will identify current incentives for industry and identify if there a need for appropriate incentives for this sector.
Multiple stakeholders also commented on the urgent need for the Department of Health to clarify the status of TM products, in order to bring greater certainty to the sector in terms of regulatory requirements.

Despite the absence of a national strategy, there appears to be a wide range of funded initiatives directly related to the TM sector across government departments and agencies, for example in research, IKS, agriculture, agro-processing, and enterprise development. However, different agencies were not necessarily aware of other initiatives (nor were the majority of SMEs) and there would seem to be great potential to target funding much more effectively within a clear national framework with identified priorities and partners, including commercial partners.

### 4.2 Market Size and Trends

There is limited available data on the size of the formal market in South Africa and still less on the informal market, as discussed in our interim report. For example, there is evidence that there are vibrant network marketing channels for TM products, but it was difficult to obtain both access and data. Many TM products are also manufactured in an informal setting, and sold through informal channels.

Several companies said that their market was growing significantly, particularly in terms of exports and export potential. This may reflect either overall growth in the market or increased efforts by South African companies to gain international market share. Sales in South Africa appear to be static due to the current economic climate. Some companies stressed that the market can be fickle, especially the international market; the market is subject to changing fashions, often driven by a handful of the big pharmaceutical companies, and the average product life cycle can be as short as three years, before new trends demand new products.
Constraints to growth listed by companies were not necessarily due to limited consumer demand, but to a wide range of other factors including access to capital, the costs of R&D, bottlenecks in terms of securing sustainable supplies of raw materials, and the level of funding and marketing expertise required to break into the mainstream retail sector.

### 4.3 The Value Chain

The value chain depicted in our interim report remains valid. However, there are several aspects that should be highlighted:

- Many SMEs in the formal sector operate across the chain; so, for example, many are actively engaged both in product development, manufacture (often sub-contracted) and distribution and marketing. Some companies said that it was difficult to gain access to the mainstream retail channels, because TM products are still regarded as ‘on the fringe’; for this reason several companies have had no choice but to establish their own internet marketing channel in order to access customers.

- Some are trading raw materials as well as producing and distributing finished products, suggesting that diversification protected them against fluctuations in demand.

- Relatively few of the companies are vertically integrated from cultivation to manufacture and distribution of finished products. Those that are vertically integrated are almost exclusively the larger companies in the Western Cape specialising in high volume production and export of rooibos and aloe products, or well established companies such as Afriplex, operating on a large scale.

- There are various bottlenecks along the chain, which limit potential growth. A salient example is the common delay in upscaling the cultivation of plants both for existing products for which demand exceeds supply, and for new products that have been developed.

- Within the value chain there are two parallel chains; the informal chain from wild harvesters to muthi market traders and THPs, with limited available data; and the formal chain, with only limited interaction between participants in the two chains.
4.4 Fragmentation and barriers

A recurrent theme emerged from interviews with both companies and stakeholders of fragmentation and limited engagement between different players. Examples of this include:

- Sector participants located in different provinces may have little or no contact; the majority of the more sophisticated companies located in the Western Cape, for example, tend to use local suppliers of plants native to the Cape, and have relatively limited contact with small-scale producers in KwaZulu-Natal, for example. Small-scale producers are often not well informed on market demand, and do not know how to obtain such information or to establish partnerships with customers.

- One company located in Gauteng wanted to encourage local cultivation by cooperatives in South Africa of flax and evening primrose crops to produce organic flaxseed and evening primrose oil as substitutes for imported raw materials, but had no idea who to approach to develop and implement the idea.

- Government and the private sector. Few companies had engaged with government or received government/external support. Many were unaware of government or agency initiatives or support, and said it was difficult to know where to go to get assistance. SMEs also complain that there is often a mismatch between programmes and actual sector needs.

- Several interviewees were concerned that Government regulations, for example on bioprospecting, were misguided and were frustrating rather than supporting the development of the sector.

- In total, government departments and agencies have a wide range of programmes targeting different components of the TM value chain, but often these appear to be run in isolation from each other, and in some cases may be duplicating each other. An example of this is that three other government entities (and possibly more) are currently researching the TM sector in parallel.
4.5  Key Role of the Department of Health

Many stakeholders commented on the apparent failure of the Department of Health to take an active role in developing the sector, and in particular with regard to clarifying the status of TM products, and in terms of engaging THPs in the country’s healthcare system.

4.6  THP Perspectives

Many THPs interviewed expressed a concern about being marginalised in many respects, including in terms of access to training and sources of information. Several expressed a wish to participate in cultivation, agro-processing, or their own product development. Some also wanted better access to and engagement with academic research on indigenous plants. However, they do not know where to go in order to achieve these objectives.

4.7  Scientific Research; Coordination and Access

Several stakeholders said that the DST should take a stronger lead in coordinating scientific research on plants, with the specific objective of supporting the development of the TM sector. In addition, many SMEs across the value chain highlighted the fact that it is very difficult to find out what scientific research has or is being conducted on specific plant species, primarily in South Africa but also internationally.

Clear, substantiated data on the efficacy of indigenous plants would be invaluable to them in terms of developing new products and marketing them successfully, particularly in the international market. Most raw materials exported for the nutri-pharma industry, for example, have to comply with the pharmacopoeia, which at present covers fewer than 100 plants. This is a significant constraint to development across the sector.
It is known that extensive publicly funded research is being conducted in a range of research institutions in South Africa, including the CSIR and universities such as UCT and UWC, but much of this research has not been made publicly available.

In addition, several companies mentioned that they would be interested in forming partnerships with research institutions.

### 4.8 Access to the Market

The sector comprises a few major companies and many small SMEs, and there is no one industry body to conduct market research or represent the sector. The majority of more established companies are located in the Western Cape.

Many SMEs interviewed have stated a need for better market intelligence, and support in accessing mainstream distribution channels for their products. SMEs are vulnerable if they depend on a narrow range of products (either raw materials or finished products) and cannot adjust to changes in market demand.

There is great untapped potential for developing export of high quality raw materials and of finished product. At present only a handful of companies focus on the export market, and there is scope for further work, with the participation of SMEs that already have export experience, on the international market, and how the sector should position itself in that market.
5 SECTION 5: Seda and the TM sector

5.1 TM Sector Awareness of Seda

Many of Seda’s current service offerings and resources are directly relevant to SMEs in the TM sector, based on the analysis of participant responses. There is, however, limited awareness among the majority of sector participants of Seda as an entity, and of what it has to offer to support both emerging businesses and established SMEs in the sector.

We came across only one company, Afrigetics, which had made significant use of current Seda offerings. Afrigetics is focused on the export market, and has used a range of Seda support including mentoring, training in marketing and packaging, establishment of QA systems, export development and so on. The majority of companies interviewed across the value chain had had no external support from any source, and appeared to be unaware of Seda and what it could do to support them. Likewise, THPs and others in the informal sector were by and large not aware of Seda, or of, for example, its basic services of facilitating company or cooperative registration.

5.2 Current service offerings and resources

Current services that are of particular relevance include:

5.2.1 Informal sector

- Company registration
- Cooperative registration
- Introduction to entrepreneurship

5.2.2 Formal sector

- Finance capacity building e.g. trading and system implementation
- HR capacity building; basic training, policies and procedures, strategies, access to incentive programmes
- Operations management; production efficiencies, yields, technology upgrades, improvement processes, waste reduction etc. Production systems e.g. inventory control. Also GMP, QA systems (ISO 9001-8, 14000, HACCP)
- Facilitation of initial product testing by SABS or an accredited lab (e.g. toxicology, CE/FDA accreditation). Seda covers up to 90% of the cost for external providers, all in house services provided free
- Marketing; assistance with plan/strategy, promotional materials, product costing, websites/e-commerce sites, branding and packaging, facilitation of market access
- Support for trade shows – national, international, including pre-show training
- Export readiness assessment and training
- Primary market research for products e.g. in Europe (DTI funded)
- Support on business plans, JVs, BEE partners, due diligence, patent applications
- Coaching/mentoring

In addition, Seda has specific units focused on both Technology, and on Cooperatives, both of which could be mobilised to provide appropriate support to the sector.

5.3 Potential scope for new services for the TM sector

5.3.1 Informal sector

- Tailored training course for THPs on running a practice
- Introduction to product commercialisation

5.3.2 Formal sector

- Virtual hub

A website or portal should be established in order to respond to the information and market access needs of the sector. The objective would be to serve as a ‘one stop shop’ for sector participants and stakeholders across the value chain on

- Existing and current plant and related research
Pathways to commercialisation
Available funding programmes, and how to access
Access to technical support
Best practice across the value chain
Market intelligence
Regulatory requirements and compliance
Commercial sector participants and partnerships
Government department and agency initiatives

It is proposed that the virtual hub would be developed and managed by the public/private partnership that establishes the physical hub, in order to ensure that the service offered to the sector is responsive to the commercial environment.

- Physical hub
It is proposed that a national hub could be established initially in KwaZulu-Natal, but that additional hubs could subsequently be established in Eastern Cape and Limpopo based on local needs and partnerships.

The hub would be a public-private entity (following the dti standard model) and could comprise the following:

- Agricultural training and technical support for small-scale producers (GAHP)
- Access to plant material for cultivators
- Agro-processing best practice training and demonstration (to understand the range of value added techniques)
- Agro-processing facility for local producers
- Access to affordable laboratory services
- Access to product development and manufacturing (in partnership with existing manufacturers)
- Market intelligence on supply and demand (raw materials)
The rationale for proposing that the first hub be created in KZN is twofold; firstly, there are existing infrastructural and other resources, and potential partners located in the province which could be leveraged to contribute to the success and cost-effectiveness of the hub. These include the Dube Tradeport Agrizone (with tissue culture laboratory, nurseries, experience of propagation of indigenous plants) located in the north of Ethekwini district, and bordering on Ilembe district; the Silverglen indigenous plant nursery; GMP manufacturers with experience in the production of herbal products; and the Municipalities of Ethekwini and Ilembe, both of which have a history of and interest in supporting development of the TM sector.

Secondly, there is a high level of traditional knowledge and practice throughout the province, a critical mass of THPs who have expressed a strong interest in participation and innovation, and many small scale communities and individuals who have expressed interest in participating in cultivation and processing of medicinal plants. At the same time, there is the potential to forge new partnerships within the sector between cultivators and larger commercial entities in the sector.

Consideration would need to be given to the appropriate funding model for the hub, since the sector does not have an abundance of large companies with the potential to co-fund such an initiative. See section 6 below.
6 SECTION 6: RECOMMENDATIONS

6.1 Facilitation of Sector Strategy

It is recommended that Seda engages with the dti to coordinate or lead in the creation of a sector strategy. Given the apparent ‘disconnect’ between many commercial sector participants and Government departments, it is strongly recommended that the dti engages fully both with commercial entities and other sector stakeholders (notably DEA and DST) in formulating the strategy.

The sector strategy should focus not only the national market, but also on how to develop a significant presence for South Africa in the export market.

The development and publication of a strategy may also act as a catalyst for other essential moves, for example in encouraging the development of a more coherent approach on research in support of commercialisation, and in encouraging the Department of Health to engage in TM sector development.

6.2 Facilitation of Sector Dialogue

Some attempts have been made to create various fora for dialogue, but the breakthrough would be to ensure that government departments, agencies, research institutions and commercial entities are all invited to participate in order to create awareness, genuine dialogue, and tangible outcomes. It is suggested that Seda could have a facilitation role to create such fora.

6.3 Identifying and Packaging Relevant Funding Support

There are many existing funding incentives available across departments and agencies that are of direct relevance to TM sector participants. However, few SMEs are aware of these incentives,
or know how best to access them. Seda could act as facilitator in this respect by ‘packaging’ the information for the sector, and facilitating access where possible. The virtual hub (see below) would also be an essential tool for disseminating this information more widely.

### 6.4 Creation of Key Partnerships

There is significant potential to forge practical and productive partnerships in order to promote SME development within the sector. It is suggested that a range of partnerships be explored by Seda, both with public and commercial entities, in order to break down the many ‘silos’ that are perceived to exist.

Opportunities include, but are not limited to, the following:

#### 6.4.1 Agricultural Research Council

The Council currently has funds from the Department of Rural Development, to support training in the cultivation of indigenous medicinal plants, and to create nurseries and agro-processing facilities in one or more province. The Council, in partnership with DST and the Universities of Venda and Zululand, has also initiated a range of pilot cultivation projects for medicinal plants. These initiatives could be combined with the proposed sector hubs.

#### 6.4.2 Technology Innovation Agency

The agency has a range of funds available for technical innovations (in terms of products or processes) in the TM sector, and focuses on proposals that involve commercial partners who are able to co-fund, to execute and to commercialise products successfully. The opportunities available may not be well known within the TM sector, and there is potential for Seda to facilitate the creation of consortia involving commercial entities in order to access this funding.
### 6.4.3 Department of Environmental Affairs

The Department has proposed a joint workshop with Seda and SABS to share the results of respective studies on different aspects of the sector, on the basis of which further collaboration could be explored. It has also expressed a wish to work with Seda to add its expertise on bioprospecting-related export requirements to Seda’s existing export training programme.

### 6.4.4 Provincial and District Enterprise Development Agencies

Several are already involved or have demonstrated interest in the agro-processing stream and as such have dedicated sections and specialists within these units. As an example, the ECDC is already spearheading the establishment of the Eastern Cape as an Essential Oils Hub by clustering various localities according to the plants found in each area. Ilembe Enterprise is also supporting the development of the essential oils industry to link up with the Dube Tradeport. The agencies can serve a key role in attracting new investment into the sector.

### 6.4.5 DST, CSIR, MRC and Universities

Funding is made available by DST on a competitive basis encouraging full participation of, and partnership with, THPs, communities and industry. Possible outcomes of this research will lead to products for possible commercialisation.

### 6.4.6 DRDLR and DAFF

Seda could work with SMEs (e.g. rooibos, honeybush) wishing to source raw materials from emerging farmers and rural enterprises to facilitate both the creation of new SMEs and cooperatives (and the facilitation of BEE partnerships), and access to funding and technical support from appropriate departments and agencies. It could also facilitate the creation of
cooperatives for sustainable wild harvesting (e.g. marula, kigelia) and for cultivation of other specific plants of high commercial value linked to a specific buyer or manufacturer.

### 6.5 Promotion of current service offerings to the TM Sector

Given the low awareness of Seda within the sector (both informal and established), it is proposed that Seda should initiate an awareness campaign in which it engages directly with sector participants and promotes its existing services, highlighting those that have been identified in section 5 above.

### 6.6 Development of new service offerings

#### 6.6.1 Informal Sector

It is proposed that Seda should develop and pilot a tailored short training course for THPs covering the basic business skills and tools required to operate a successful practice. More advanced courses could also be developed, for example to introduce interested THPs to the basics of product commercialisation.

#### 6.6.2 Formal Sector

**Virtual hub**

A website or portal should be established in order to respond to the information and market access needs of the sector. The objective would be to serve as a ‘one stop shop’ for sector participants and stakeholders across the value chain on:

- Existing and current plant and related research
- Pathways to commercialisation
- Access to funding
- Access to technical support
- Best practice across the value chain
It is proposed that the virtual hub would be developed and managed by the public/private partnership that establishes the physical hub, in order to ensure that the service offered to the sector is responsive to the commercial environment.

Physical hub

It is proposed that a national hub could be established initially in KwaZulu-Natal, but that additional hubs could subsequently be established in Eastern Cape and Limpopo, based on local needs and partnerships.

The hub would be a public-private entity (following the dti standard model) and could comprise the following:

- Agricultural training and technical support for small-scale producers (GAHP)
- Access to plant material for cultivators
- Agro-processing best practice training and demonstration (to understand the range of value added techniques)
- Agro-processing facility for local producers
- Access to affordable laboratory services
- Access to product development and manufacturing (in partnership with existing manufacturers)
- Market intelligence on supply and demand (raw materials)
- Marketing support and access to distribution channels
- Advice on regulatory compliance
- Business development services
The rationale for proposing that the first hub be created in KZN is twofold; firstly, there are existing infrastructural and other resources, and potential partners located in the province which could be leveraged to contribute to the success of the hub. These include the Dube Tradeport Agrizone (with tissue culture laboratory, nurseries, experience of propagation of indigenous plants); the Silverglen indigenous plant nursery; GMP manufacturers with experience in the production of herbal products; and the Municipalities of Ethekwini and Ilembe, both of which have a history of interest in and support for development of the TM sector.

Secondly, there is a high level of traditional knowledge and practice throughout the province, a critical mass of THPs who have expressed a strong interest in participation and innovation, and many small scale communities and individuals who have expressed interest in participating in cultivation and processing of medicinal plants. At the same time, there is the potential to forge new partnerships within the sector between cultivators and larger commercial entities in the sector.

Consideration would need to be given to the appropriate funding model for the hub, since the sector does not have an abundance of large companies with the potential to co-fund such an initiative.
7 SECTION 7: REFERENCES


SECTION 8: ANNEXURE
8.1 Sector Database

Please refer to excel spreadsheet attached to this report.