



Empowered lives.  
Resilient nations.

## United Nations Development Programme Government of South Africa

<b>Project title: Development of Value Chains for Products derived from Genetic Resources in Compliance with the Nagoya Protocol on Access and Benefit Sharing and the National Biodiversity Economy Strategy</b>		
<b>Country:</b> South Africa	<b>Implementing Partner:</b> Department of Environmental Affairs (DEA) <b>Responsible Parties:</b> Agricultural Research Council (ARC), Council for Scientific and Industrial Research (CSIR) and Department of Science and Technology (DST)	<b>Management Arrangements:</b> National Implementation Modality (NIM)
<b>UNDAF/Country Program Outcome:</b> <i>Increase in the number of sustainable 'green jobs' created in the economy; Stabilisation and reduction of carbon emissions and climate change mitigation and adaptation strategies fully operational.</i> <b>Programme Component II:</b> <i>Climate Change and Greening South Africa's Economy</i>		
<b>UNDP Strategic Plan Output:</b> Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste		
<b>UNDP Social and Environmental Screening Category:</b> Medium risk		<b>UNDP Gender Marker:</b> GEN2 <i>(It is designed to contribute significantly to gender equality. The different needs of women/girls and men/boys have been analysed and integrated well in the activities and outcomes.</i>
<b>Atlas Project ID/Award ID number:</b> 00106197		<b>Atlas Output ID/Project ID number:</b> 00107047
<b>UNDP-GEF PIMS ID number:</b> 5686		<b>GEF ID number:</b> 9255
<b>Planned start date:</b> May 2018		<b>Planned end date:</b> April 2023
<b>LPAC date:</b> Tbd		
<b>Brief project description:</b>  <p>South Africa is a megadiverse country and this diversity is expressed in terms of both species richness and endemism. The conservation and sustainable use of South Africa's biological diversity is of strategic importance for the country. So is the maintenance of ecosystem services – now and in the future. This species richness and associated genetic diversity provides an important basis for economic growth and development which underpins the well-being of society.</p> <p>Under leadership of the Department of Environmental Affairs, South Africa launched in 2015 its National Biodiversity Economy Strategy (NBES). The Strategy is concerned with supporting the development of businesses and economic activities that are either directly dependent on biodiversity for their core business or that contribute to conserving biodiversity through their activities. An important segment of the NBES is 'bioprospecting', and under it 'biotrade'.</p> <p>The project will specifically support the implementation of the NBES by focusing on the <b>use of indigenous plants' genetic resources and their current and potential applications, either in pharmaceuticals, personal care products, cosmetics, enzymes or similar non-food uses</b>. It will address both conservation and Access and Benefit Sharing (ABS) issues linked to the development of different bioprospecting value chains, while also helping key players overcome related barriers and challenges.</p>		

**The project will approach its core problem both through ABS pilots and ABS systemic measures** that are relevant for the ABS-conservation nexus of the bioprospecting segment. More specifically, the project will focus on bioprocessing and product development, and on removing barriers through R&D and stakeholder collaboration. Overall, the project will foster innovation, equitable sharing of benefits from genetic resources, while contributing to both species and habitat conservation. Furthermore, the project will enhance South Africa's systemic capacity development for Nagoya Protocol compliance through gender-sensitive approaches.

The proposed project Objective is **to strengthen the value chains for products derived from indigenous plants' genetic resources with a view to contributing to the equitable sharing of benefits and conservation of biodiversity.**

The realization of the project Objective will eventually lead to the following changes (**project's mid-term impact**): (i) bioprospecting R&D focused on indigenous plants will make a more significant contribution to the national bioeconomy owing to at least 1 (one) new patent being registered and at least 4 (four) new market niches explored through sustainable and ABS-compliant value chains in the Northern Cape's Bioprospecting economy; (ii) the approach to ways of working, management conditions and techniques will change within 5 (five) strategic value chains, to the extent that they become examples of how conservation results (in particular through sustainable supplies of plant raw materials) and ABS-compliance can simultaneously be achieved through cooperation among bioeconomic players; and (iii) national capacity for the protection of traditional knowledge within the bioprospecting segment, as well as the general mainstreaming of both conservation and ABS compliance, will be gradually improved (as independently assessed). The project Objective will be achieved via three technical project Outcomes:

**Outcome 1:** *'Bioprospecting R&D that focuses on indigenous plants contributes to the national Bioprospecting economy'* – this outcome aims at supporting the completion of critical steps in many R&D processes and overcoming context-specific barriers. One important output under the first Outcome will focus on the Northern Cape Province, where a support hub will be established. It will accelerate the registration – and transition to cultivation -- of the critically endangered *Siphonochilus aethiopicus* (African Ginger) as a medicinal product for asthma and allergies, whilst considering what would be needed for conserving the diversity of the plant's gene pool in the wild. Under this Outcome an ABS monetary agreement will be negotiated between CSIR and the Traditional Healers Association for this medicinal product.

**Outcome 2:** *'The ways of working, management conditions and techniques change within 5 (five) strategic value chains, and demonstrate how conservation and ABS-compliance can be simultaneously achieved through cooperation among Bioprospecting economy players'* – this outcome is focused on value-chain development. Both biotrade and landscape-level management are prominently featured among key activities under this outcome, where the goal is to ensure ABS compliance and the sustainability of supplies. Targeted species include *Pelargonium sidoides*, *Aloe ferox*, Honeybush (including at least three species of *Cyclopia* spp. used in the industry) and Rooibos (*Aspalathus linearis*). The government will specifically support extension services for the successful transition to cultivation for African ginger. Outcome will also facilitate the negotiation of a second ABS monetary agreement for a product derived from Rooibos.

**Outcome 3:** *'National capacity for the protection of traditional knowledge within the bioprospecting segment, as well as the general mainstreaming of both conservation and ABS compliance within them, is improved (as independently assessed)'* – this outcome is aimed at building the national stakeholders' capacity for understanding ABS issues, compliance with national and international legislation and for better handling the inherently complex relationships between providers and users of genetic resources, as well as the implications of their economic activity for conservation. More specifically, the national recordal system for documenting and protecting traditional knowledge will be strengthened. Additionally, a biotrade certification system will be developed, safeguarding the biodiversity within bioprospecting value chains.

In addition to the three technical outcomes, the dissemination of project lessons – along with the application of appropriate M&E framework – will contribute to institutional, community and corporate learning through the

active participation of all stakeholder groups in project implementation (**Outcome 4 - Lessons learned and the application of a participatory and gender sensitive M&E framework effectively contribute to institutional, community and corporate learning on ABS**).

FINANCING PLAN			
GEF Trust Fund		USD 6,210,046	
UNDP TRAC resources		USD 0	
Government cost-sharing		USD 0	
(1) Total Budget administered by UNDP		USD 6,210,046	
PARTNER MANAGED CO-FINANCING			
Department of Environmental Affairs (DEA)		USD 30,387,060.53	
Department of Science and Technology (DST)		USD 769,230.76	
Council for Scientific and Industrial Research (CSIR)		USD 2,783,777	
Agricultural Research Council (ARC)		USD 1,415,110.96	
South African National Biodiversity Institute (SANBI)		USD 515,384.61	
(1) Total co-financing		USD 35,870,563.86	
(2) Grand-Total Project Financing (1) + (2)		USD 42,080,609.86	
SIGNATURES			
Signature: print name below		Agreed by Government	Date:
Signature: print name below		Agreed by Implementing Partner – DEA	Date:
Signature: print name below		Agreed by UNDP	Date:

# Table of Contents

<b>I.</b>	<b>DEVELOPMENT CHALLENGE .....</b>	<b>11</b>
	Context, issues and global significance .....	11
	The Biodiversity Economy of South Africa .....	12
	The Bioprospecting Segment .....	13
	Research & Development for Bioprospecting.....	17
	ABS Frameworks and Sectoral Regulation .....	18
	Bioresources targeted in key Value Chains.....	21
	The Core Problem .....	23
	Project fit with SDGs, national policies and priorities.....	24
	Threats, Root Causes and Barriers .....	26
<b>II.</b>	<b>STRATEGY .....</b>	<b>32</b>
	Long-Term Solution .....	32
	The Project's Theory of Change (ToC) .....	33
	Project Areas and Pilots.....	43
<b>III.</b>	<b>RESULTS AND PARTNERSHIPS.....</b>	<b>46</b>
	Expected Results.....	46
	The Project's Incremental Reasoning .....	52
	Partnerships.....	53
	Stakeholder engagement:.....	55
	Gender Aspects .....	59
<b>IV.</b>	<b>FEASIBILITY.....</b>	<b>63</b>
	Cost efficiency and effectiveness: .....	63
	Also, refer to ANNEX F. for the UNDP Social and Environmental Screening report.....	67
	Innovativeness, Sustainability and Scaling Up:.....	67
<b>V.</b>	<b>PROJECT RESULTS FRAMEWORK .....</b>	<b>71</b>
<b>VI.</b>	<b>MONITORING AND EVALUATION (M&amp;E) PLAN.....</b>	<b>76</b>
<b>VII.</b>	<b>GOVERNANCE AND MANAGEMENT ARRANGEMENTS .....</b>	<b>81</b>
<b>VIII.</b>	<b>FINANCIAL PLANNING AND MANAGEMENT .....</b>	<b>86</b>
<b>IX.</b>	<b>TOTAL BUDGET AND WORK PLAN.....</b>	<b>88</b>
<b>X.</b>	<b>LEGAL CONTEXT.....</b>	<b>94</b>
<b>XII.</b>	<b>MANDATORY ANNEXES .....</b>	<b>95</b>
<b>XIII.</b>	<b>OTHER ANNEXES.....</b>	<b>95</b>
	ANNEX A. Multi Year Work Plan .....	96
	ANNEX B. Monitoring Plan.....	100
	ANNEX C. Evaluation Plan.....	103
	ANNEX D. GEF Tracking Tool (s) at baseline .....	104

ANNEX E. Terms of Reference .....	104
ABS Project Manager, Full-time .....	104
Project M&E Officer, Part-time @ 70%.....	105
Project Finance and Admin Assistant – full-time .....	107
ANNEX F. UNDP Social and Environmental and Social Screening Template (SESP).....	109
ANNEX G. Environmental and Social Management Plan (ESMP) .....	119
ANNEX H. UNDP Project Quality Assurance Report .....	119
ANNEX I. UNDP Risk Log .....	119
ANNEX J. Results of the capacity assessment of the implementing partner / HACT micro-assessment.....	120
ANNEX K. Letter of Agreement on Direct Project Services (DPC).....	120
<b>XI. OTHER ANNEXES (X) .....</b>	<b>121</b>
ANNEX X-1. Letters of confirmed Co-financing .....	121
ANNEX X-2. Project Context & Baseline: ABS frameworks & Species-value-chain interactions.....	129
1) Status Quo of the Implementation of Nagoya Protocol in South Africa .....	129
2) Conservation and Social Benefits from Species-Value Chain interactions targeted by the Project ..	133
3) The Context of African Ginger agreement registration and cultivation .....	141
4) The Context of the Bioprospecting in Northern Cape Province .....	144
5) The Context of Pelargonium Management Plan.....	147
6) The Context of Aloe ferox harvesting .....	150
7) The Context of Honeybush species transition to cultivation .....	153
8) The Flagship Context of Rooibos .....	154
9) The Project's Baseline Finance Assessment.....	156
ANNEX X-3. Detailed description of project design: Outputs and Activities .....	159
Component 1. Bioprospecting R&D .....	159
Component 2: Value Chain Development.....	164
Component 3: ABS Capacity Building of key Stakeholders .....	176
Component 4: Knowledge Management & M&E .....	182
ANNEX X-4. Stakeholders consulted during the PPG.....	184
ANNEX X-5. Knowledge Management & Stakeholder Involvement Plan .....	186
1) Stakeholder Engagement Strategy and Approach .....	186
2) Stakeholder Involvement Plan.....	187
3) Coordination with other related initiatives .....	187
ANNEX X-6. The dynamics of resource overexploitation in bioprospecting value chain.....	188
ANNEX X-7. Gender Mainstreaming .....	193
1) Gender Considerations .....	193
2) Gender Mainstreaming Action Plan.....	196
ANNEX X-8. Bibliography .....	199
<b>I. TABLE OF CONTENTS.....</b>	<b>ERROR! BOOKMARK NOT DEFINED.</b>
<b>II. DEVELOPMENT CHALLENGE .....</b>	<b>11</b>
Context, issues and global significance .....	11
The Biodiversity Economy of South Africa .....	12
The Bioprospecting Segment .....	13
Research & Development for Bioprospecting.....	17
ABS Frameworks and Sectoral Regulation .....	18
Bioresources targeted in key Value Chains.....	21

	The Core Problem .....	23
	Project fit with SDGs, national policies and priorities.....	24
	Threats, Root Causes and Barriers .....	26
<b>III.</b>	<b>STRATEGY .....</b>	<b>32</b>
	Long-Term Solution .....	32
	The Project's Theory of Change (ToC) .....	33
	Project Areas and Pilots.....	43
<b>IV.</b>	<b>RESULTS AND PARTNERSHIPS.....</b>	<b>46</b>
	Expected Results.....	46
	The Project's Incremental Reasoning .....	52
	Partnerships.....	53
	Stakeholder engagement:.....	55
	Gender Aspects.....	59
<b>V.</b>	<b>FEASIBILITY.....</b>	<b>63</b>
	Cost efficiency and effectiveness: .....	63
	Risk Management.....	64
	Social and Environmental Safeguards (SES): .....	67
	Innovativeness, Sustainability and Scaling Up:.....	67
<b>VI.</b>	<b>PROJECT RESULTS FRAMEWORK .....</b>	<b>71</b>
<b>VII.</b>	<b>MONITORING AND EVALUATION (M&amp;E) PLAN.....</b>	<b>76</b>
<b>VIII.</b>	<b>GOVERNANCE AND MANAGEMENT ARRANGEMENTS .....</b>	<b>81</b>
<b>IX.</b>	<b>FINANCIAL PLANNING AND MANAGEMENT .....</b>	<b>86</b>
<b>X.</b>	<b>TOTAL BUDGET AND WORK PLAN.....</b>	<b>88</b>
<b>XI.</b>	<b>LEGAL CONTEXT.....</b>	<b>94</b>
<b>XII.</b>	<b>MANDATORY ANNEXES .....</b>	<b>95</b>
	ANNEX A. Multi Year Work Plan .....	96
	ANNEX B. Monitoring Plan.....	100
	ANNEX C. Evaluation Plan .....	103
	ANNEX D. GEF Tracking Tool (s) at baseline .....	104
	ANNEX E. Terms of Reference .....	104
	Background section for all TORs .....	<b>Error! Bookmark not defined.</b>
	ABS Project Manager, Full-time .....	104
	ANNEX F. UNDP Social and Environmental and Social Screening Template (SESP).....	109
	ANNEX G. Environmental and Social Management Plan (ESMP) .....	119
	ANNEX H. UNDP Project Quality Assurance Report .....	119
	ANNEX I. UNDP Risk Log .....	119
	ANNEX J. Results of the capacity assessment of the implementing partner / HACT micro-assessment.....	120
<b>XII.</b>	<b>OTHER ANNEXES (X) .....</b>	<b>121</b>
	ANNEX X-1. Letters of confirmed Co-financing .....	121

ANNEX X-2. Project Context & Baseline: ABS frameworks & Species-value-chain interactions.....	126
1) Status Quo of the Implementation of Nagoya Protocol in South Africa .....	129
2) Conservation and Social Benefits from Species-Value Chain interactions targeted by the Project ..	133
3) The Context of African Ginger agreement registration and cultivation .....	141
4) The Context of the Bioprospecting in Northern Cape Province .....	144
5) The Context of Pelargonium Management Plan.....	147
6) The Context of Aloe ferox harvesting .....	150
7) The Context of Honeybush species transition to cultivation .....	153
8) The Flagship Context of Rooibos .....	154
9) The Project's Baseline Finance Assessment.....	156
ANNEX X-3. Detailed description of project design: Outputs and Activities .....	159
Component 1. Bioprospecting R&D .....	159
Component 2: Value Chain Development.....	164
Component 3: ABS Capacity Building of key Stakeholders .....	176
Component 4: Knowledge Management & M&E .....	182
ANNEX X-4. Stakeholders consulted during the PPG.....	184
ANNEX X-5. Knowledge Management & Stakeholder Involvement Plan .....	186
1) Stakeholder Engagement Strategy and Approach .....	186
2) Stakeholder Involvement Plan.....	187
3) Coordination with other related initiatives .....	187
ANNEX X-6. The dynamics of resource overexploitation in bioprospecting value chain.....	188
ANNEX X-7. Gender Mainstreaming .....	193
1) Gender Considerations .....	193
2) Gender Mainstreaming Action Plan.....	196
ANNEX X-8. Bibliography .....	199

## List of Figures and Pictures

Figure 1. Categories of value-added bioproducts and share in the domestic retail market (2013/14) .....	16
Figure 2. General structure of bioprospecting sector: (a) The formal and informal sub-sectors.....	16
Figure 3. General structure of bioprospecting sector: (b) Value chain outline specified in NBES.....	17
Figure 4. Approach by CSIR to Bioprospecting .....	18
Figure 5. Legislative environment underpinning the NBES .....	20
Figure 6. Problem statement and key assumptions behind the project .....	24
Figure 7. Theory of change behind the project strategy: Logic .....	34
Figure 8. Theory of change behind the project strategy: Accountability Ceiling.....	35
Figure 9. Theory of change behind the project strategy: Preconditions for Long-term Impact.....	36
Figure 10. Theory of change behind the project strategy: (a) Conservation aspects and (b) ABS aspects .....	39
Figure 11. Relation between native production and cultivation production (after the 'Homma model') .....	41
Figure 12. Applying the Homma Model to the project's target species.....	41
Figure 13. (updated) Overview of Bioprospecting Pilots (numbers are reference to outputs that include pilots) ....	44
Figure 14. Distribution of key species across the country and location of important protected areas .....	44
Figure 15. Project organisation structure .....	83
Figure 16. (new) Brief History and stark reality of the <i>P. sidoides</i> supply chain .....	148
Figure 17. Location of the Tyefu community.....	151
Figure 18. The (future) Northern Cape Hub: the site and its functions.....	163
Figure 19. The (future) Northern Cape Hub: current layout.....	163
Figure 20. Indicative layout of the Aloe crop plantation .....	171
Figure 21. Example of Aloe crop plantation .....	171
Figure 22. Indicative floor plan of plantation workshop .....	173
Figure 23. Indicative floor plan of testing, processing and packaging plant.....	173
Figure 24. The Original Homma Model.....	189
Figure 25. A Variation of the Homma Model (FAO Case Study) .....	190
Picture 1. African Ginger Experimental Farm visited by the PPG Team in Brits, North West Province.....	141
Picture 2. Priority species targeted for the development of bioprospecting in the Northern Cape .....	146
Picture 3. The <i>Aloe ferox</i> plant with initial bioprocessing – pictures taken during PPG site visit .....	152

## List of Tables

Table 1. Overview of permit requirement for bioprospecting activities conducted in and/or outside South Africa..	20
Table 2. Methods for sourcing bioproducts from priority species, threat profile, Red List status and trends.....	21
Table 3. Reference to background materials and their relevance for the project's strategy .....	50
Table 4. Alignment of the project components with barriers, solutions and expected impacts.....	51
Table 5. Summary of baseline finance for the incremental cost calculation.....	52
Table 6. The Project's Incremental Reasoning.....	52
Table 7. Synergies, collaboration and partnerships.....	54
Table 8. Project's key stakeholders and their prospective roles in the project.....	56
Table 9: Project Risks .....	64
Table 10: Mandatory GEF M&E Requirements and M&E Budget .....	79
Table 11. Overview of over budget allocations and responsibilities (according to the TBW).....	81
Table 12. Descriptive Results from the ABS Tracking Tool, Section 1.....	129
Table 13. Species characteristics, conservation status, value chain development and research facts .....	133
Table 14. Summary Baseline Investment .....	156
Table 15. Financial Baseline Assessment for DEA relevant to the Bioprospecting economy .....	158
Table 16. (updated) Gender Mainstreaming Scoring Matrix behind Indicator #4 in the Results Framework.....	195
Table 17. Gender Mainstreaming Considerations and Action Plan .....	196



## List of Boxes

Box 1. Important definitions for the biodiversity economy included in the 2015 NBES .....	12
Box 2. Key conclusions and highlights from the 2015 Scoping Study on Bioprospecting.....	15
Box 3. Relevant national policies and legal frameworks governing the bioprospecting sector .....	19
Box 4. Steps in building the TOC for the project.....	33
Box 5. Risk Assessment Guiding Matrix.....	<b>Error! Bookmark not defined.</b>
Box 6 (updated). New Sustainable Practices' Adoption, Uptake and Spread + Linkages .....	67
Box 7. ABS Procedures, Checkpoints and Flowchart .....	130
Box 8. From CBD's ABS Clearing House Mechanism (accessed on 17 Jul 2017).....	131
Box 9. (new) Win-Win A promising value chain with African Ginger and a gateway to sustainable use .....	142
Box 10. (new) Background: The value added of a RDI hub in the Northern Cape.....	144
Box 11. Background: Bio-trading of in the Northern Cape .....	145
Box 12. (new) Additional background on Sustainable Production and Primary Handling of <i>Pelargonium sidoides</i> . .....	164
Box 13. (new) Additional background on Bio- Cultural Protocols and the role of IK recorders .....	178
Box 14. Base NRM theories underpinning the Homma model, implications and considerations.....	191

## List of Abbreviations

BD	Biodiversity
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CSO	Civil Society Organization
ERC	Evaluation Resource Centre
FAO	Food and Agriculture Organization of the United Nations
FSP	Full Size Project
GEF	Global Environment Facility
GIS	Geographical Information System
HQ	Head Quarter
IEO	Independent Evaluation Office
M&E	Monitoring and Evaluation
MOU	Memorandum of Understanding
NBSAP	National Biodiversity Strategy and Action Plan
NGO	Non-Government Organization
NIM	National Implementation
PA	Protected Area
PIF	Project Identification Form
PIR	Project Implementation Reports
PMU	Project Management Unit
PPP	Public Private Partnership
PPR	Project Progress Report
RTA	Regional Technical Advisor
SDG	Sustainable Development Goals
TE	Terminal Evaluation
TOC	Theory of Change
UNDAF	United Nations Development Action Framework
UNDP	United Nations Development Program
<a href="#">UNDP -POPP</a>	United Nations Development Program - Program and Operations Policies and Procedures
UNFCCC	United Nations Framework Convention on Climate Change

---

# I. DEVELOPMENT CHALLENGE

## Context, issues and global significance

1. South Africa has made remarkable progress since its transition to democracy in 1994, but the complex nature of the country's development situation is evident from its ranking of 123 out of 187 on the Human Development Index. While extreme poverty has declined, there are significant disparities in levels of relative poverty across provinces. Income inequality (with a Gini coefficient above 0.7) and unemployment remains high, particularly among youth (at 34.5% for the 15-34-year-old age group).
2. South Africa is the second largest economy in Africa (according to GDP ranking). The main economic sectors include mining, agriculture and fisheries -- primary sectors based on the country's significant natural endowment. South Africa's economy also builds on a reasonably developed industrial base, which includes modest, but emerging home-grown nature-based pharmaceutical and cosmetics sectors. The country has a strong consumer base among its 55 million inhabitants, but the current outlook for the economy is of slow growth, with GDP growth projections pointing out to a modest rate of less than 1% in 2017.
3. South Africa displays varied topography across a land area of 1.2 million sq. km with strong oceanic influence. It harbours a wide range of climatic zones and vegetation types, some of which are unique in the world. From an evolutionary point of view, the combination of the afore-mentioned elements created ideal conditions for the diversification of species and habitats, placing South Africa among the 17 **megadiverse** countries in the world. The diversity of South Africa's biological resources is expressed both in terms of species richness and endemism.
4. Furthermore, South Africa is home to people of diverse origins, cultures, languages, and religions, many of which fall under the notion of 'indigenous and local communities' -- meaning that they embody traditional lifestyles relevant for the conservation and sustainable use of biological diversity. Those groups are prominently known as bearers of traditional ecological knowledge and include various First Nations Indigenous groups.<sup>1</sup> Among them, are tribes that are collectively known as Khoi-San and to whom knowledge on the use of Rooibos (*Aspalathus linearis*) and Honeybush (*Cyclopia* spp.) e.g. has been established in the literature.<sup>2</sup>
5. Traditional knowledge (TK) on the use of indigenous species has been an important component in the improvement of natural resource management in South Africa. When shared and combined with science-based Research & Development (R&D), TK can not only provide valuable information on the sustainable use and protection of ecosystems and species, it may also accelerate new scientific discoveries based on indigenous genetic resources<sup>3</sup>.
6. South Africa ranks 30 among the 78 nations that spends more than \$100 million (PPP) in R&D and has a vibrant academic community.<sup>4</sup> Some of this R&D effort is aimed at carving out competitive niches for the country through nature-based and intellectual property business development, involving several of the country's centres of excellence, universities and, not least also, the private sector.
7. At the global level, the approval by Parties to the Convention on Biological Diversity (CBD) in 2010 of the Nagoya Protocol, on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization (also known as Access and Benefit Sharing or ABS), brought more legal certainty to otherwise unequal relationships between TK holders and the nature-based industry that exploits genetic resources.

---

<sup>1</sup> From the website of International Work Group for Indigenous Affairs ([IWGIA](#)) on South Africa, retrieved on 27 Apr 2017.

<sup>2</sup> DEA (2014): *Traditional Knowledge Associated with Rooibos and Honeybush Species in South Africa*. Report to the Department of Environmental Affairs, Republic of South Africa.

<sup>3</sup> The project's use of "indigenous" genetic resources is consistent with the Nagoya Protocol's use of the concept of "country of origin" and minimizes the risk of using foreign/exotic genetic resources not covered by the access and benefit-sharing provisions (Articles 5 and 6) of the Nagoya Protocol.

<sup>4</sup> Wikipedia, citing the Royal Society: [List of countries by research and development spending](#), accessed on 19 June 2017.

8. With the current prospects for developing successful value-chains from the diversity of its genetic resources, the quest for South Africa in this context pertains to addressing both ABS issues and related conservation issues in the development of these value-chains.

### ***The Biodiversity Economy of South Africa***

9. The conservation and sustainable use of South Africa's biological diversity is of strategic importance for the country. As South Africa is both a provider and a user of genetic resources, the maintenance of ecosystem services – now and in the future – is also of critical importance.
10. With technological progress, the importance of **genetic resources from species that are indigenous to South Africa** also comes into play – opening up a wide range of possibilities for business growth and local development.
11. With this vision in mind, and under the leadership of the Department of Environmental Affairs (DEA), the Government of South Africa launched its **National Biodiversity Economy Strategy (NBES)**<sup>5</sup> in 2015.
12. The NBES is concerned with supporting the development of businesses and economic activities, which either depend directly on biodiversity, or whose activities contribute to conservation of biodiversity. Two economic segments are on focus in DEA's policies for the **Bioprospecting economy**: (1) the **wildlife** sub-sector, which is concerned with live sales of indigenous wildlife; sale of game meat and the hunting industry; and (2) **bioprospecting**. This project is concerned with the role of the latter in the NBES. (See Box 1).

#### ***Box 1. Important definitions for the biodiversity economy included in the 2015 NBES***

##### **Quoting from the 2015 NBES:**

*"NBES, a 14-year strategy, will have the core focus of providing an enabling environment for communities and entrepreneurs to participate in the biodiversity economy, while contributing to poverty alleviation, sustainable development and conservation of the country's rich biodiversity and ecosystem services.*

*The NBES seeks to contribute to the transformation of the biodiversity economy in South Africa through inclusive economic opportunities, reflected by a sector which is equitable - equitable access to resource, equitable and fair process and procedures and equitable in the distribution of resources (i.e. business, human, financial, indigenous species, land, water) in the market."*

##### **Core sectors that underpin the Bioprospecting economy in South Africa, as of current policies<sup>[a]</sup>:**

- **The bioprospecting sector:** which encompasses organizations and people that are searching for, collecting, harvesting and extracting living or dead indigenous species<sup>[b]</sup>, or derivatives<sup>[c]</sup> and genetic material thereof for commercial or industrial purposes.
- **The wildlife sector:** which is centred on game and wildlife farming/ranching activities that relate to the stocking, trading, breeding, and hunting of game, and all the services and goods required to support this value chain.



##### **Notes:**

[a] More recently, in 2016, the scope and priorities for South Africa's Bioprospecting economy were reviewed through a series of intense policy development workshops led by DEA – a process referred to as '**Operation Phakisa**'. These workshops were aimed at operationalizing the 14-year NBES and were crucial for defining priorities for bioprospecting R&D, value chain development and ABS capacity building. Operation Phakisa Outcomes – which are documented in DEA's website – helped shape the adjustments to project design that were introduced during the PPG stage.

<sup>5</sup> In 2013, South Africa's Department of Science and Technology (DST) published its initiative for the "Bio-Economy Strategy" and with a strong focus on biotechnological activities and processes that translate into economic outputs, particularly those with industrial application. In turn, DEA's Bioeconomy Strategy (NBES) focuses on value chains linked to wildlife and bioprospecting, and where both ABS and conservation are key concerns upon which the NBES builds.

<p>[b] <i>Indigenous species</i> are species that occur, or have historically occurred, naturally in a free state in nature within the borders of the Republic but excludes a species that has been introduced in the Republic because of human activity.</p> <p>[c] <i>Derivative</i> in relation to an animal, plant or other organism, means any part, tissue or extract, of an animal, plant or other organism, whether fresh, preserved or processed, and includes any genetic material or chemical compound derived from such part, tissue or extract.</p>
<p>Source: DEA (2015): National Biodiversity Economy Strategy (NBES) for the Department of Environmental Affairs, Republic of South Africa. Government Gazette, 9 October 2015.</p>

13. Although the prospects for business development within the bioprospecting economy are attractive, the NBES recognizes that nature-based activities more generally – and biotrade value chains more specifically – need to comply with sustainability frameworks, in addition to national and international legislation concerning access to genetic resources and the fair and equitable sharing of benefits arising from their utilization (i.e. ABS). South Africa’s ratification of the Nagoya Protocol in 2013 strengthened the national framework for ABS compliance, but it also “raised the bar” for these frameworks.
14. Combining both the wildlife and the bioprospecting sub-sectors, the more tangible contribution of the biodiversity economy to the national economy can be measured in terms of its share of GDP, which in 2013 corresponded to approximately ZAR 3 billion (equivalent to \$242 million current USD). By 2015, this contribution was estimated to reach to ZAR 3.34 billion (\$258 million USD). According to the NBES, bioprospecting is responsible for less than 10% of this revenue and growth. The wildlife sub-sector has demonstrated remarkable growth, development and economic transformation potential over the past 10 years. However, the bioprospecting sub-sector have lagged far behind, both in size and in growth rate. NBES analysis estimates, based on international trade data, a sustained global growth in bioprospecting related trade approaching 20% per year, compared to a growth rate in South Africa of around 6% per year. This analysis indicates the existence of severe constraints in the South African bioprospecting supply chain.

### ***The Bioprospecting Segment***

15. **The concept of bioprospecting** adopted in the NBES has been defined in the 2004 National Environmental Management Biodiversity Act (NEMBA): *“Research on, or development or application of, indigenous biological/genetic resources for commercial or industrial exploitation”*. More specifically, bioprospecting encompasses:
  - The systematic search, collection or gathering of indigenous biological/genetic resources or making extractions from them;
  - The utilization of information regarding any traditional uses of such resources by indigenous communities;
  - The research on, or the application, development or modification of such traditional uses for commercial exploitation; and
  - The trading in and exporting of indigenous biological/genetic resources to develop and produce products, such as medicines, industrial enzymes, food flavours, fragrances, cosmetics, colours, extracts and essential oils.<sup>6</sup>
16. Several studies and assessments underpinned the development of the NBES. These studies looked at not just the job creation and growth potential of the bioprospecting segment, but also the **specific socio-economic and ecological context** affecting the development of the relevant value chains. In connection with the approval of the NBES, DEA published a **seminal study in 2015**, which surveyed the **scope and extent** of the utilization of

<sup>6</sup> The last bullet outlining NEMBA’s definition of bioprospecting refers to ‘biotrade’ – and more specifically to the trade in non-food bioprospecting products. Else, in other countries and contexts, the mainstream definition of biotrade is normally broader, as biotrade may additionally also target (i) the use of species for food and agriculture; and (ii) be concerned not only with ‘genetic resources’ and their commercial application, but also with ‘biological resources’ more broadly. For this project, we are adopting the definitions included in the NBES Glossary, but noting that this is not a mainstream definition.

indigenous biological resources by bioprospecting industries in South Africa.<sup>7</sup> (see Box 2 for more details on the 2015 Scoping Study).

17. A key conclusion from the **2015 Bioprospecting Scoping Study** was that bioprospecting/biotrade markets are dynamic and fast-growing, including at the global level, where the natural plant and organic sector is one of the fastest growing sectors of the agribusiness industry.<sup>8</sup> Although Africa represents only a small share of the global segment (less than 1%), for a megadiverse, supplying and consuming country such as South Africa, the growth potential is significant – both with respect to the domestic market and the export one.
18. In 2015 alone, the bioprospecting industry was estimated to produce ZAR 830 million in net revenue (equivalent to approx. \$64 million in current value), of which almost 50% was export revenue. Rooibos production dominates the sector. The remainder of raw product value was destined to the domestic market where, through value addition, the gains could be significantly multiplied. For example, products containing bio-resources as an ingredient sells between 50-100% more by retail value. The total revenue produced from value-added products sold in the domestic retail market and which contained bioresources as an ingredient was approximately ZAR 1.5 billion in 2013-14 (equivalent to \$140 million). The three main types of retail products include: personal hygiene (40%); cosmetics (38%) and complementary medicines (11%). (see Figure 1 for details).<sup>9</sup>
19. Both the domestic retail market and South Africa's export market are concentrated on a handful of indigenous species that supply ingredients to bioproducts. *Aloe ferox*, Rooibos and *Pelargonium sidoides* are the plant species most in demand. In fact, these three species account for 50% of the 600+ retail bioproducts produced in South Africa.
20. Notably, there is some degree of overlap between **the formal and informal bioprospecting sub-sectors**. Yet, the latter one should not be understated. Studies from 2008 indicated that informal market for indigenous resource-based products is likely very large and found in all provinces of the country. Although not sufficiently researched or regulated, the informal bioprospecting market is estimated to be worth ZAR 2.9 billion per year, representing 5.6% of the National Health Budget, and encompassing 27 million consumers (more than half of the South African population). It was also estimated that, in 2008, at least 133,000 jobs were directly linked to the traditional medicine market, which sources products from 771 plant species.<sup>10</sup> Quantities explored are however not known.
21. There are numerous players involved in bioprospecting value chains, which includes both **a formal and informal sector**. Relationships between providers and users of genetic resources involve the manufacturing industry (within and outside the country), local communities (among them, traditional knowledge holders), small businesses (among them bioprocessors), the scientific and research community and government at different levels. The relationships between users and providers of resources are complex, so is the regulatory framework that the formal sector needs to abide by (Figure 2 and Figure 3 provide a general overview of a typical bioprospecting value chain and inherent relationships).
22. With respect to the differentiation in the formal and informal markets, the NBES notes: *"Despite the traditional informal bioprospecting market being widely recognised in South Africa, with 72 % of South Africans from all income levels utilising these products, the traditional medicine, cosmetic and natural product industry continues to escape large-scale commercialisation."*

---

<sup>7</sup> DEA (2015): *The scope and extent of the utilization of indigenous biological resources by bioprospecting industries in South Africa*. Department of Environmental Affairs, Government of the Republic of South Africa. (ISBN 978-0-621-42766-0).

<sup>8</sup> For example, growth in sales of nutritional products in the United States of America (USA) alone increased from US\$ 15 billion in 1999 to US\$ 23 in 2002 – showing a 53% increase in only 3 years. (see e.g. Kelly et al. (2005): Recent trends in use of herbal and other natural products. *Achieves in Internal Medicine* 165: 281-296.)

<sup>9</sup> DEA's Bio-products retail database, quoted in the 2015 Scoping Study.

<sup>10</sup> Mader et al. (undated) cited in DEA (2015): *The scope and extent of the utilization of indigenous biological resources by bioprospecting industries in South Africa*. Department of Environmental Affairs, Government of the Republic of South Africa. (ISBN 978-0-621-42766-0).

23. Demand for South African indigenous plants by foreign markets generates not only a significant portion of the industry's revenue generation, but it is also on the increase. Raw materials based on *Aloe ferox*, *Harpagophytum procubens* (Devil's Claw), *Hoodia gordonii*, *Pelargonium* spp. and *Sutherlandia frutescens* (cancer bush) have all international status. There is potential for diversification, but not necessarily for increased profits from value addition in the export market, given that importers are almost exclusively interested in raw products.
24. Overall, there is a significant revenue-generation potential that domestic value addition strategies can help the industry realize based on bioproducts – both in the formal and informal segments. This revenue comes not just from the proceeds of the value addition activity itself, but also from enhancing the multiplier/spin-off effect on local economies. In the case of the bioprospecting sector, this multiplier/spin-off effect comes primarily from bioprocessing and biotrade, as well as from an increased industrialization and the linkages to manufacturing of by-products – as opposed to the sale and export of raw products.
25. Furthermore, diversifying target species and asserting intellectual property rights for specific products and uses holds the key for the development of bioprospecting value-chains. Yet, optimizing sourcing methods is needed – this is discussed in the sub-section '[Bioresources targeted in key Value Chains](#)' further down.
26. Finally, understanding sectoral drivers that influence the behaviour of economic players, as well as the conditions for sustainability and fair and equitable benefit sharing are key for the effectiveness of national policies.

### **Box 2. Key conclusions and highlights from the 2015 Scoping Study on Bioprospecting**

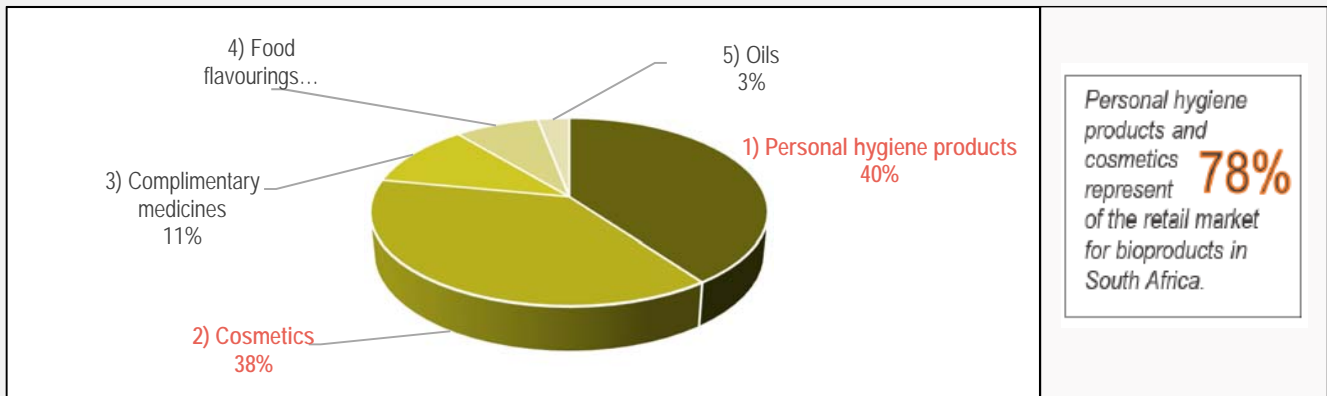
In the **2015 Bioprospecting Scoping Study**, a total of 24 plant species, their contextual exploitation and trade were thoroughly analysed, thereby characterizing the most relevant value chains of the bioprospecting segment. The potential for growth and sustainability forecasts were also considered. ABS issues and conservation issues of concern were also looked upon. Some of the key conclusions from the mentioned study include:

- The bioprospecting sector in South Africa is segmented and complex, involving a variety of players, products and sourcing methods. It included both a formal and an informal sub-sector and, as an industry, it has a large growth potential, with less than 20% of this potential currently realized.
- Based on strong consumer demand in the domestic market, the greatest business gains for bioprospecting economic players are namely in the bioprocessing and in the sale of value-added products.
- Given the apparent abundance of bioresources and the profitability of value addition in the domestic market, bioprospecting value chains have experienced significant growth in the past few years.
- The formal domestic retail market in South Africa in 2012/2013 had 549 products containing indigenous plant and bee products on the shelves, according to a survey carried out in connection with the Scoping Study, in addition to collecting data among 88 organizations that operated within the formal bioprospecting segment.
- The majority of retail products used *Aloe ferox*, *Apis* spp. (bee products), *Aspalathus* spp. (Rooibos) or *Pelargonium sidoides* as active indigenous ingredients.
- Of the 549 retail products surveyed, which were found to contain South African indigenous plant resources and bee products, it was found that the resources included in these products were limited to only 24 plant species.
- These local value-added products fell into five product categories, with personal hygiene products and cosmetics standing in for almost 80% of the market share. (see Figure 1 below).



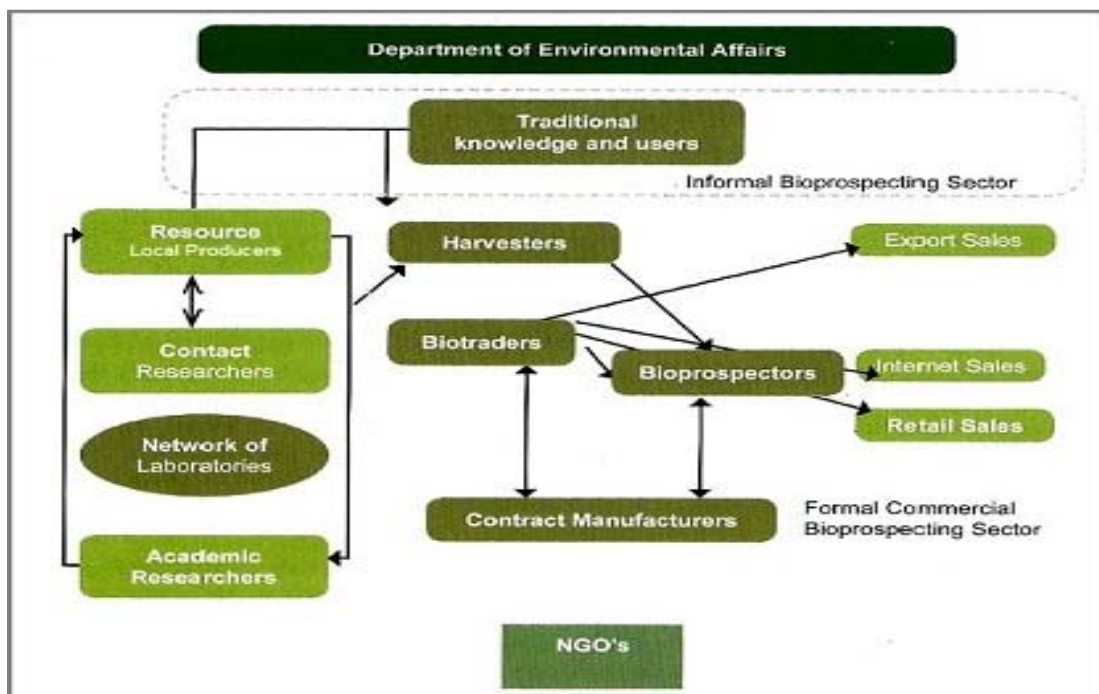
**Source:** DEA (2015): The scope and extent of the utilization of indigenous biological resources by bioprospecting industries in South Africa. Department of Environmental Affairs, Government of the Republic of South Africa. (ISBN 978-0-621-42766-0).

**Figure 1. Categories of value-added bioproducts and share in the domestic retail market (2013/14)**



Source: DEA (2015): The scope and extent of the utilization of indigenous biological resources by bioprospecting industries in South Africa. Department of Environmental Affairs, Government of the Republic of South Africa. (ISBN 978-0-621-42766-0).

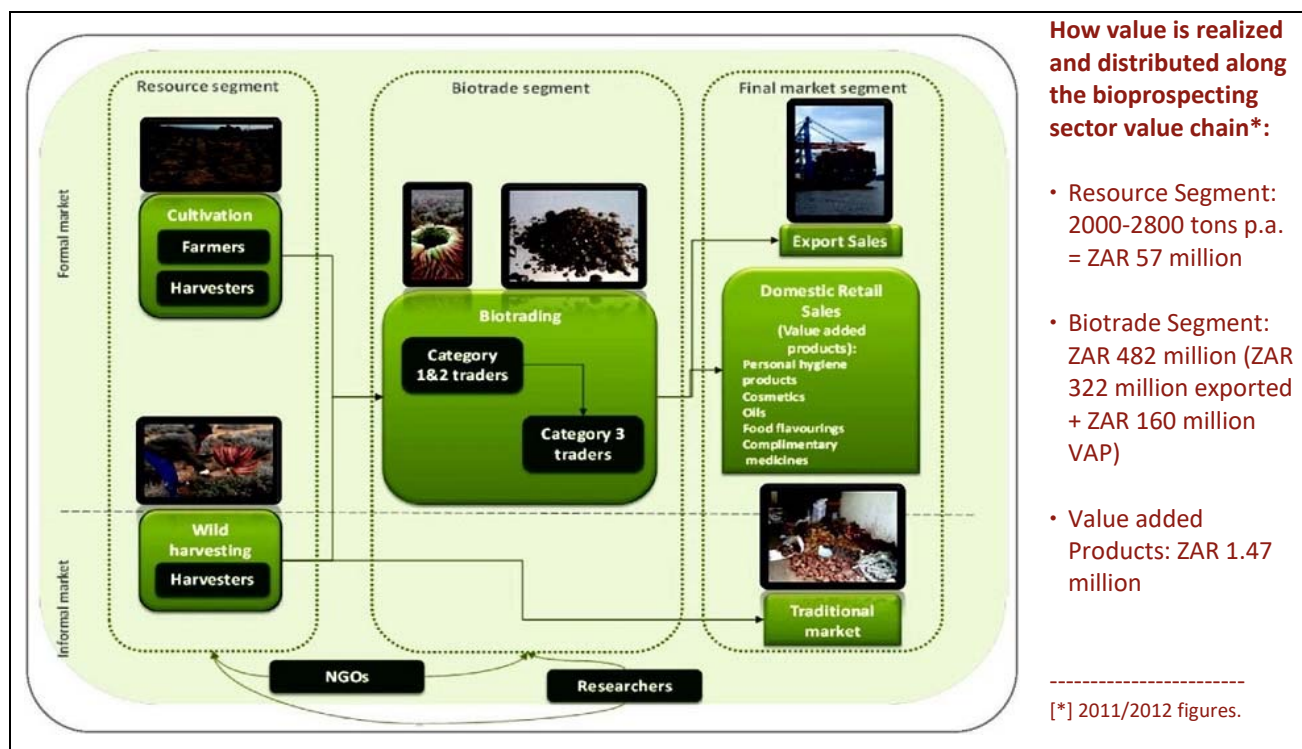
**Figure 2. General structure of bioprospecting sector: (a) The formal and informal sub-sectors**



Source: DEA (2015): The scope and extent of the utilization of indigenous biological resources by bioprospecting industries in South Africa. Department of Environmental Affairs, Government of the Republic of South Africa. (ISBN 978-0-621-42766-0).



**Figure 3. General structure of bioprospecting sector: (b) Value chain outline specified in NBES**



Source: DEA (2015): National Biodiversity Economy Strategy (NBES) for the Department of Environmental Affairs, Republic of South Africa. Government Gazette, 9 October 2015.

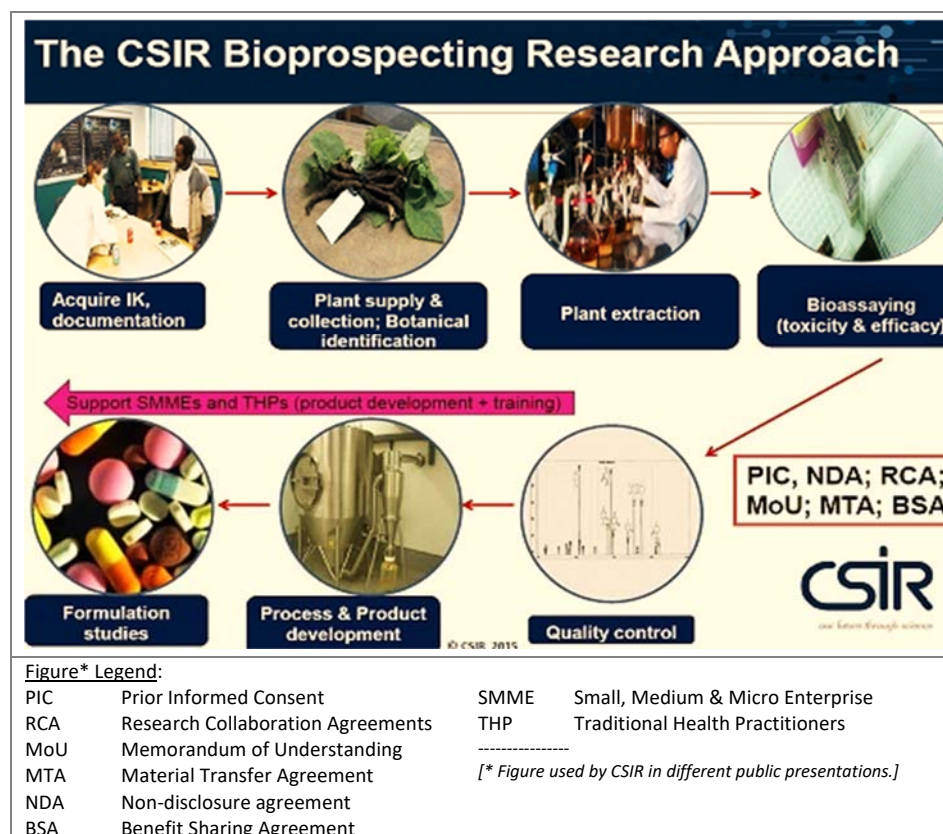
### **Research & Development for Bioprospecting**

27. The South African government recognizes that growth, job creation and innovation in the bioprospecting segment are driven by R&D. Under the policy guidance of the Department of Science and Technology (DST), the South African government's expenditure in Bioprospecting economy related R&D reached ZAR 0.9 billion between 2002 and 2011 (or more than \$150 million in current prices), representing almost 1% of its GDP. In 2008, South Africa had 393 full-time equivalent researchers per million inhabitants – which is more than India (with 193) but less than Brazil (with 694), as measures of comparison.<sup>11</sup>
28. The South African government also recognizes that achieving results from the 'discovery' phase to 'product development', and from there to commercial production followed by successful marketing, can take years, but certain processes can be accelerated, if specific barriers can be identified and removed – e.g. enhancing investments in research and technical skills – and if traditional knowledge contributions can be harnessed – e.g. through ethno-botanical approaches to research and identification of useful compounds.
29. There have been several examples in South Africa whereby traditional practitioners were approached by scientists to gain validity of the specialized knowledge, which usually originates in communities located close to where materials originate. Historically, South Africa has regulated several cases of bioprospecting, where product development based on TK and R&D required different types of ABS agreements and arrangements for implementation. In such cases, both monetary and non-monetary benefits have been granted to provider communities (Hoodia, Kanna, Buchu, Aloe spp. etc.).
30. The approach to bioprospecting of the Council for Scientific and Industrial Research of South Africa (CSIR), a prominent scientific body reporting to DST, is illustrated in Figure 4, where various possible types of ABS

<sup>11</sup> DST (2013): The Bioeconomic Strategy. The Bio-economy Strategy is an initiative of the Department of Science and Technology, South Africa.

agreements and arrangements (i.e. frameworks) are mentioned and may be used both in R&D and in value chain development, as mechanisms for ensuring a more equitable sharing of benefits.

**Figure 4. Approach by CSIR to Bioprospecting**

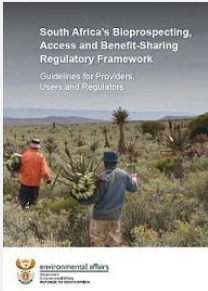


31. The NBES has however identified a need for additional R&D, across the value chain. This would relate especially to ‘pre-competitive’ R&D, where the outputs would serve the industry.

### **ABS Frameworks and Sectoral Regulation**

32. The legal frameworks that govern ABS is composed of several pieces of legislation, including sections of South Africa’s Biodiversity Act of 2004, amendments to the Patents Act from 2005, which require patent applicants to disclose the origin of genetic material and traditional knowledge and show that they have obtained prior informed consent (PIC) and shared benefits, and – most importantly -- the Bioprospecting and Access and Benefit-Sharing Regulations (BABS) of 2008. An important recent initiative is the gazetting of the Intellectual Property Laws Amendment Bill (2010) which provides for copyright, designs and trademarks to be used for providing protection of names or features associated with traditional knowledge.
33. The legal framework governing ABS in South Africa is summarized in Box 3 and the links to policies (whether environmental, agricultural or relating to intellectual property rights) is illustrated by Figure 5 further down.

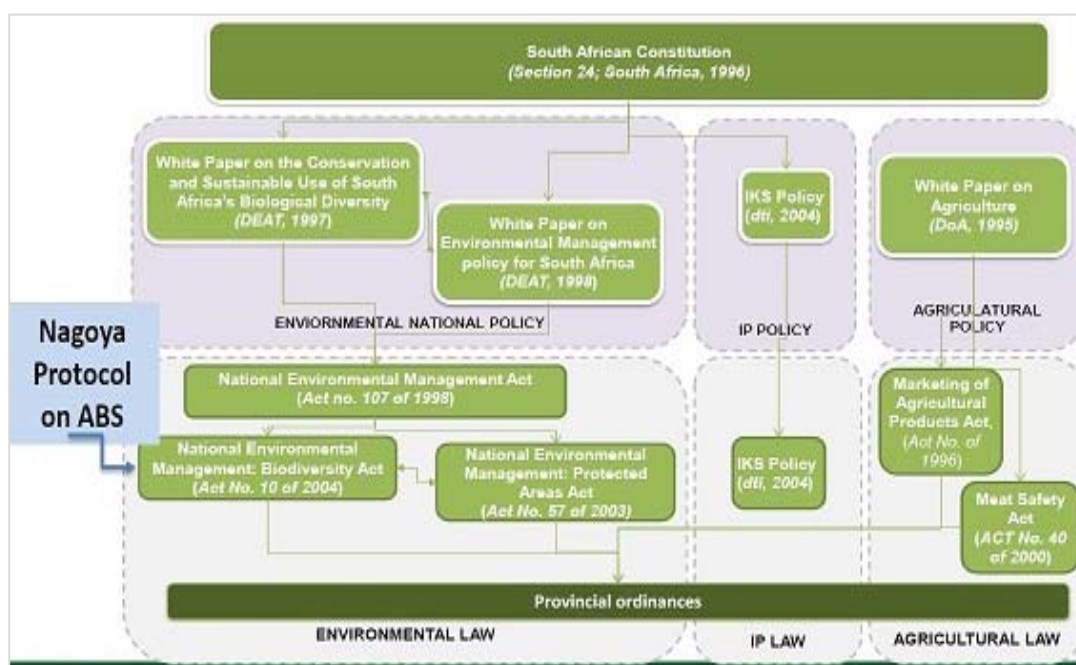
### Box 3. Relevant national policies and legal frameworks governing the bioprospecting sector

<p><b>Key national legislative and frameworks relevant to Nagoya Protocol implementation in South Africa:</b></p> <ul style="list-style-type: none"> <li>• CBD and Nagoya Protocol on Access to Genetic Resources &amp; the Fair and Equitable Sharing of Benefits Arising from their Utilisation</li> <li>• Constitutional mandate &amp; National Environmental Management Act (NEMA)</li> <li>• Constitutional Concurrent Mandate, Provincial Ordinance</li> <li>• White Paper on Conservation &amp; Sustainable Use of South Africa's Biodiversity of 2007</li> <li>• NEMBA, BABS Regulations, TOPS Regulations &amp; CITES Regulations</li> <li>• Patent Amendment Act</li> <li>• Indigenous Knowledge Systems Policy</li> </ul> <p><b>Bioprospecting Guidelines</b> (see left): issued in 2012 for users, providers, and regulators. See <a href="https://www.environment.gov.za/sites/default/files/legislations/bioprospecting_regulatory_framework_guideline.pdf">https://www.environment.gov.za/sites/default/files/legislations/bioprospecting_regulatory_framework_guideline.pdf</a>.</p>		
<p><b>Principles of the NBES:</b></p> <ul style="list-style-type: none"> <li>• Conservation of biodiversity and ecological infrastructure</li> <li>• Sustainable use of indigenous resources</li> <li>• Fair and equitable benefit-sharing</li> <li>• Socio-economic sustainability</li> <li>• Incentive driven compliance to regulation</li> <li>• Ethical practices</li> <li>• Improving quality and standards of products</li> </ul>	<p><b>Principles of the BABS:</b></p> <ul style="list-style-type: none"> <li>• Anyone carrying out bioprospecting involving indigenous biological resources and, if applicable, associated traditional use or knowledge, requires a permit.</li> <li>• Anyone exporting indigenous biological resources for the purposes of bioprospecting or other research requires a permit.</li> <li>• A permit will only be issued if there has been material disclosure to stakeholders, if their prior informed consent to the bioprospecting has been obtained and if the Minister is satisfied that certain conditions, as set out in the legislation, have been met.</li> </ul>	

34. The Biodiversity Act instituted an ABS regime with respect to bioprospecting in South Africa already in 2004, which emerged relatively early, when compared to other countries. The Biodiversity Act also mandated the government to administrate a Bioprospecting Trust Fund, aimed at providing protection to traditional knowledge as key a contributor to the commercial or industrial application of biodiversity resources, and to ensure that royalties generated are not only received, but also equitably shared. Permits, agreements, consent forms and patents are some of the most common instruments used for enforcing ABS legislation.
35. The National Department of Environmental Affairs (DEA) acts as the clearing house and national focal point, for ABS in South Africa. The Department further administers the relevant legislative tools that are aimed at ensuring the sustainable utilization of indigenous genetic and biological resources and at promoting the fair and equitable sharing of benefits. In this way, DEA also acts to balance the rights of those that own indigenous biological resources – and the associated traditional knowledge – with those that access these resources for commercial or industrial use.
36. The issuance of permits, required under the BABS, is a commonly used instrument of governance for the bioprospecting sector. An overview of DEA's permit application database (as of 2015) showed there are currently an estimated 154 species for which permits have been requested. Of these, permits with respect to *Aloe ferox*, followed by *Pelargonium sidoides*, are the most numerous, both based on the number of permit requests and on the quantity of resources applied to be extracted.<sup>12</sup>

<sup>12</sup> Cited in the 2015 Scoping Study on Bioprospecting. DEA (2015). See also this link for flagship agreements facilitated by the Department of Environmental Affairs: <https://www.environment.gov.za/babs/bioprospectingpermits>

**Figure 5. Legislative environment underpinning the NBES**



37. The table below illustrates situations when a permit is required for bioprospecting activities:

**Table 1. Overview of permit requirement for bioprospecting activities conducted in and/or outside South Africa**

Activity	Type of permit	Issuing authority
<b>Non-commercial research</b>		
Research other than bioprospecting conducted in South Africa	No bioprospecting permit required but may require a collection and/or research permit from the relevant authority	Relevant province or government agency
<b>Discovery phase of bioprospecting</b>		
Discovery phase of bioprospecting conducted in South Africa	No permit required. Notification procedure must be followed.	Notify the Minister using prescribed form
Discovery phase of bioprospecting conducted outside South Africa	Discovery Phase export permit	Apply to the Minister using the prescribed form for discovery phase export
<b>Commercialisation phase bioprospecting</b>		
Biotrade conducted in and/or outside South Africa	Biotrade permit	Apply to the Minister using the prescribed form for biotrade
Bioprospecting permit	Apply to the Minister using the prescribed form for bioprospecting	
Integrated Biotrade and Bioprospecting	Integrated Biotrade and Bioprospecting	Apply to the Minister using the prescribed form for Integrated Biotrade and Bioprospecting

Note: See Box 7. ABS Procedures, Checkpoints and Flowchart in [Annex X-2](#) for more detail.

38. At the international level, the CBD provides a clearing house mechanism for helping regulate the relationship among CBD Parties and for providing information and disclosure on these matters.

39. At the time of preparing this PRODOC, (Aug 2017-March 2018), South Africa had obtained three **Internationally Recognized Certificates of Compliance (IRCC)**:

- On 23 March 2016, permitting the conduct of national and international research and development on *Sceletium tortuosum* and associated traditional knowledge and commercialise the final product, and where a Germany based pharmaceutical company, with ties to research partners in several countries, entered a BSA with the South African San Council and the Nama Community.
- On 10 November 2016, where a South African based company obtained a permit on the development of commercial products containing *Aloe ferox* as a key ingredient;
- On 23 June 2017, where a South Africa-based cosmetics company obtained a MTA and a BSA to manufacture quality body and skincare products containing *Aloe ferox* and *Agothosma betulina* as ingredients.

40. See online for updates on: <https://absch.cbd.int>. See also in Annex X-2's Section 1 on the '[Status Quo of the Implementation of Nagoya Protocol in South Africa](#)'.

### **Bioresources targeted in key Value Chains**

41. Currently, the most important plant species exploited by bioprospecting value chains in South Africa are still obtained, to a large extent, from wild harvesting. This is the case of *Aloe ferox*, *Pelargonium sidoides*, *Honeybush*, *Devil's Claw*, *African Ginger*, among others.
42. For certain value chains, obtaining products from bioresources may include some degree of species-level management, landscape-level management and, where it is economical, cultivation. However, for the majority of species that enter bioprospecting value chains, **wild harvesting** is still the main method for obtaining bioproducts. For several bioprospecting suppliers, avoiding overharvesting is a common concern and 'sustainability' is a difficult balance to strike.
43. Yet, for a few bioresources, market demand, low product substitutability and market competition had already created conditions for supplies to be primarily based on cultivation – this is the case of **Rooibos** e.g., for which production is almost 100% cultivated. In such cases, many barriers to sustainability along the value chain had been overcome – whether these barriers are of agronomic nature, related to land tenure or other. The bioresource then becomes a '**commodity**', meaning that production processes reached a significant level of standardization and scale. Issues of equitable benefit sharing may however remain to be resolved – e.g. the case of the San & Khoi Traditional Council negotiations with the South African Rooibos Council.
44. The overview further down (Table 2) shows the status of the key bioresources targeted by value chains in South Africa, and which have been prioritized to be on focus in this project at its approval stage. In Annex X-2.

**Table 2. Methods for sourcing bioproducts from priority species, threat profile, Red List status and trends**

#	Species	Methods of sourcing bioproducts	IUCN Red List status	SANBI Red List of South African Plants status	Threat profile and trends*
1	<i>Aloe ferox</i>	Harvested from the wild, likely unsustainable	Not assessed yet	Least Concern	Localized extinctions have occurred in some areas around the country due to overharvesting.
2	<i>Aspalathus linearis</i> (Rooibos)	Cultivated for the most, but in some areas also harvested from the wild (in particular for supplying the informal sector).	Not assessed yet	Least Concern	Climate change may, in the future, alter the natural distribution and cultivation potential of <i>Aspalathus linearis</i> , but the threat level to the species needs to be investigated.



#	Species	Methods of sourcing bioproducts	IUCN Red List status	SANBI Red List of South African Plants status	Threat profile and trends*
3	<i>Harpagophytum procumbens</i> (Devil's Claw)	Harvested from the wild	Not assessed yet	Least Concern	Overharvesting, but currently doesn't pose a serious threat to the species.
4	Honeybush ( <i>Cyclopia</i> spp.)	Harvested from the wild and cultivated.	Not assessed yet	Least Concern	Overharvesting, as some species can be obtained only by harvesting from the wild.
5	<i>Pelargonium Sidoides</i>	Harvested from the wild	Not assessed yet	Least Concern	Intensive harvesting of <i>P. sidoides</i> from the wild, due to the growing demand, has been placing pressure on wild populations.
6	<i>Sceletium tortuosum</i> (Kanna)	Harvested from the wild and cultivated.	Not assessed yet	Least Concern	Overharvesting, but cultivation has good chances of ensuring species survival.
7	<i>Siphonochilus aethiopicus</i> (African ginger)	Harvested in the wild to near extinction. Cultivated only on an experimental basis.	Not assessed yet	Critically Endangered	This species is over-harvested in South Africa and considered to be endangered and almost extinct regionally.
8	<i>Sutherlandia frutescens</i> , (cancerbush)	Cultivated with ease, but also harvested in the wild	Not assessed yet	Least Concern	Threat profile not known, but the species is assumed to be resilient.

\* Note: Refer to the following table for more details in [Annex X-2](#):

Table 13. Species characteristics, conservation status, value chain development and research facts

45. Notably, there are sustainability concerns for **six out of eight priority species** listed in the table above. Here are some highlights that are linked to the project's **pilots**, which are presented in the next section:

- A likely increase in demand for the already critically endangered **African ginger** should be treated as alarming. Clinical trials on African ginger's beneficial effects against allergies are underway under CSIR's leadership. This can potentially lead to successful product development. Until then, safeguarding the genetic diversity of the species is important, given its very limited distribution across the Southern African landscape (refer to [PRODOC Annexure, Section IV - PPG Study: Plant Distribution Sheet, #1](#)).
- Across the Cape Region, a biodiversity management plan for the harvesting of *Pelargonium sidoides* is needed to avoid increasing the level of threat to the species. Enhancing collaboration among producers can be more beneficial than competition. Removing barriers to it is important.
- The quantities of *Aloe ferox* harvested and the impacts of the techniques applied on the species are also a reason for concern. Benefits to harvesters, most of them women, can be expanded, if improved approaches to the primary processing of plant material, coupled with value addition, can be introduced within the *Aloe ferox* value chain.
- DEA has placed specific focus on developing the bioprospecting value chain in the dry and remote Northern Cape Province, where nine out of the twelve priority species for bioprospecting<sup>13</sup> are found in the wild and harvested. Among them are Devil's Claw (*Harpagophytum procumbens*),

<sup>13</sup> As defined by DEA in the NBES.

Kanna (or Kougoed, *Sceletium tortuosum*) and Cancer Bush (*Sutherlandia frutescens*), in addition to Rooibos (*Aspalathus linearis*). An Action Plan for Bioprospecting in the Northern Cape Province is under preparation and represents a strong baseline for this project.

### **The Core Problem**

46. Growth in the bioprospecting industry can potentially have a significant positive impact on the national and local economy in South Africa, while contributing to national imperatives such as job creation, rural development and conservation of natural resources. However, for the bioprospecting sector to achieve its full potential – and so that global biodiversity benefits are also generated – a strategic partnership between the state, private sector and communities is required.

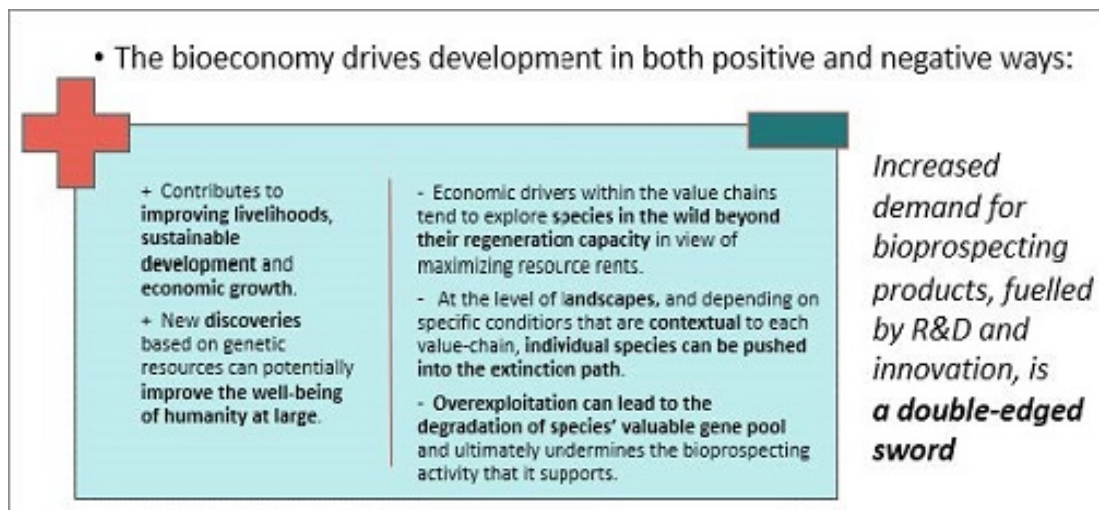
**The core problem that the project will address boils down to three aspects:**

47. **#1) The NBES points out to the fact that transformation in the bioprospecting value chain is inequitable.** Economically challenged participants in the sector are largely limited to the ‘resource segment’ of the market – i.e. they are mostly engaged in harvesting and cultivation. This limits the benefits realised by these individuals and groups (e.g. communities of harvesters and cultivators). This is one aspect of the core problem to be addressed by the project and it is clearly linked to inequitable relationships and benefit sharing.
48. **#2) The second aspect is linked to the role of traditional knowledge.** South Africa has a strong indigenous knowledge base, but its Bioprospecting economy is yet to fully realize the potential that this represents in terms of accelerating scientific discovery and product development. Along these lines, there are also potential benefits in terms of mainstreaming this knowledge into public health frameworks. While legal and policy frameworks are largely in place for safeguarding traditional knowledge in South Africa’s bioprospecting sector, practical experiences of success involving partnerships among indigenous and local groups, industry and the scientific community are few and far between.
49. **#3) The third aspect is linked to ecological sustainability.** Ultimately, all economic activities in the bioprospecting sector depend on the interactions between economic players and the natural environment. At the same time, for most species that are exploited in the bioprospecting segment in South Africa, wild harvesting yields have simply stagnated, because of the dynamic relationship between natural stocks, price and harvesting effort.
50. All three aspects discussed above are linked to delivery and sharing of economic, social and environmental benefits along bioprospecting value chains, as the sector grows in South Africa, expanding, therefore, the demand for natural raw materials, and thereby also the impact of wild harvesting on species and their habitats.
51. Sectoral growth can push efforts towards carving out new market niches, based on varied uses of genetic resources, innovation and value addition. The market then becomes increasingly segmented with **complex relationships between providers and users of genetic resources** – relationships where benefits are not always equitably shared.
52. All the six species, whose distribution was studied during the PPG (refer to PRODOC Annexure) have shown to have limited distribution within South Africa. The range of African Ginger, Rooibos and Honeybush are particularly small. Besides being a limiting factor to the genetic diversity of a species, its limited distribution makes it more vulnerable to other threats such as overharvesting, habitat loss or climate change. The distribution of Cyclopia spp. (Honeybush) e.g. coincides by-and-large with the Cape Floral Kingdom, making the species particularly vulnerable to habitat loss caused by land-use change.
53. Hence, even if cultivation of any of species targeted by the bioprospecting industry becomes economically viable-- e.g. if it is subsidized at first – other measures may be needed to ensure that ecological sustainability is

mainstreamed into the value chains (e.g. enforcement, landscape level management, protection of gene-pools). Else, less resilient species may face extinction, as foreseen in the Homma Model.

54. The entry of a species into the discovery phase may cause excitement because of the prospects of developing products and compounds. Yet, certain methods of research require large quantities of the plant's material and wild harvesting may impact species survival. African Ginger is an example of a critically endangered species, on which the research is bound to produce commercially useful results. The species has a limited distribution and has been overharvested from the wild. Currently, it is tagged in IUCN's Red List as critically endangered. CSIR was granted an international patent application under the Patent Cooperation Treaty (PCT) patent for use of the extract and compound.<sup>14</sup> The CSIR and the ARC have established successful propagation programmes for African ginger from tissue-cultured material to ensure a reliable supply of plant material for commercialization purposes. Reasonable quantities of plant material are needed for the research, and the only viable source seems to be handful of experimental farms in Central South Africa.
55. Bioprospecting resources are indeed renewable. However, the dynamics observed in certain value chains resemble those of non-renewable resources, characterizing thereby a situation of "resource mining" and possibly 'market failure' (similar e.g. to dynamics observed in the fishing industry or 'plant extrativism' in the Amazon<sup>15</sup>). Within such contexts, the lack of viable solutions for the supply problem have at times led the economy towards decline, leaving a gap in the management of ecosystems.
56. In summary, the project is concerned with the way that users and providers of genetic resources interact with each other along bioprospecting value chains and with the impact that these interactions have on species and habitats with a view of ensuring both **ecological sustainability and ABS-compliance**. The core problem addressed by the project can therefore be summarized in Figure 6.

**Figure 6. Problem statement and key assumptions behind the project**



Source: From the PPG Theory of Change Report (2017).

### **Project fit with SDGs, national policies and priorities**

57. **Relevance to national development priorities, global environment and/or adaptation issues, and the sustainable development goals (SDGs):** The Government of South Africa recognizes the growth in the

<sup>14</sup> Agreement # PCT/IB2007/050649.

<sup>15</sup> The term 'plant extrativism' is synonymous to wild-harvesting of plants, but used mostly in association with such activities in the Brazilian Amazon.



bioprospecting industry can have a significant positive impact on the national and local economy in South Africa, while contributing to national imperatives such as job creation, rural development and conservation of our natural resources. Therefore in 2015, DEA launched the NBES, complementing similar initiatives from other Departments and building on its core policy on the Green Economy for Sustainable Development.

58. The country's sustainable development vision is outlined in the National Framework for Sustainable Development (2008) as *"South Africa aspires to be a sustainable, economically prosperous and self-reliant nation state that safeguards its democracy by meeting the fundamental human needs of its people, by managing its limited ecological resources responsibly for current and future generations, and by advancing efficient and effective integrated planning and governance through national, regional and global collaboration"*.
59. A crucial principle of the NBES is that of fair and equitable beneficiation across the market segments in the biodiversity economy, to indigenous biological/genetic resources and/or the traditional knowledge associated with the use of the indigenous biological/genetic resources. This requires that the biodiversity economy grow with the consideration of all stakeholders within market segments.
60. South Africa's Indigenous Knowledge Systems (IKS) Policy (2004) provides a framework for institutionalising the contribution of indigenous knowledge to social and economic development. With respect to this project, the IKS Policy focuses at least on traditional medicine, and the role of indigenous knowledge in employment and wealth creation.
61. Both the Convention on Biological Diversity (CBD) and its Nagoya Protocol on Access Benefit Sharing were ratified by South Africa, respectively in 1995 and in 2013. With respect to 'indigenous and local communities' embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity, the country is committed to implementing the CBD's [Article 8\(j\)](#) on Traditional Knowledge, Innovations and Practices, as well as the CBD's Nagoya Protocol. To date, two international ABS agreements pertaining to the use South Africa's genetic resources were already deposited in the Protocol's Clearing House mechanism.
62. Under the National Environmental Management legal framework, the 2004 Biodiversity Act (NEMBA) defined the scope of South Africa's Bioprospecting economy. These frameworks are evolving, including through the National Environmental Management Laws Amendment Act 25 of 2014 (NEMLA). Additionally, Bioprospecting, Access and Benefit Sharing (BABS) Amendment Regulations were passed in 2015.
63. Other supporting legislation includes: The Threatened or Protected Species Regulations; CITES Regulations; Provincial Ordinances; Patent Amendment Act; and South Africa's Indigenous Knowledge Policy (IKS) of 2004 and for which a new Bill is undergoing public consultations.
64. Together, South Africa's core SDG policies and regulations create a sound governance framework for the implementation of the NBES. If implemented successfully, the NBES could contribute to the transformation of the biodiversity economy in South Africa through inclusive economic opportunities, reflected by a sector which is equitable - equitable access to resources, equitable and fair processes and procedures and equitable in distribution of resources (i.e. business, human, financial, indigenous species, land, water) in the market.

#### National Policies

65. The proposed project will contribute to addressing poverty alleviation, sustainable development and good governance objectives of South Africa's National Development Plan (NDP), which outlines government's development priorities till 2030, as well as the Government's Medium-Term Strategic Framework (MTSF, 2009-14). Both plans recognize the need to protect the natural environment in all respects, leaving subsequent generations with at least an endowment of at least equal value.

66. The project supports South Africa's Green Economy policy as a path towards sustainable development based on addressing the interdependence between economic growth, social protection and natural ecosystems. It will specifically contribute to the implementation of the DEA's 2015 NBES for what the bioprospecting sector is concerned. It will build on the afore-mentioned legal framework that is relevant to the project. The project is also generally supportive of the implementation of South Africa's Second National Biodiversity Strategy and Action Plan (2015 – 2025) and its commitments under CITES.

### Link to SDGs

67. The project contributes to meeting objectives of the Sustainable Development Goals (SDGs) as follows<sup>16</sup>: **Goal 1 No Poverty**: through rural development opportunities provided by community-engagement and livelihood improvement interventions through the engagement of small farmers and wild harvesters in bioprospecting and biotrade. Furthermore, the project touches upon **Goal 5 - Gender Equality** and **Goal 8 - Decent Work and Economic Growth**, where key principles of inclusive growth – among them, gender sensitive & gender sensible growth – will guide the development of business models based on the bioprospecting value chains that will be supported by the project. **Goal 9 - Industry, Innovation and Infrastructure** is highly relevant for the subject matter of the project, to the extent that it will promote inclusive and sustainable industrialization and foster innovation through a wide range of value chains linked to bioprospecting and the Bioprospecting economy. **Goal 12 Responsible Consumption and Production** will also be addressed, to the extent that the project will help infuse sustainability in the products and value chains supported by the project. **Goal 15 Life on Land**: where efforts will be made through the project to improve the management of terrestrial ecosystems and of specific plant species that are found in them, including for the preservation of their genetic diversity. **Goal 17 Means of Partnerships for the Goals**: where South Africa as megadiverse country and a BRICS emerging economy, is strategically placed to demonstrate examples of how to operationalize the biodiversity economy and meet a number of other SDGs in the process.

### ***Threats, Root Causes and Barriers***

68. South Africa's floral diversity is under threat in various parts of the country due to a variety of causes. Within the bioprospecting value-chains based on indigenous plants, the most prevalent threat to biodiversity is linked to overharvesting (i.e. when specific species are harvested beyond their natural regeneration rate), but also due to extant factors vis-a-vis the bioprospecting segment (namely, habitat shrinking, degradation and even climate change).
69. Increased demand for bioprospecting products, fuelled by R&D and innovation, is a double-edged sword (Figure 6). It can certainly contribute to improving livelihoods, sustainable development and economic growth. New discoveries based on genetic resources can potentially improve the well-being of humanity at large. Yet, driven by market forces, bioprospecting economic actors within value chains will tend to exploit targeted species in the wild beyond their regeneration capacity. At the level of landscapes, and depending on specific conditions that are contextual to each value-chain, individual species can be pushed into the extinction pathway. Overexploitation also leads to the degradation of species' valuable gene pool and ultimately undermines the biotrade activity that it supports.
70. Additionally, South Africa is an ethnically diverse country and it is also home to 'indigenous and local communities', including the Khoi-San who identify themselves as one of the First Nations Indigenous groups. Indigenous and local communities are recognized as being bearers of TK on genetic resources and can potentially make claims to discoveries regarding the use of genetic resources indigenous to South Africa – as they have done in the past.

---

<sup>16</sup> UNDAF Results Area 4 PLANET makes the direct links to SDGs 1, 7, 8, 9, 11, 12, 14, & 15 and this project is strategically positioned to contribute to the aforementioned SDGs.

71. Although the South Africa has made impressive progress towards ethnic inclusiveness – and although the country has a well-developed legal and policy framework for both ABS and biodiversity management – this has not immediately translated into compliance with ABS laws or sustainability across the different bioprospecting value chains.
72. Some of the root causes (or drivers) behind the degradation of biodiversity linked to bioprospecting value chains include: (1) Sub-optimal investments in sustainable and ABS-compliant R&D; (2) Value chains have a myopic view of what constitutes ‘value creation’, so economic players often overlook conservation concerns and the role of TK; and (3) Limited national capacity and inadequate institutional arrangements for ABS and conservation, which translates into incipient experience with ABS-compliance and sustainability.

### Core issues linked to value creation in bioprospecting value chain

73. Based on the preceding discussions of the core problem, the following main constraints linked to value creation in bioprospecting value chain include:
  - Unsustainable resource use;
  - Weak supply chains resulting from low levels of supply, poor quality and poor controls;
  - Price pressure resulting from substitute products;
  - Lack of respect for the rights of traditional knowledge holders; and
  - A variety of gaps in technical and business administration know-how
  - Institutional fragmentation.
74. These gaps all result in a situation where bioprospecting projects create resource conflict, rather than generating human welfare.
75. The remedy for addressing these gaps lie in a variety of value-chain wide interventions which are focussed on effective value addition.
76. For this project, a core assumption is that effective interventions would increase the throughput of products through the bioprospecting value chain, both in terms of volume of material and product price. Effective interventions that could bring solutions to the problems outlined should also increase the returns to traditional knowledge, i.e. resource rents. These interventions would also provide critical know-how across the value chain.
77. There are **three overarching barriers** that stand in the way of advancing a long-term solution of infusing ABS compliance and sustainability into bioprospecting value chains<sup>17</sup>:

### Barrier #1. Gaps in scientific knowledge on how to improve the benefits derived from bioprospecting.

78. The contribution of R&D towards accelerating innovation in the bioprospecting sector is of chief importance, but it may not always equate to ABS-compliance (or sustainability in production). Also, R&D in the bioprospecting sector being time-consuming and investment demanding.
79. Despite having a vast reserve of botanical specimens and a strong indigenous knowledge system on the medicinal use of these plants, South Africa is yet to launch major registered medicines or drugs based on South African plants into the local and international biotechnology and pharmaceutical arena.
80. Catering for ABS-compliance in value chains poses a distinct set of challenges to Bioprospecting economy players. South Africa needs to accumulate more successful experiences, not only in applying the domestic ABS

---

<sup>17</sup> See also Figure 8 a for a representation of the project’s [Long Term Solution](#) and Table 4, in the Results and Partnership section (Section IV), showing alignment of the Barriers with the Project’s components

legislation to value chains, but also in ensuring compliance with the Nagoya Protocol in relationships with other CBD Parties.

81. However, other barriers linked to the R&D in bioprospecting include time, investment and effort. Enhancing and building the innovation nodes and system, while also ensuring linkages between these, requires increased state investment in life science incubators, science parks and pilot facilities for demonstration purposes.
82. While such investments made by government will reduce investment risk and stimulate follow-on funding by the private sector, there are limits to how such interventions may shorten the time between the discovery phase of a new product and its successful production and sale at scale. Not all processes can be rushed. Clinical trials and safety tests for new drugs etc., e.g. often require a few years till they lead to successful product development. Also, the negotiation of ABS agreements may take time, requiring expert advice and it may need to be done in a step-wise manner, depending on the pathway that product development takes.
83. Experiences from South Africa and elsewhere have demonstrated the importance of prior informed consent, the complexities of regulating ABS when the resource is used both as a genetic resource and as a raw material, and the difficulties of implementing benefit sharing frameworks in marginalized communities that lack institutional capacity.
84. The contribution of bioprospecting/ biotrade based on indigenous plant species can only make a more significant contribution to the Bioprospecting economy, if there are sufficient investments in home-grown R&D that would foster a technological leap, new discoveries and innovation in techniques, processes and products – and not least also ensure sustainability in production.

**Barrier #2. Challenges in ways of working, management conditions and techniques within bioprospecting value-chains – in particular with respect to the sustainability of supplies (i.e. plant raw materials).**

85. Because of the nature of bioprospecting and biotrade activities, the economic segment is tightly regulated – i.e. activities may be subject to complex operational permitting, habitat management certification, phytosanitary controls and, not least also, **compliance with access benefit sharing (ABS) legislation** (nationally and internationally).
86. While different bioprospecting value chains and related R&D in South Africa hold a significant potential for growth, innovation and job creation, **depending on many conditions, the very bioresources upon which these value chains depend may be threatened.** The case of African Ginger e.g., which is critically endangered but on high demand is emblematic. *Aloe ferox* and *Pelargonium sidoides* may follow a similar path because of overharvesting.
87. These conditions are not only site- and resource-specific (e.g. linked to the species' life cycle characteristics and its distribution in the wild), but also highly sensitive to market signals, such as price, demand volume and substitutability. The dynamics of resource overexploitation in bioprospecting value chains are thoroughly discussed in [Annex X-6](#), where it becomes clear that, because of the apparent abundance of bioprospecting resources across landscapes and low resource rents, overharvesting ensues. In other words, harvesters have a strong economic incentive to collect as large volumes as possible until supplies become threatened. Market failure is characterized.
88. While increased demand for a bioprospecting/biotrade product is desirable in terms of business growth and job creation, this may increase the current threat levels that affect individual species, particularly when production depends heavily on wild harvesting. Depending on conditions, peaks in demand for bioproducts may pose a serious risk to species survival, while also undermining the genetic variability of these species in the wild. Loss of gene-pools and a decrease in the supply of raw materials can undermine the development of the same value chain that contributed to resource scarcity in the first place. If the targeted resource has no substitute and

demand continues to increase, this process will eventually fuel the decline in the resource exploitation activity, especially when price signals are not effective enough or fast enough in fostering the cultivation of the bioresource.

89. The following species/value chain conditions can contribute to the consolidation of the above described negative scenario:
- The targeted species has limited distribution;
  - The targeted species has a long life-cycle;
  - The technique of resource extraction either kills or weakens the plant, with no viable alternative technique;
  - The cultivation of targeted species faces agronomical challenges that cannot be easily overcome;
  - Competition among economic players, rather than collaboration, will fuel resource scarcity – missing out on opportunities for innovation and process improvement;
  - Resource extraction activities are not adequately monitored or regulated.
90. The NBES points out to the risks of exceeding the regenerative and/or productive capacity of resources that are used in the biodiversity economy more generally. However, the Strategy also notes that this will require that the regenerative and/or productive capacity of each species used in the value chains are known – a point that applies both to the biospecting sector and to the wildlife sub-sectors on focus in the NBES.
91. Management and monitoring plans are at times required to ensure that species' carrying capacities and extraction rates are managed and limits imposed by the plan are adhered to. Knowledge and information on the sustainable use of indigenous biological/genetic resources and the management thereof should also be disseminated and shared.
92. A transition from wild harvesting to cultivation may offer solutions to the issue of resource scarcity in supply chains. It does not necessarily ensure the survival of species in the wild. In addition, cultivation of certain species, or even the transition from wild harvesting to cultivation is not so straight forward.
93. According to the analysis in [Annex X-6](#), market indicators such as prices and supply volumes may not be sufficient to avert the threat of overharvesting before a successful transition to cultivation can secure sustainable supplies. Market failure is therefore a major challenge in ways of working, management conditions and techniques that characterize bioprospecting value-chains. This is particularly relevant with respect to the sustainability of supplies (i.e. plant raw materials), given that much of these supplies come from wild harvesting.
94. The role of government would then be to limit wild harvesting through enforcement e.g., while simultaneously fostering cultivation. However, not all species can be easily cultivated. The case of African ginger, *Aloe ferox*, *Cyclopia* spp. are clear examples of the types of difficulties that may be faced by bioprospectors. For businesses, overcoming agronomical bottlenecks, obtaining rural credit and the right permits for operating may take years, in addition to being costly. In the meantime, there is a risk that market forces will end up adding pressure on wild resources before cultivation can become viable.
95. Furthermore, tappers of biological resources, harvesters and suppliers in general, tend to move in and out of the industry depending on factors such as the current demand, price and availability of the resources (i.e. aloe sap) at any given time. The prevailing climatic conditions can also impact conditions of resource scarcity (e.g. prolonged drought).
96. As a result, the maintenance of indirect benefit sharing schemes where benefits flow back to the initial (and direct) producers is quite difficult because currently there is no incentive for the tappers to formalize their trade or keep any form of record of their contribution to the total production in a region.

97. The cases of Pelargonium, *Aloe ferox* and Honeybush will serve to demonstrate how ways of working, management conditions and techniques can make a difference to species survival and facilitate a more equitable benefit sharing arrangement. Supplies to the market for all three species are currently wildly harvested: for Pelargonium and *Aloe ferox* wild harvested supplies reach virtually 100%, while for Honeybush it is likely at 90%).

### Barrier #3. Gaps in national capacity for ABS-compliance

98. Capacity for ABS-compliance in South Africa has many different facets. The main ones that apply to the domestic aspect of ABS include the following:

- Whether competent national authorities are in place, adequately staffed and funded to face the challenges;
- The scope of the measures to ensure ABS-compliance, including the legal recognition of ownership and traditional uses of both biological and genetic resources;
- The definition of traditional knowledge (TK) in relevant legislation;
- The types of measures adopted and implemented: policy, legislation, regulations;
- More specifically, whether there are procedures for prior informed consent (PIC), the key conditions for obtaining PIC and how PIC is granted – and by whom, or in phases -- for the use of genetic resources and TK, as well as whether it is cumbersome to obtain it etc.;
- How mutually agreed terms (MATs) of use of the information or resource in bioprospecting agreements are negotiated, and whether government oversees these negotiations and how, if procedures are in place;
- Whether there are specific requirements in place for the sharing of monetary and non-monetary benefits and if the types of compliance measures in place to ensure that users respect ABS requirements; and
- In addition, it is relevant to identify who the users and providers of genetic resources are and how advanced South Africa's experience with ensuring ABS-compliance in different segments is – and more relevant for this project, in the bioprospecting segment.

99. A 2014 study commissioned by the ABS Capacity Development Initiative in collaboration with the Government of South Africa<sup>18</sup> addressed the above questions, among other related ones. The following conclusion from the study stands out:

*“Chapter 6 and 7 of NEMBA provides a framework for regulating bioprospecting involving indigenous biological resources and/or associated traditional knowledge. The BABS Regulations provide details on the processes and procedures for engaging in bioprospecting activities legally. A host of other laws, administered by other departments also have relevance in the effective implementation of the provision of NEMBA and BABS Regulations. As part of a preparatory process for the national implementation of the Nagoya Protocol on ABS, South Africa is continuously engaging with relevant stakeholders in particular on the new obligations outlined in the Nagoya Protocol on ABS which are not covered in the existing national legislation but require administrative systems to be put in place for effective implementation thereof. South Africa being both a provider and a user has embarked on a national stakeholder engagement process to address the identified new obligations of the Nagoya Protocol, being; (a) Article 15: Compliance with Domestic Legislation or Regulatory Requirements on Access and Benefit Sharing of the provider country and, (b) Article 17: Monitoring the Utilization of Genetic Resources. Concomitant to that is the review of the applicable legislation which will incorporate all the obligations emanating from the Nagoya Protocol.”*

---

<sup>18</sup> The ABS Capacity Development Initiative / Government of South Africa (2014): *National Study on ABS Implementation in South Africa*.

100. The study also pointed out to the fact that the DEA conducted in the past few years several workshops, seminars, conferences, media events and information sharing sessions throughout the country to raise awareness on bioprospecting and ABS. A wide range of stakeholders inclusive of individuals, research institutions, associations, universities and companies were invited to participate and engaged in the process.

101. Generally, ABS compliant legal and policy frameworks are in place, being implemented and relevant stakeholders are informed about the ABS topic. Yet, there are gaps and challenges that remain to be addressed:

- The contribution of bioprospecting to the conservation of bioresources is poorly explored / understood and, therefore, protection measures for species that are either threatened or likely to face increased threat because of bioprospecting activities are not fully in place.
- Permit issuing authorities are not always able to ensure that the relevant bioprospecting/biotrade activity will not deplete an indigenous biological resource beyond a level where its integrity is jeopardised;
- The processing of permits for commercialisation projects using genetic resources is a slow process. There are also several projects in the pre-commercialization pipeline (the discovery phase) and for which DEA receives notifications – given the recent acceleration in R&D and in bioprospecting activities.

102. Overall, there is room for streamlining processes of establishing whether a TK claim has sufficient grounds and in ensuring that benefits that may be obtained in the commercialization stage are fairly and adequately established and shared. The role of the National Recordal System maintained by DST is pivotal in this process and it needs to be strengthened, along with adequate institutional arrangements.

---

## II. STRATEGY

103. This project will specifically **support the implementation of the NBES with regards to the use of indigenous plants' genetic resources and their current and potential applications, either in pharmaceuticals, personal care products, cosmetics, enzymes or in other similar, non-food uses**. It will address both the conservation and Access Benefit Sharing (ABS) issues linked to the development of different bioprospecting value chains and help key players overcome related barriers and challenges.
104. The project will explore what 'sustainability' and 'ABS-compliance' means in different situations for the segments of the Bioprospecting economy that extract, cultivate and trade in indigenous medicinal plants **through an empirical and context-based approach** (refer to [Annex X-2](#) for the description of the relevant context).

### Long-Term Solution

105. The proposed project **Objective** is to **strengthen the value chains for products derived from genetic resources that contribute to the equitable sharing of benefits and the conservation of biodiversity**, with a focus on bioprospecting of indigenous plant species.
106. **The long-term solution envisaged for the project** implies that bioprospecting value chains deliver significant economic, social and environmental benefits through the negotiation of agreements or collaboration frameworks between the providers and users of genetic resources. Such agreements and frameworks may be monetary (such as royalties and payments per sample) as well as non-monetary (such as biodiversity conservation, technology, research and training opportunities).
107. The project has been designed to **contribute to the above solution in a relevant, effective and sustainable manner**. Nominally, the long-term solution is quite comprehensive and ambitious. Achieving this solution is beyond the project's scope and hence "above the project's **accountability ceiling**", which is represented in the project's Theory of Change diagram (see Figure 8), the details of which are described in the [next sub-section](#). The project's contribution to the solution is based on a thorough analysis of its context and baseline, as well as feasible proposals for the kind of change that the project will bring about. Finally, the project's Theory of Change makes explicit the causal relationship between the ultimate outcome/result, the expected long-term impact and the project's outcomes, linking it to the objective.
108. **The project Objective** will be achieved through implementation of components, which address three key **barriers** for a sustainable and ABS-compliant development of bioprospecting value chains in South Africa, as follows:

**Component 1** *Research and development (R&D) of products is in line with the definition of utilization of genetic resources of the Nagoya Protocol*, which has a strong focus on bioprospecting, in the R&D processes and overcoming context-specific barriers. One important output under this first component will focus on the Northern Cape Province, where an innovation and business support hub will be established. It will also accelerate the registration – and transition to cultivation -- of the critically endangered *Siphonochilus aethiopicus* (African Ginger) as a medicinal product for asthma and allergies, while also considering what would be needed for conserving the diversity of the plant's gene pool in the wild.

**Component 2** *Cooperation models support the conservation of, and commercial trade in indigenous bioproducts*, which focuses on value-chain development. Both biotrade and landscape-level management feature prominently among the key activities under this outcome, where the goal is to ensure ABS compliance and sustainable management of species and landscapes. The species of focus will include



*Pelargonium sidoides*, *Aloe ferox*, Honeybush (including at least three species of *Cyclopia* spp. used in the industry) and Rooibos (*Aspalathus linearis*).

**Component 3** *Bioprospecting and value addition knowledge transfer is enhanced for equitable benefit sharing* – this component is designed to build the capacity of national stakeholders for understanding ABS issues, complying with national and international legislation and for better handling the complex relationships therein implied, including commercial relationships.

109. The above are the project's three **technical components**. In addition to these, a fourth supporting component is concerned with the lessons learned from the project and how they will be made available nationally and, where applicable, internationally.

110. **Component 4** *Knowledge Management and M&E* will facilitate the process of institutional learning through the active participation of all stakeholder groups in project implementation, the regular monitoring of project activities, as well as project review and evaluation within the applicable appropriate M&E framework for UNDP-managed GEF-financed projects.

## The Project's Theory of Change (ToC)

111. The Theory of Change has been designed in a way that: (i) defines the expected results of the project within its scope and from a perspective of the 'desired change' (see Figure 8 further down for further reference on the **ultimate solution**, the **accountability ceiling** of the project and the **long-term impact**); and (ii) outlines the process of 'getting there' or achieving these results, where a set of **pre-conditions** are conceived within a **logical causal chain** (see Figure 9 and Box 4 also further down).

112. The project's strategy was thereby consolidated, to the extent that these pre-conditions – and the preconditions before those – provide elements to the project's **outputs**.

### Box 4. Steps in building the TOC for the project

#### Unpacking the overarching project logic:

1. The expected **results** from the project are defined within its **scope** from a perspective of what would be the '**desired change**'.
2. With it, an '**ultimate solution**' can then be formulated as a broad and ambitious goal that the project will not necessarily achieve, but will contribute to.
3. Visioning the ultimate outcome provides some hints into what this desired change would be, while the '**accountability ceiling**' defines the boundaries for the project's possible impact – and hence the limits of its scope.
4. Along these lines, the project's **long-term impact** is defined as an affirmative statement of what the project intends to achieve.
5. Finally, the project's long-term impact has resonance with its objective – e.g. while the long-term impact speaks of the "*development of key bioprospecting value chains...*", the objective picks this up and proposes to "*strengthen key value chains...*".

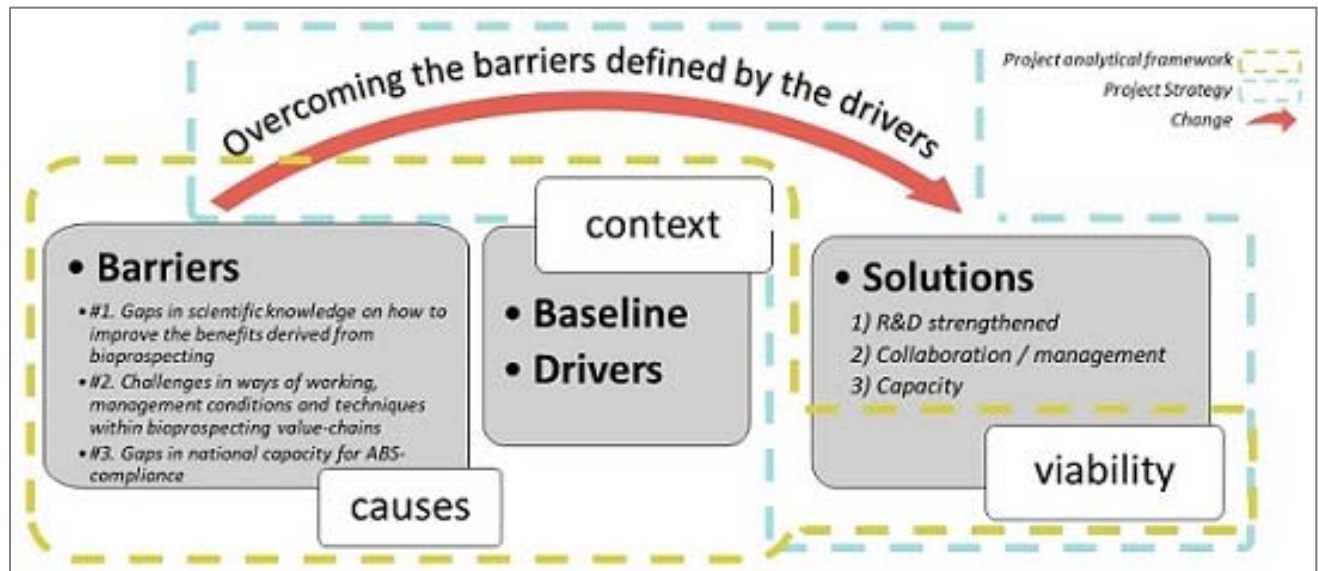
113. Given that the project strategy evolved somewhat since the PIF stage, the TOC exercise was particularly useful during the PPG phase in terms of aligning the best possible strategy for the project and its viability.

114. At the same time, and given the project's 'behavioural change approach', the logic behind the project's Theory of Change also implies that **the project needs to overcome a number of identified barriers**, so as to bring about change. This, in turn, is achieved by providing **viable solutions** to the challenges that these barriers represent.

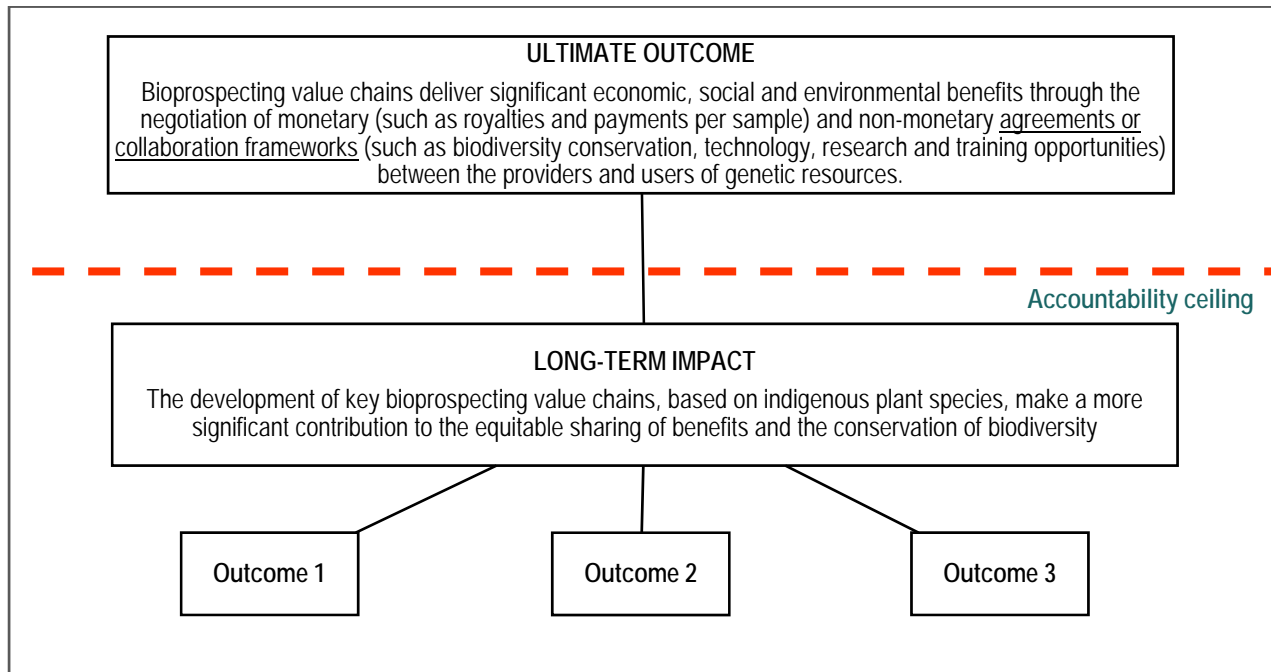
Therefore, the development of project activities was approached during the PPG as a set of **feasibility studies** (see Annex [X-2](#) and [X-3](#)). Clearly defining the project's barriers has helped to build the Project Strategy on a solid analysis of the **drivers and root causes** that were behind these barriers, as well as a thorough assessment of the project's **baseline**.

115. Furthermore, because this is a GEF biodiversity project, **the core problem** that the project wishes to address is always defined in terms of 'biodiversity loss' and thereby also as **threats** to biodiversity.
116. This understanding of the project's ToC with respect to the behavioural change approach that is envisaged had been presented in Section II ([Development Challenge](#)). These ideas can be summarized in Figure 7, representing an innovative approach to the project's [Core Problem](#):

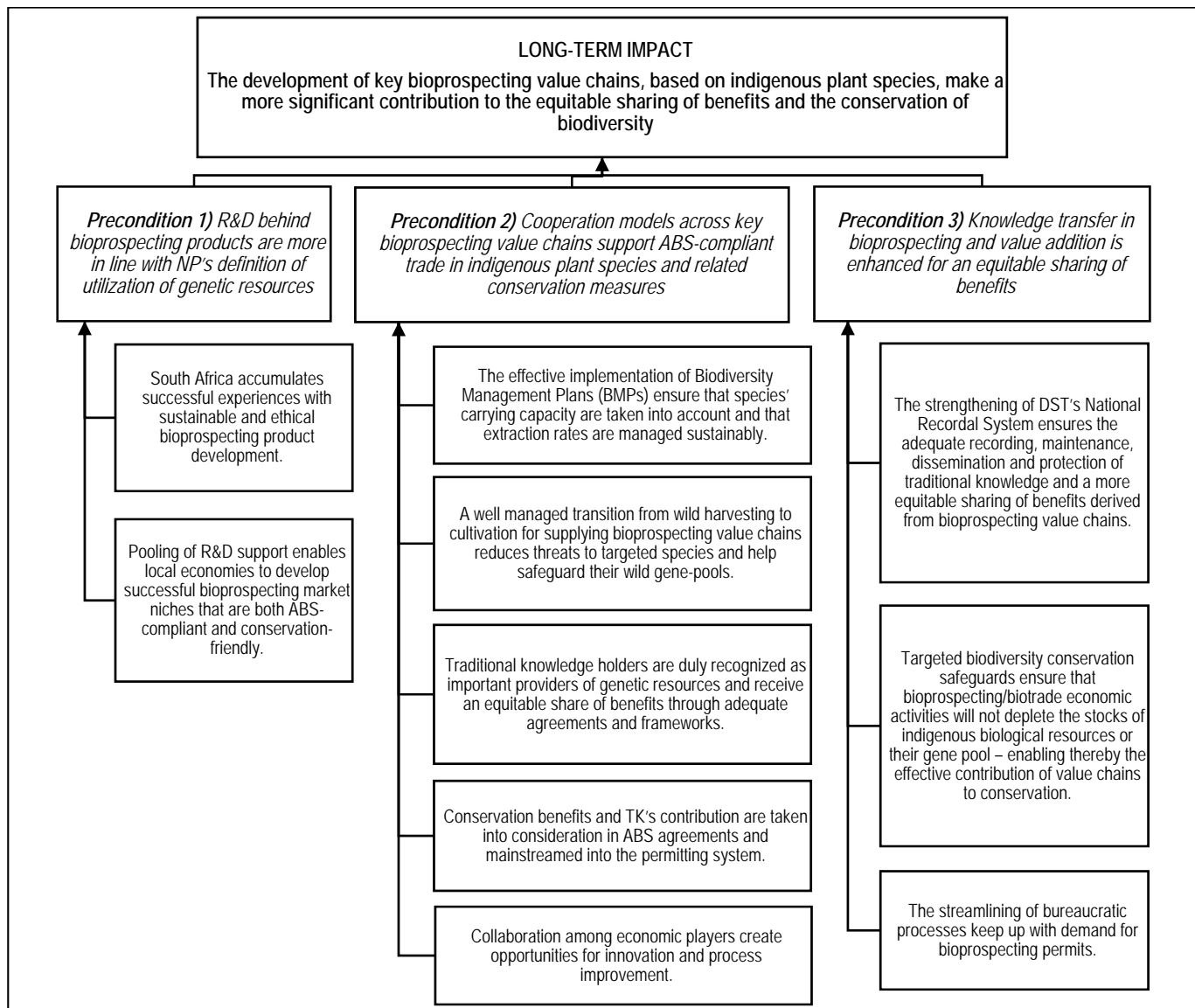
**Figure 7. Theory of change behind the project strategy: Logic**



**Figure 8. Theory of change behind the project strategy: Accountability Ceiling**



**Figure 9. Theory of change behind the project strategy: Preconditions for Long-term Impact**



117. Notably, the above pre-conditions correspond to the project's Outcomes, while the "chained" pre-conditions have a strong resonance with the project's outputs.

118. Also, further to the above figures, it is worth highlighting that the **project's objective** has **two key aspects** inbuilt in the pre-conditions for the development of bioprospecting value chains: the first one is the **equitable sharing of benefits** -- or the ABS one -- and the second is the **conservation of biodiversity** within these value chains.

119. Figure 10 shows strategies, measures and approaches that will be used in the project to achieve either ABS compliance or conservation goals.

120. Figure 10 is divided into two parts, of which the first one, **Part (a)** explains how the project has consistently applied the "Ecosystem Approach" in its specific context for producing global biodiversity benefits, while **Part (b)** explores the different strategies for ABS and how they apply to both project 'pilots' and 'systemic measures'.

121. **Concerning Part (a)**, the project departed from a limited set of priority plant species -- all indigenous and all focused on the bioprospecting segment. This scope had already been defined at PIF stage and remained unchanged at PRODOC for CEO Endorsement stage. What is new is that the **Ecosystem Approach** has now helped shape the project strategy on the basis of “**the species’ needs**” – that is, putting their ‘**survival**’ in the face of threats first and, herein implied, ensuring also the ‘**robustness of their wild gene pools**’. Such approach equally implies putting the core focus on **the conservation status of habitats** in which these species occur *in situ* and where their gene pools may or may not be adequately conserved – something that the project needs to verify on a case-by-case basis.

122. The approach also recognizes that different species used in the bioprospecting segment occur in different types of ‘landscapes’ (or habitats), some of which are rather limited, while others have a more widespread distribution. As the species enter value chains, they may be subjected to differentiated and dynamic pressures (levels of threat). They also have different life cycle conditions and are subject to external threats. All of these factors, combined, influence the species’ resilience and the viability of their populations. They are determinants of whether it is feasible or not, from a project intervention point of view, to focus on sustainable use of wild resources or whether support to ‘cultivation’ is a better investment from a conservation – and ABS – point of view.

123. How these conditions specifically affect the species’ needs within an Ecosystem Approach is discussed in more detail in [Annex X-6](#) (*The dynamics of resource overexploitation in bioprospecting value chains*). There are two main “take home” lessons from the mentioned annex: **First**, “Plant extractivism” (or wild harvesting) constitutes a very fragile economic basis, subject to the interference of several variables<sup>19</sup> that neither users nor providers of genetic resources fully master or control. Therefore, a precautionary approach would be warranted. **Secondly**, an area of concern and a recommendation pertaining to the economics of wild-harvesting / plant extractivism is as follows “In the medium and long term, a pathway to sustainability should emphasize the importance of research policies aimed at plant domestication to simultaneously meet market growth and biodiversity conservation objectives.”

124. To reach useful conclusions on **concrete cases** (i.e. “real-life” situations and “on the ground” – **as referred to by the GEF Secretariat**) – **and in order to shape** -- specific studies are needed. While these are included in the set of activities that form part of the project strategy, for now, Figure 10(a) placed the different species and systems across a gradient of land-uses that, from an ecological (and theoretical) perspective, vary from biotope to monoculture, with respect to the level of intactness of ecosystems, as defined under “**Step 1**”.<sup>20</sup> This served to identify on a notional basis and through “Step 2” the ideal land-use management trend that the project should try and influence – shaping thereby specific interventions. With respect to the different species, the approach and strategy may be thus summarized:

**(i) For the critically endangered African ginger** (*Siphonochilus aethiopicus*), urgent and consistent measures are needed for it to recover from the extinction path. Within South Africa the distribution is quite restricted (only 35,324 km<sup>2</sup> – see Plant Distribution Sheet 1: African Ginger in [Annex X-2.2](#)). In addition, the plant is highly sought after for its use in traditional medicine in South Africa, which leads to over-exploitation and has resulted, over the years, in a possible regional extinction in the wild. Yet, there is uncertainty about the current conservation status of the species -- in South Africa, at least. The wild distribution of *Siphonochilus aethiopicus* (Schweinf.) B.L.Burt is otherwise widespread from Ethiopia, west to Sierra Leone and then south to Southern Africa. Varieties across Africa differ in their genetic expression, so cross-fertilization with foreign gene pools may not be a viable strategy for securing species survival. Hence, it is first and foremost

<sup>19</sup> Such variables include (i) plant domestication processes (transition from wild harvesting to cultivation); (ii) the discovery of synthetic substitutes; (iii) competition with other economic alternatives; (iv) conditions of market growth and competitive uses of the same species; (v) the exhaustion of the extractive resource; and (vi) the interrelationship with other sectors of the economy -- plus several other variables. (refer to PRODOC Annex X-6 for more details)

<sup>20</sup> This parameter was chosen because data on it is systematically collected by SANBI and, during project implementation, the institute can use it to make concrete recommendations for the conservation of species and habitats concerned by bioprospecting value chains.

important to re-assess the conservation status of the species and thereafter pressures on wild harvested populations of *Siphonochilus aethiopicus* are expected to be reduced.

125. For DEA, in partnership with SANBI and ARC, the goal will be to devise a species-management and conservation plan for *Siphonochilus aethiopicus*. The plan may include investing in a sustainable harvesting program, where the project will help safeguard the ginger's precious gene pool across its natural landscape. Such program may apply in areas outside of protected areas – within them, enforcement of no harvesting should apply and this is already being undertaken by baseline (co-finance) activities. Such measures may not be enough to secure the species survival in the wild and a rapid and sustainable transition to cultivation needs to be supported simultaneously.

126. ARC is already assessing the agronomical conditions that will likely make, in the near future, cultivation of African Ginger viable, including by the same local population that normally seeks the plant's wild resource. ARC is currently testing techniques for *Siphonochilus aethiopicus* cultivation in at least two experimental farms across South Africa. The Center is also ready and willing to provide – with own funds -- extension services to local communities who are willing to engage in cultivation of African Ginger, as a possible increase in demand is likely and it can either have detrimental or a positive impact on the species' survival. The project will shift conditions to ensure that it is the latter, namely avoiding extinction through the conservation of *Siphonochilus aethiopicus*, primarily as a genetic resource used in agro-industrial processes for the production of medicinal products, whose clinical efficacy is about to be proven, not least also due to an incremental support from the project.

(ii) For *Aloe ferox*, *Pelargonium spp.* and wild-harvested Honeybush landscapes, the aim is (for now) to ensure that landscapes and resources are sustainably managed. In fact, DEA has recently published 2017(a) useful guidelines on this (see e.g. McGregor, 2017a).<sup>21</sup>

(iii) For the Northern Cape hub, the project will help create better conditions for ecologically-adapted cultivation systems for species of interest to the bioprospecting value chains. However, cultivation and extension services are not the main goal of the hub – but rather areas to invest in.

(iii) As for Rooibos (*Aspalathus linearis*), the project will not focus on cultivation of Rooibos, but rather on addressing an ABS gap and legal gaps to achieving it. The strategy is therefore one of maintaining the *status quo*. The species' gene-pool is considered to be well-conserved across multi-use landscapes. Its wild distribution falls mostly within the Western Cape and to a lesser extent the Northern Cape Province and covers an area of approximately 56,231 km<sup>2</sup>. Production of Rooibos for various purposes comes in 99% of the cases from cultivation.

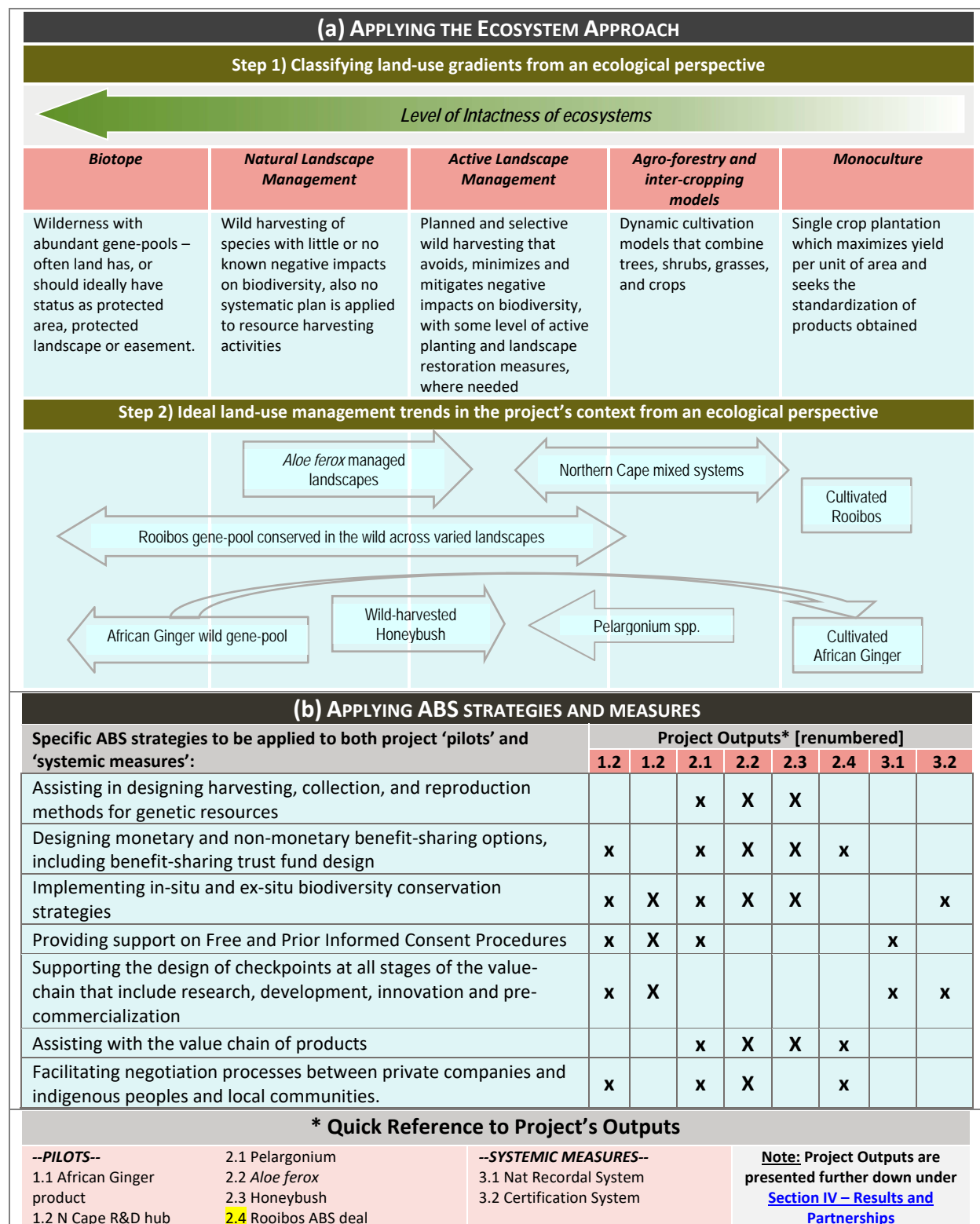
127. Concerning Part (b) of Figure 10 concerns the strategies for the project's different pilots, as well as policy measures with respect to ABS. Measures that typically apply to ABS projects / initiatives are the following:

- Assisting in designing harvesting, collection, and reproduction methods for genetic resources;
- Designing monetary and non-monetary benefit-sharing options, including benefit-sharing trust fund design;
- Implementing in-situ and ex-situ biodiversity conservation strategies;
- Providing support on Free and Prior Informed Consent Procedures;
- Supporting the design of checkpoints at all stages of the value-chain that include research, development, innovation and pre-commercialization;
- Assisting with the value chain of products; and
- Facilitating negotiation processes between private companies and indigenous peoples and local communities.

<sup>21</sup> McGregor, G.K. (2017). Guidelines for the sustainable harvesting of wild honeybush. Department of Environmental Affairs and Development Planning, Cape Town.

128. How these measures apply to the different project outputs is covered under Figure 10(b).

**Figure 10. Theory of change behind the project strategy: (a) Conservation aspects and (b) ABS aspects**



129. In addition, the key **working hypothesis** that underpins the project strategy, which summarizes the multiple benefits that the project is bound to generate, can be thus formulated:

*‘Bioprospecting can create viable income-generating opportunities for local, rural communities to the extent that indigenous plant products have a market value and that this can be achieved through successfully harvesting, cultivating, processing and trading the species, its genetic resources and derivatives thereof, without such activities representing a threat to biodiversity.’*

130. Moreover, the above working hypothesis includes the assumption that these income opportunities can be achieved while at the same time also generating **Global Environmental Benefits (GEB)**. These include:

- The conservation of biodiversity and the sustainable use of its components, including:
  - **species management measures for *Siphonochilus aethiopicus* (African ginger) in particular, given the level of threat;**
  - of **habitats** that harbour key bioprospecting resources, such as *Pelargonium sidoides* and *Aloe ferox* through landscape-level management;
  - of **gene-pools** of a variety of species used in bioprospecting value chains among them Devil’s Claw (*Harpagophytum procumbens*); Kanna (or Kougoed, *Sceletium tortuosum*) and Cancer Bush (*Sutherlandia frutescens*) – but also of Honeybush (*Cyclopia* spp.)
- Fair and equitable sharing of the benefits arising from the utilization of genetic resources, including by appropriate access to genetic resources, among them Rooibos (*Aspalathus linearis*) **and the critically endangered African ginger (*Siphonochilus aethiopicus*).**

131. Hence, addressing the core problem (which has been discussed in the previous section under ‘[The Core Problem](#)’) is premised on two objectives: (i) moving towards commercial maturity of every species value chain, and (ii) increasing the throughput of every species value chain.<sup>22</sup> A test of sustainability and ABS-compliance would then apply. The discussion follows:

(i) Moving species’ value chains towards commercial maturity

132. Hence, relevant theories can be brought into the analytical framework for strengthening the project strategy.

*The theory:*

- Natural resource industries, such as bioprospecting, exhibit similarities across the world. These have been well studied by Homma (‘hence the reference to the Homma Model’), FAO and other researchers.<sup>23</sup>
- Initially, wild harvest and natural production exceed market demand. At some stage, harvesting reaches a maximum yield (represented by the top of the slope in Figure 11 further down). The point of maximum yield is not only determined by the natural production rate and the amount of effort invested by the harvesters, but is also affected by market prices.
- Typically, maximum yield therefore results from a dynamic relationship between natural growth rate, harvesting effort in the preceding period(s), harvesting effort in the current period, and market prices. At the point of maximum yield, the issue of substitutability arises. When the

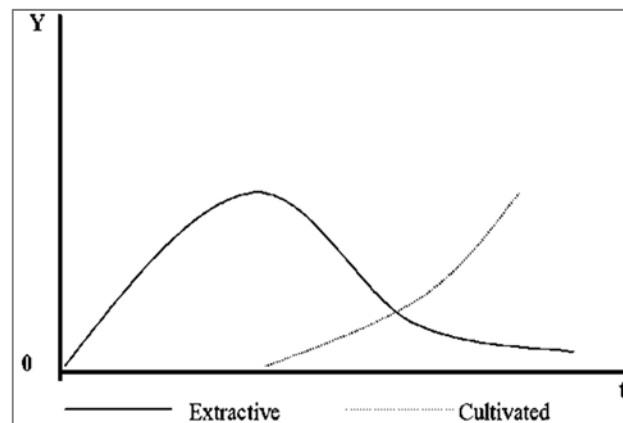
<sup>22</sup> This is discussed further below and the summary argument is picked up again in sections ‘Threats, Root Causes and Barriers’ and in ‘Long-Term Solution’ further down.

<sup>23</sup> See e.g. Homma, Alfredo K. O. 1996. “Utilization of Forest Products for Amazonian Development: Potential and Limitations”. In: Lieberei, R., Reisdorff, C & Machado, A. D. Interdisciplinary Research on the Conservation and Sustainable Use of the Amazonian Rain Forest and its Information Requirements. Report on the Workshop held in Brasilia, Brazil, November 20-22, 1995. Hamburg, Germany. See also: Schippmann et al. (2003). Impact of cultivation and gathering of medicinal plants on biodiversity: global trends and issues. FAO Document Repository - Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries, Case Study No. 7 (<http://www.fao.org/docrep/ARTICLE/WFC/XII/0758-A1.HTM>, retrieved on 10 May 2017.)



economic rents at maximum yield is lower than what may be gained from using e.g. substitute products, market prices will usually adjust accordingly and harvesting effort would similarly reduce.

**Figure 11. Relation between native production and cultivation production (after the 'Homma model')**

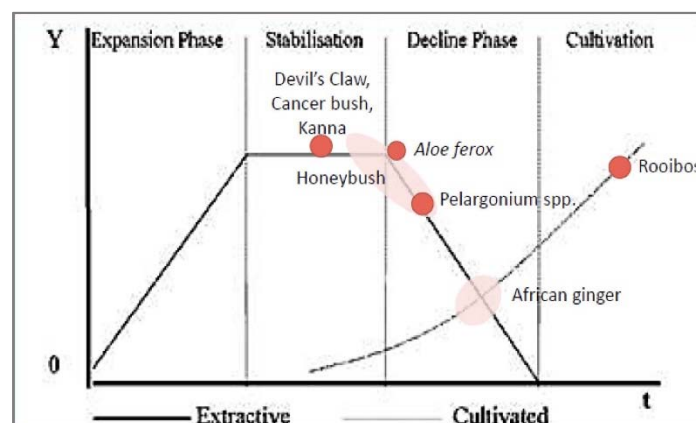


Source: Schippmann et al. (2003). FAO Document Repository - Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries, Case Study No. 7

*The practice:*

- Empirical evidence reported by the FAO for a wide variety of medicinal plants' value chains suggests that after harvesting reaches maximum yield, and although cultivation yields increases simultaneously, wild harvesting may often continue, meaning that threats to biodiversity are not necessarily attenuated because of cultivation unless measures are taken to protect gene pool and wild populations.
- Furthermore, not all bioprospecting products have substitutes. Rooibos e.g. is a case where there is no substitute and as a result – and pushed by a rapid increase in demand -- producers have devised innovative methods of cultivation, branding and other value chain interventions to maximize yield.

**Figure 12. Applying the Homma Model to the project's target species**



Source: From the PPG Theory of Change Report (2017). Refer to [Annex X-6](#) for more information about the Homma Model and how it applies to the project.

- Beyond the case of Rooibos, in most other bioprospecting cases in South Africa, wild harvesting yields have simply stagnated, as a result of the dynamic relationship between natural stocks, price and harvesting

effort. This is represented in Figure 12, which shows the notional status of priority species used in bioprospecting and targeted by the project and it is based on the data presented in Table 2 further up.

*Some conclusions:*

- A species' biophysical characteristics, supply and demand pressures will clearly affect the conditions for harvest, trade and for domestication within value chains.
- A species' life history affects the ease of domestication and commercial production, but the drive from economic factors are decisive with respect to which species are farmed or harvested and how – but so will marketplace conditions such as consumer preferences.
- Consumer trends and concerns about product safety can shift quickly and push demand in different directions.

*Some solutions:*

- Beyond finding substitutes to species whose raw supplies are reaching “the wrong end” of the Homma curve, a ‘substitute’ in this case may also mean a different ‘way of working’ within the value chain, e.g. cultivation, the adoption of harvesting within limits techniques, methods for habitat management, for the protection of gene-pools at the landscape level, among others.
- Depending on a number of factors, regulations, enforcement, taxation, subsidies and marketing can also be effective tools for influencing the supply-demand dynamics within value chains.
- In recent years, new market niches have also emerged, with (certified) requirements for “sustainable:” or “green” of “organic markets”. Yet, this does not automatically equate to conservation of biodiversity or equitable sharing of benefits from genetic resources.

*Three imperatives for bioprospecting arise from this discussion:*

- An analysis of the bioprospecting value chain must be disaggregated to a species level, as each species would have a unique natural production system, a unique set of cultivation requirements, unique prices and a unique substitutability context;
- There is a need to adopt a landscape approach to moving the value chain to maturity – monoculture cultivation is not the alternative to wild harvesting, rather there is a need to develop appropriate landscape-level horticultural practices as an alternative;
- There is a need for a certification system that internalises best biodiversity management practices and communicates responsible practices into the market – this will enable price premiums and contribute to some extent to lowering levels of substitutability.

*(ii) Increasing the throughput within species value chain.*

133. A value addition strategy for bioprospecting should firstly be geared toward the stated NBES goal. This goal envisages that, by 2030, the South African biodiversity economy would achieve an average annualised GDP growth rate of 10% per annum. This growth would be achieved through cooperation between the private sector, government and communities; through realising opportunities in various market segments; through addressing development and growth constraints; and through managing the (bioprospecting) sector in an environmentally sustainable manner. This growth will not only support returns on investment for existing investors but also enable new investments in support of South Africa’s economic transformation.

134. Unlocking the bioprospecting value chain is central to achieving this goal, and requires the value chain constraints listed above to be addressed.

135. To this end, four strategic focus areas are relevant, all related to increasing the throughput of the bioprospecting value chain.

- a. **Increasing the quantity and quality of product throughput** requires interventions that eliminate unsustainable wild harvesting practices, promote genetic variety, ensure product quality and traceability and institutionalise best management practices.

- b. **Increasing the price and value proposition of throughput** requires interventions that develop intellectual property, enabling the opening of marketing channels and promoting product certification.
- c. **Increasing the resource rent accruing to traditional knowledge holders** requires infusing ABS-compliance and ecological sustainability (both at the species level and at the landscape level) in bioprospecting value chains, and designing appropriate royalty payment systems.
- d. **Strengthening institutional cooperation** requires innovative and practical interventions that allow all role-players to participate in a transparent and constructive manner.

136. While the above strategies are sound and may be viable vis-à-vis the stated goals (“i” and “ii” further up), they are still too generic. Issues and constraints within value chains are highly context-specific and they present themselves at different stages of the R&D or value chain development and in varied local/ecological contexts with respect to resource use.

### *(iii) Pilots and Systemic Measures*

137. For overcoming the different challenges in the bioprospecting value chain, **the project will approach the proposed solutions either as ‘pilots’ or as ‘systemic measures’**, but by taking into consideration the context for each of these pilots and measures.

138. The ultimate purpose of this approach is for South Africa to build its national capacity to deal with ABS issues and related conservation issues in an empirical and collaborative manner. The project’s scope will be limited to indigenous plant species used in the medicinal or cosmetic/personal care industry, but the potential to apply lessons to other bioprospecting/biotope and value chains – or even to other bioeconomic segments where similar issues occur -- is significant.

139. The project strategy was discussed with relevant national stakeholders, and improved through a validation process and approved at the national validation meeting, held on 4 August 2017 in Pretoria. Aside DEA, representatives from several other entities were present at the meetings (refer to [Annex X-4](#)).

## **Project Areas and Pilots**

140. Because issues of ABS and sustainability in each **‘species-value chain’ interaction** are context-specific, the project will approach its core problem on a **‘context-and-pilot-basis’**. (Refer to [Annex X-2](#) for a description of the species-level context and to [Annex X-3](#) for how each pilot was thereby developed.)

141. For each **pilot**, the project will focus on the interactions between key players in supply activities and how this affects species and habitats, taking into consideration the use of any associated traditional knowledge in it (Figure 13). The project will also focus on the subsequent bioprocessing and product development, removing barriers through R&D, stakeholder collaboration and capacity development through the pilots, complementing systemic measures. Overall, the project will foster innovation, equitable sharing of benefits from genetic resources, while contributing to species and habitat conservation as key contributions to global biodiversity benefits.

142. The key geographic focus of this project is the distribution of all targeted species within the South Africa terrestrial landscape (encompassing roughly 65 million hectares – see representation in Figure 14). This piece of data is captured in the Tracking Tool and consolidated in the map shown in the mentioned figure. Refer to the [PRODOC Annexure](#) for more details.

Figure 13. **(updated)** Overview of Bioprospecting Pilots (numbers are reference to outputs that include pilots)

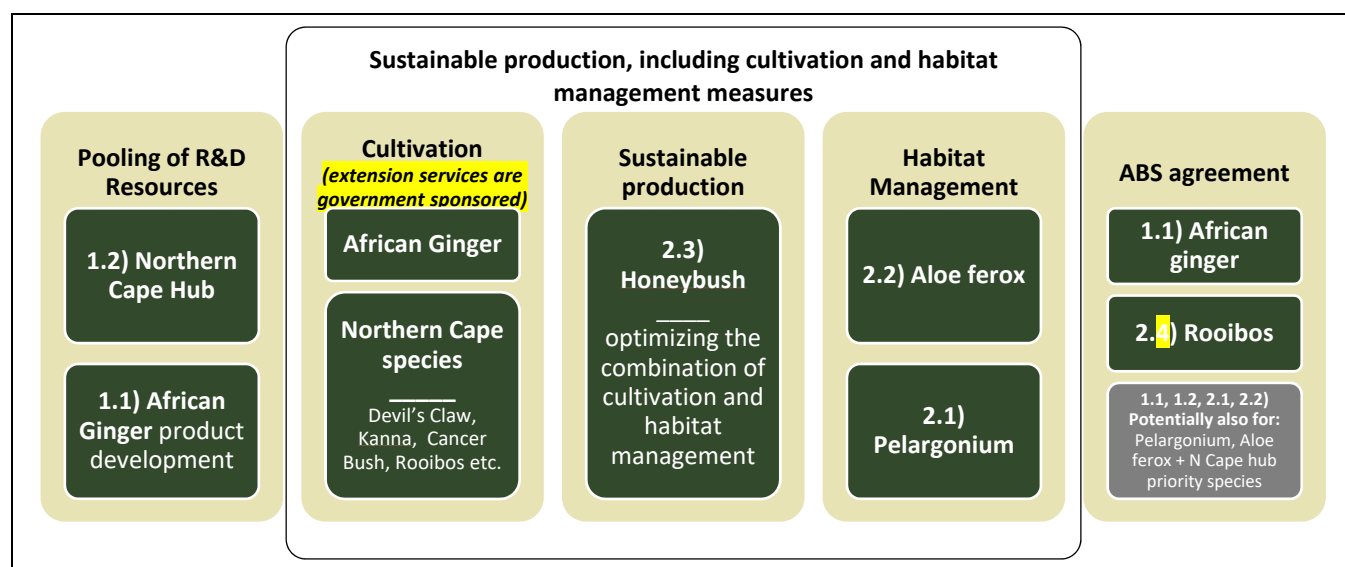
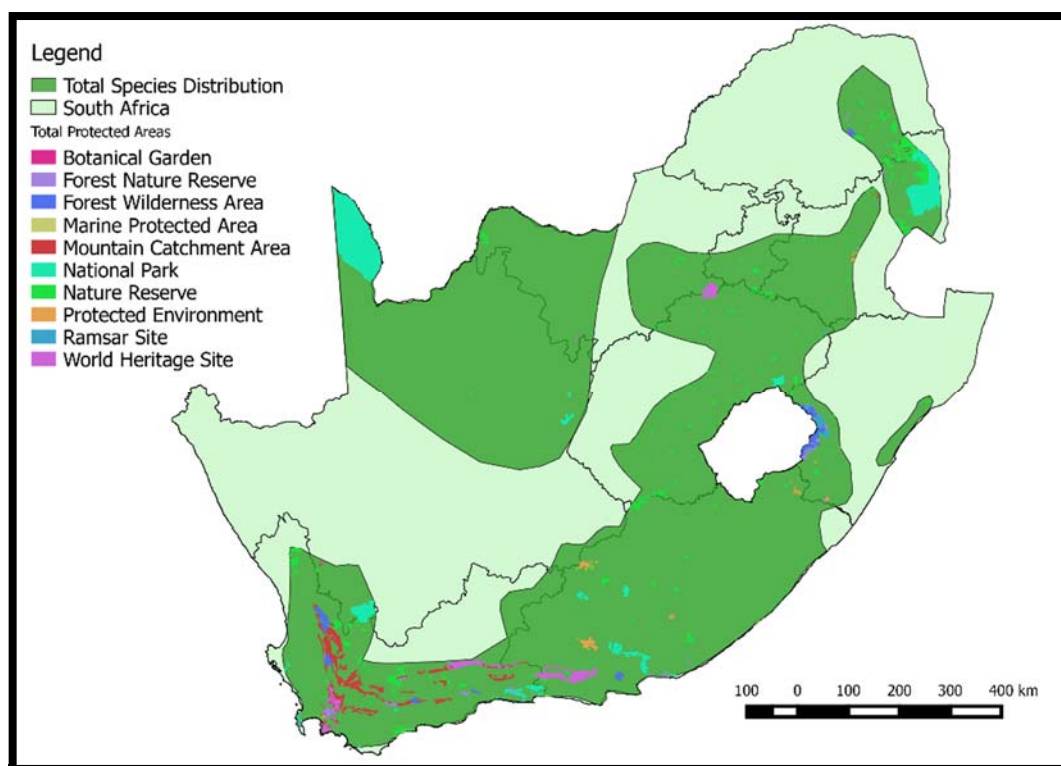


Figure 14. Distribution of key species across the country and location of important protected areas



**Notes:**

[1] Species: *Aloe ferox*; *Aspalathus linearis*; *Cyclopia* Spp (*C. sessiflora*, *C. intermedia*, *C. genistoides*); *Harpagophytum procumbens*; *Pelargonium sidoides*; *Siphonochilus aethiopicus*.

[2] Distribution/ extent: All focal species have a combined natural distribution that covers approximately 651 031 km<sup>2</sup>. This area is spread throughout South Africa in all provinces.

[3] Refer to [PRODOC Annexure](#) for detailed maps per species and for the complete list of Protected Areas within the landscapes (relevant for the [Tracking Tool](#))

Source: PPG Report 2017: Plant Distribution Sheet by Prime Africa

143. Key bioresources are found in all provinces of South Africa and the map above shows the distribution of the main species targeted by bioprospecting across the national territory, which is an indication of potential. Bioprospecting and biotrade economic activities follow the plants' distribution and contribute to local development in various locations across the country -- with significant room for growth and innovation. Yet, the ecological sustainability of certain value chains is questionable, as discussed in previous sections.

---

### III. RESULTS AND PARTNERSHIPS

#### Expected Results

144. The proposed project is carefully designed to achieve the following **Long-Term Impact** -- with reference to the **Global Environmental Benefits (GEB)** that the project is expected to generate.

145. Project impact will be achieved via decreasing of the level of threats to biodiversity from overharvesting/habitat loss or degradation, and through the more systematic application of ABS legislation that ensures the protection of traditional knowledge and the equitable sharing of benefits derived from the disclosure of this knowledge and from a balanced and sustainable use of genetic resources.

146. Threat reduction and ABS compliance results (which summarizes the above) will be consolidated through the achievement of following **impacts** (5 years):

- (1) Bioprospecting R&D that focuses on indigenous plants will make a more significant contribution to the national Bioprospecting economy owing to at least 1 (one) new patent being registered and at least 4 (four) new market niches being explored through sustainable and ABS-compliant value chains in the Northern Cape's Bioprospecting economy;
- (2) The ways of working, management conditions and techniques will change within 5 (five) strategic value chains, **including with respect to the sustainability of supplies of plant raw materials**, as they become examples of how conservation and ABS-compliance can be simultaneously achieved through cooperation among Bioprospecting economy players; and
- (3) National capacity for the protection of traditional knowledge within the bioprospecting segment, as well as the general mainstreaming of both conservation and ABS compliance within them, will be gradually improved (as independently assessed).

147. The project has been organized into four outcomes, where the first three are considered technical outcomes, and where each of the Outcomes represented falls under a Project Component:

**Outcome 1.** Bioprospecting R&D that focuses on indigenous plants contributes to the national Bioprospecting economy.

**Outcome 2.** The ways of working, management conditions and techniques change within 5 (five) strategic value chains, and demonstrate how conservation and ABS-compliance can be simultaneously achieved through cooperation among Bioprospecting economy players.

**Outcome 3.** National capacity for the protection of traditional knowledge within the bioprospecting segment, as well as the general mainstreaming of both conservation and ABS compliance within them, is improved.

**Outcome 4.** Lessons learned and the application of a participatory and gender sensitive M&E framework effectively contribute to institutional, community and corporate learning on ABS.

148. To ensure achievement of above Outcomes, the project will deliver the following key Outputs (project products and services):

**Component 1. Outputs (Research and development (R&D) of products in line with the definition of utilization of genetic resources of the Nagoya Protocol)**

- 1.1 R&D barriers linked to clinical studies and registration of African Ginger (*Siphonochilus aethiopicus*) as a bioresource to treat inflammatory and allergic diseases are systematically overcome in an ABS-compliant manner.
- 1.2 Bioprospecting R&D in the Northern Cape is supported, boosting the local Bioprospecting economy and establishing a strategically located 'Bioproducts Development Hub'.

Indicative activities under Output 1.1. and 1.2. include:

- Amendment of the existing CSIR-Traditional Healers Committee Benefit Sharing Agreement to include clauses in alignment with the South African Biodiversity Act.
- Conduct clinical studies (clinical trials, adsorption/metabolism studies and observation studies).
- Registration of African ginger as a complementary medicine
- Market and value chain analysis for commercial development
- Identification of suitable sites for cultivation
- Development (training, infrastructure, equipment, technical support, HR costs, marketing) of community-based agri-processing business/es to cultivate and harvest fresh rhizomes.
- Obtain the requisite permits and authorizations for the establishment, of the Hub. This may include: (i) TOPS permit (if required); (ii) permits for collection of plants (iii) other.
- Establish a Bioprospecting RDI Hub at Upington in the Northern Cape
- Develop and implement a 3-year research plan for a priority set of species including Devil's Claw and at least one complimentary species that could be cultivated in conjunction with Devil's Claw on community projects
- Develop best management practices (BMPs) for cultivation and harvesting planning (testing approaches, techniques and methodologies) for each species
- Develop best management practices (BMPs) for grading, traceability, quality control and phyto-sanitary systems for product application each species
- Develop best management practices (BMPs) for agro-processing support and quality control for product application each species
- Establish a simple marketing plan, limited to the establishment of a suitable website presence with a view to establish market linkages. This is proposed to take form of an additional page on the existing ARC website, rather than a new "stand-alone" website.
- Develop a production potential plan for the Northern Cape, with production indicators
- Design a support service to community projects through which the various BMP's will be transferred at a regular basis.

**Component 2. Outputs (Cooperation models support the conservation of and commercial trade in indigenous bioproducts)**

- 2.1 The implementation of the Pelargonium Biodiversity Management Plan (PBMP) is supported in close collaboration between the Pelargonium Working Group, community businesses and CSO stakeholders.
- 2.2 Development of an Aloe ferox harvesting, processing and trading hub in the Eastern Cape for promoting sustainable and equitable benefit sharing across the value chain is supported.
- 2.3 Community-based enterprises in honeybush farming are supported, ensuring conservation and equitable benefit sharing outcomes across the Cyclopia spp. landscape in the Cape Region.
- 2.4 [\*] The ABS implementation in Rooibos farming is strengthened, ensuring, fairness, equity and sustainability in relevant relationships among TK holders and industry.

[\* The above Output was renumbered from 2.6 to 2.4, given that two outputs were dropped so as to provide an adequate response to GEF comments in March 2018.]

Indicative activities under Output 2.1. include:

- Conduct global conservation assessment/non-detriment finding (NDF)
- Conduct ethno-botanical study
- Conduct value chain & socio-economic analyses
- Review and update BMP (expires 2018)
- Develop training material and train selected staff from DEA, Eastern Cape DEDEAT and Free State DESTEA in the implementation of the revised BMP
- Provide identified TK holders with technical support to review and renegotiate ABS and supply agreements with industry
- Develop sustainable harvesting guidelines
- Train local collectors to improve the sustainability of harvesting approaches
- Facilitate improvement of the management of community-based trusts, and distribution of trust funds
- Support administration of Pelargonium Working Group

Indicative activities under Output 2.2. include:

- Incrementally strengthen the knowledge (through training and skills development) of, and acquire basic equipment (health and safety equipment) for, the existing local harvesters and tappers
- Identify and allocate 20-50 ha of suitable communal land for the establishment of (a) Aloe ferox plantation/s
- Prepare costed plans for the detailed layout (including the associated infrastructure and services) of the/se plantation/s
- Negotiate and conclude a Memorandum of Agreement (including the benefit-sharing arrangements) between the DEA, Tyefu Traditional Council, Tyefu Traditional Trust (as the initial beneficiaries of the investment) and the individual harvesters and tappers which clearly defines the different roles and responsibilities, in the establishment and operationalisation of the aloe plantation/s and its associated infrastructure and equipment ('phase 1').
- Obtain the requisite permits and authorizations for the establishment, construction and management of the plantation (and its associated bulk infrastructure and services)
- Fence off the area allocated for the plantation/s, and prepare the land for propagation and cultivation of aloe ferox
- Collect, transport and transplant adult Aloe ferox plants for re-planting in the designated areas of the plantation
- Establish (layout, soil preparation, composting, fencing and construction) the field nursery for the cultivation of Aloe ferox seedlings
- Construct, install bulk services and equip a small field workshop - with the associated bulk services, storage space and amenities - for the Aloe ferox plantation management and maintenance staff
- Contract, train and equip (e.g. safety equipment, tools, tractor, flatbed truck, bakkie, etc.) local community members to administer, manage and maintain the Aloe ferox plantation
- Construct, install bulk services and equip a small testing, processing and packaging plant for Aloe ferox products
- Contract, train and equip (e.g. safety equipment, laboratory equipment) staff (preferably from the immediate local area) to administer, manage and maintain the testing, processing and packaging plant
- Develop and market Tyefu-based aloe ferox product branding
- Negotiate and conclude supply contract agreements with manufacturers and retail industries
- Negotiate a partnership agreement between the Tyefu Traditional Trust and Tyefu Aloe (Pty) Ltd to administer, manage and maintain the aloe plantation and processing plant beyond the term of the GEF funded support.



- Facilitate the submission of funding applications for co-financing support to the Tyefu community for the establishment, management and expansion of the aloe ferox plantation and processing plant

Indicative activities under Output 2.3 include:

- Establish technical advisory group (TAG) to guide and manage the project over the 5-year period.
- Conduct Scoping Baseline Determination Study
- Management of the grant-making process using a suitable mechanism

Indicative activities under Output 2.4 include:

- Investigate and develop a suitable TK benefit sharing mechanism that effectively captures the resource rent resulting from the TK rights
- Investigate and develop non-monetary TK benefit sharing mechanisms which may support rights-holding communities through contributions-in-kind and related mechanisms by the private sector
- Develop and propose a suitable and simple governance and institutionalization framework for implementing and monitoring the TK benefit sharing mechanism
- Record the current negotiation processes of SARC as a case study with a view to the creation of a “blueprint” for other products and TK agreements
- Disseminate the case study outcomes as example to ABS stakeholders in South Africa and beyond.

**Component 3. Outputs (Bioprospecting and value addition knowledge transfer is enhanced for an equitable benefit sharing)**

- 3.1 The National Recordal System for TK linked to bioprospecting is supported for ensuring ABS compliance in current and future agreements between indigenous and traditional knowledge holders and industry.
- 3.2 A biotrade certification system for South Africa is developed with a view to safeguarding biodiversity conservation within bioprospecting value chains.

Indicative activities under Output 3.1 include:

- Develop Community Bio-cultural protocols through workshops with participating communities
- Appoint IK recorders to document IK on top 25 species in 10 communities
- Procure: (1) recording equipment and devices to document IK; and (2) collecting equipment to collect plant species for positive scientific name variety identification
- Conduct training sessions for IK recorders to: (1) understand the legal framework of the Access and Benefit sharing and data collection process; and (2) understand and implement plant species collection
- Develop NIKMAS (ICT system of NRS) to align the one-stop-shop with DEA.

Indicative activities under Output 3.2 include:

- Undertake research and assessment, including field research on the status of key species linked to biotrade/ bioprospecting, especially those in this project for which data is limited (e.g. wild ginger); Non-detriment findings for target species will be undertaken as this tool identifies key risks to sustainable use (and potentially ecosystem resilience) and can assist in determining which risk factors need to be addressed through certification schemes
- Analysis of certification schemes and their benefits to determine the past effectiveness of key biotrade certification schemes in supporting biodiversity conservation, it is necessary to ascertain where they have been applied
- Development of an ABS-aligned model that optimises biodiversity conservation benefits for select South African biotrade species

- Engagement with key biotrade certification schemes and the National Focal Point on ABS
- Establish a monitoring and evaluation programme for ABS and conservation outcomes.

#### ***Component 4. Outputs (Knowledge Management & M&E)***

4.0 National and international stakeholders supported to participate in the project M&E and will systematize lessons learned from its implementation.

Indicative activities under Output 4 include:

- Establish a Project Management Unit and Project Board
- Train PMU on UNDP-GEF Project Cycle Management
- Launch the project in an Inception with all relevant stakeholders to conduct a review of Project Results Framework, Workplan, M&E Plan and Budget
- Review missing baseline data for indicators and targets and establish a system for collecting data to finalise the Project Results Framework
- Prepare a detailed gender mainstreaming strategy
- Hold periodic Project Board meetings
- Conduct project audits
- Conduct an independent Mid-Term Review of the project
- Conduct a Terminal Evaluation of the project
- Prepare a project exit and sustainability strategy

#### ***Reference to the project's technical output in short and the responsible parties***

Output 1.1 (Afr. Ginger) – CSIR  
 Output 1.2 (Northern Cape) - ARC  
 Output 2.1 (Pelag.) - DEA PMU  
 Output 2.2 (Aloe ferox) - DEA PMU / Tyefu Community  
 Output 2.3 (Honeybush) - DEA PMU  
 Output 2.4 (Rooibos) - DEA PMU  
 Output 3.1 (National Recordal System) - DST  
 Output 3.2 (Certification System) - DEA PMU / SANBI

149. For background information pertinent to the different project outputs, see [Annex X-2](#) . For a thorough description of project outputs, refer to [Annex X-3](#).

***Table 3. Reference to background materials and their relevance for the project's strategy***

Sub-sections in Annex X-2	Relevance
<a href="#">1</a> ) Status Quo of the Implementation of Nagoya Protocol in South Africa	Project Objective, more generally, and Component 3, more specifically
<a href="#">2</a> ) Status Quo for the Management of Targeted Species	All project pilots (Outputs 1.1 through 2.4 – the latter was renumbered in response to comments from GEF Secretariat)
<a href="#">3</a> ) The Context of African Ginger agreement registration and cultivation	Outputs 1.1
<a href="#">4</a> ) The Context of the Bioprospecting in Northern Cape Province	Outputs 1.2
<a href="#">5</a> ) The Context of Pelargonium Management Plan	Output 2.1
<a href="#">6</a> ) The Context of <i>Aloe Ferox</i> harvesting	Output 2.2

Sub-sections in Annex X-2	Relevance
<a href="#">7</a> ) The Context of Honeybush species transition to cultivation	Output 2.3
<a href="#">8</a> ) The Flagship Context of Rooibos	Output 2.4 [renumbered from 2.6]
<a href="#">9</a> ) The Project's Baseline Finance Assessment	The underlying financial baseline

**Table 4. Alignment of the project components with barriers, solutions and expected impacts**

Barriers	Solutions	Impacts	Topic of Project Components and corresponding expected Outcomes
<i>#1. Gaps in scientific knowledge on how to improve the benefits derived from bioprospecting</i>	Bioprospecting R&D that focuses on indigenous plants will make a more significant contribution to the national Bioprospecting economy, owing to successfully implemented R&D-driven pilots that are ABS compliant	- At least 1 (one) new patent being registered and at least 4 (four) new market niches being explored through sustainable and ABS-compliant value chains in the Northern Cape's Bioprospecting economy;	<b>Component 1)</b> <i>Research and development (R&amp;D) of products in line with the definition of utilization of genetic resources of the Nagoya Protocol</i>  <b>Outcome 1)</b> <i>Bioprospecting R&amp;D that focuses on indigenous plants contributes to the national Bioprospecting economy</i>
<i>#2. Challenges in ways of working, management conditions and techniques within bioprospecting value-chains – in particular with respect to the sustainability of supplies (i.e. plant raw materials).</i>	The ways of working, management conditions and techniques will change within strategic bioprospecting value chains through cooperation among Bioprospecting economy players and improved ecosystem management;	- 5 (five) strategic value chains become examples of how conservation and ABS-compliance can be simultaneously achieved	<b>Component 2)</b> <i>Cooperation models support the conservation of and commercial trade in indigenous bioproducts</i>  <b>Outcome 2)</b> <i>The ways of working, management conditions and techniques change within 5 (five) strategic value chains, and demonstrate how conservation and ABS-compliance can be simultaneously achieved through cooperation among Bioprospecting economy players.</i>
<i>#3. Gaps in national capacity for ABS-compliance</i>	National capacity for the protection of traditional knowledge within the bioprospecting segment, as well as the general mainstreaming of both conservation and ABS compliance within them, will be gradually improved	Improved capacity at various levels – to be as independently assessed	<b>Component 3)</b> <i>Bioprospecting and value addition knowledge transfer is enhanced for equitable benefit sharing</i>  <b>Outcome 3)</b> <i>National capacity for the protection of traditional knowledge within the bioprospecting segment, as well as the general mainstreaming of both conservation and ABS compliance within them, is improved.</i>
<i># 4. Lack of practical skills and knowledge on implementation of ABS approaches at different levels of genetic resource use and management</i>	Participatory learning and monitoring processes promote skills and knowledge sharing among the different stakeholders involved in the value chains of the different genetic resources	Widespread uptake and adoption of approaches and practices for implementation of ABS as per the Nagoya Protocol	<b>Component 4)</b> <i>Knowledge Management and M&amp;E</i>  <b>Outcome 4)</b> <i>Lessons learned and the application of a participatory and gender sensitive M&amp;E framework effectively contribute to institutional, community and corporate learning on ABS</i>

## The Project's Incremental Reasoning

150. The project's baseline finance has been assessed at approximately **\$560 million** (Table 5), the details of which are provided in [Annex X-2, Subsection 9 -The Project's Baseline Finance Assessment](#).

**Table 5. Summary of baseline finance for the incremental cost calculation**

Baseline / Cofinancing	#	Baseline Investment (B) / Co-financing (C)	TOTAL (\$M)	Of which, contribution to co-financing (\$M)	Total Co-financing	Leveraged co-financing
B&C	1	Department of Environmental Affairs (DEA)	\$145.00	\$27.95	\$30.39	\$2.44
B&C	2	Department of Science and Technology (DST), including CSIR	\$16.00	\$0.50	\$0.77	\$0.27
B&C	3	South Africa National Biodiversity Institute (SANBI)	\$0.51	\$0.00	\$0.51	\$0.51
B&C	4	Council for Scientific and Industrial Research (CSIR)	\$2.78	\$2.78	\$2.78	\$0.00
B&C	5	Agricultural Research Council (ARC)	\$15.00	\$1.42	\$1.42	\$0.00
B	6	Private Sector / Communities / Academia	\$375.00	0	0	\$0.00
B	7	Bilateral donors	\$5.00	0	0	\$0.00
B	8	Civil Society	\$0.50	0	0	\$0.00
		<b>TOTAL</b>	<b>\$559.79</b>	<b>\$32.65</b>	<b>\$35.87</b>	<b>\$3.22</b>

151. The project's incremental reasoning follows and summarized preceding analysis. The incremental cost was also roughly assessed thereunder.

**Table 6. The Project's Incremental Reasoning**

Baseline (B)	The Alternative (A)	The Increment (A-B)
<p><b><u>At the baseline:</u></b></p> <ul style="list-style-type: none"> <li>South Africa is a megadiverse emerging economy and it has home-grown R&amp;D on genetic resources, well-developed ABS legal &amp; policy frameworks and demand from biotrade markets (both domestic and export) – but yet few successful stories of equitable benefit-sharing that adequately recognize TK;</li> <li>Bioprospecting value chains are promising – including for local communities and marginalized groups – but overharvesting of</li> </ul>	<p><b><u>The project will:</u></b></p> <ul style="list-style-type: none"> <li>Strengthen sustainable value chain development for biosprospecting &amp; biotrade, with focus on indigenous flora that have been associated with traditional medicinal use;</li> <li>Develop collaborative partnerships involving state-research institutions-community-private sector in both R&amp;D and in the commercialization of these flora;</li> <li>Expand the national capacity for ABS, advancing the implementation of the Bioprospecting economy Strategy;</li> </ul>	<p><b><u>GEBs will thus be generated:</u></b></p> <ul style="list-style-type: none"> <li>Threats to selected indigenous flora species targeted by bioprospecting and biotrade in their natural habitats are mitigated through the development of biodiversity management plans;</li> <li>Bioprospecting and biotrade activities are: (i) more compliant with Nagoya Protocol; and (ii) based on a more sustainable management of biological and genetic</li> </ul>

Baseline (B)	The Alternative (A)	The Increment (A-B)
<p>indigenous flora can threaten both business sustainability and conservation goals;</p> <p>National capacity for sustainable bioprospecting and biotrade value-chain development &amp; ABS is still limited – the regulatory and practical governance of the bioprospecting segment still has a considerable learning curve to face.</p>	<ul style="list-style-type: none"> <li>Catalyze the negotiation of agreements towards successful &amp; equitable benefit-sharing, recognizing the contribution of TK; and</li> <li>Generate socio-economic benefits to local communities involved in biotrade as a co-benefit, including through cultivation and improved techniques for value-addition and wild harvesting.</li> </ul> <p>Overall, through both pilots and systemic measures, the project will ensure that, whenever an indigenous plant species enters a bioprospecting value chain, the associated TK is respected with derived benefits more equitably shared, and that the commercial/profit-seeking aspect of the value-chains do not end up representing a threat to biodiversity and ecosystems.</p>	<p>resources at the landscape level;</p> <p>More specifically, the GEBs that the project will generate will include:</p> <p><b>(i) The conservation of biodiversity and the sustainable use of its components, including:</b></p> <ul style="list-style-type: none"> <li><u>of habitats</u> that harbour key bioprospecting resources, such as <i>Pelargonium</i> spp. and <i>Aloe ferox</i>, applying landscape-level management measures;</li> <li><u>of gene-pools</u> of a variety of species used in bioprospecting value chains among them Devil's Claw (<i>Harpagophytum procumbens</i>); Kanna (or <i>Kougoed</i>, <i>Sceletium tortuosum</i>) and Cancer Bush (<i>Sutherlandia frutescens</i>) – but also of Honeybush (<i>Cyclopia</i> spp.)</li> </ul> <p><b>(ii) The fair and equitable sharing of the benefits arising from the utilization of genetic resources,</b> including by appropriate access to genetic resources, among them Rooibos (<i>Aspalathus linearis</i>) and the critically endangered African ginger (<i>Siphonochilus aethiopicus</i>).</p>
<p><b>Current baseline expenditure and investments at approx.:</b></p> <p><b>\$559M</b>, broken down as in <b>PRODOC Table 5</b>, reproduced further up.</p>	<p><b>The Alternative: Baseline + GEF + Co-financing net of baseline:</b></p> <p><b>\$567M</b></p>	<p><b>The incremental costs: GEF</b></p> <p><b>\$6.2M</b></p>

## Partnerships

152. The NBES clearly recognizes that the biodiversity economy of South Africa is regulated by the public sector and operationalised largely by the private sector with support from academic and research organisations. Within the industry, establishing clear property rights through enforceable patents is an important step for maximizing the potential benefit that can be derived from bioprospecting resources.

153. Government is responsible for both creating an enabling environment for business growth, but also to regulate the sector in an equitable, ethical and sustainable manner. The role of government is also particularly important to avert threats to biodiversity at the species and landscape levels, to protect the current and potential contribution of traditional knowledge in accelerating product discovery – in addition to defending the country's stakes internationally with respect to Nagoya Protocol compliance.

154. For the success of the project, the role of different entities (government and non-government) also needs to be better understood, while collaboration and competition among them can be optimized.

155. To increase effectiveness and efficiency the project will actively collaborate with a number of on-going projects and programs to leverage funding, avoid thematic intersections and double-funding, share lessons learned and increase overall positive impact on ABS and biodiversity conservation in South Africa. List of proposed partnerships is shown below:

**Table 7. Synergies, collaboration and partnerships**

Institutions, Programs, and Initiatives	Proposed contribution
<b>Linkages and synergies with other GEF-funded projects / programs</b>	
UNDP GEF SLM project	The SLM project, titled: <i>Securing multiple ecosystems benefit through Sustainable Land Management (SLM) in the productive but degraded landscapes of South Africa</i> , is currently being implemented. The project is designed to contribute to supporting green economy in South Africa, by encouraging sustainable land management practices.
Global ABS Project	<p>This project is a part of a Global ABS Project, titled: <i>Strengthening human resources, legal frameworks, and institutional capacities to implement Nagoya Protocol</i>. South Africa has been a Party to the Nagoya Protocol since its ratification. As one of the most biodiverse countries of the world, South Africa recognizes the importance of the regulations of the access to genetic resources and the crucial role of TK and therefore, has put in place the appropriate legislation and policy frameworks.</p> <p>This 3-year project that specifically aims at assisting countries in the development and strengthening of their national ABS frameworks, human resources, and administrative capabilities to implement the Nagoya Protocol. The project seeks to achieve this by a) strengthening the legal, policy and institutional capacity to develop national ABS frameworks; b) building trust between users and providers of genetic resources to facilitate the identification of bio-discovery efforts; and c) Strengthening the capacity of indigenous and local communities to contribute to the implementation of the Nagoya Protocol. The global project contributes to building the relevant capacity within South Africa that will be key to implementing the full-sized project, particularly among DEA staff. Synergies already exist, with many of the DEA staff involved in the global project already forming part of the institutional structure within DEA that oversees this new full-sized project.</p>
<b>Synergies with government programmes, projects and initiatives</b>	
The Department of Environmental Affairs (DEA) Bioprospecting economy	The DEA, as a main entity responsible for creating the NBES and other related national policies will be intensively engaged in the project, influencing its shape in all stages of its development, particularly engaging in the bioeconomic aspect of the project. DEA is a key partner under Component 1 of the Project and Output 1.2 in particular.
South African Biodiversity Institute (SANBI)	SANBI leads and coordinates research, and monitors and reports on the state of biodiversity in South Africa. The institute provides knowledge and information, gives planning and policy advice and pilots best-practice management models in partnership with stakeholders. It provides threatened plant locality data to land use decision makers to minimise further loss of threatened plant populations; informs provincial, national and international policy development for the conservation of threatened plant species; and works closely with the Department of Environmental Affairs (DEA) to develop the national lists for threatened and protected plant species as per the National Environmental Management: Biodiversity Act. The Threatened Species Research Unit investigates the threats, conservation and restoration of key species of plants. Under this project, SANBI will specifically be responsible for overseeing implementation of Output 3.2, whose main aim is to optimise global biodiversity benefits and environmental sustainability through the evaluation and improvement of biotrade certification schemes that provide a link between Access and Benefit Sharing (ABS) and biodiversity conservation in South Africa.
Council for Scientific and Industrial Research (CSIR)	The CSIR research is focused, among others, on the natural environment and industry themes. The Council has already been working with the communities on cultivation of the species at Giyani in Limpopo. The CSIR will help in facilitating the transition from harvesting to sustainable cultivation of African Ginger through conducting research and training communities under Output 1.1.

Institutions, Programs, and Initiatives	Proposed contribution
Agricultural Research Council (ARC)	The ARC is the main agricultural institution in South Africa with a wide range of objectives related to agriculture, livelihoods, natural resources conservation, etc. As the Project's main activities are about sustainable farming of the species and conserving them in the wild, the ARC will be significantly engaged in their implementation. In particular, the ARC is going to contribute to <b>Output 1.2.</b>
The Department of Science and Technology (DST)	<p>The DST, through its research, programs, leadership and partnerships is significantly contributing to socio-economic development of South Africa. The DST will support the Project through its:</p> <ul style="list-style-type: none"> <li>• Green economy partnerships – aiming to support the R&amp;D in certain sectors of South African economy, in order to facilitate the country's transition to green economy,</li> <li>• and through its programs <ul style="list-style-type: none"> <li>- Programme 2: Technology innovation – supporting research on TK,</li> <li>- Programme 3: International Cooperation and resources – supporting knowledge transfers,</li> <li>- Programme 4: Research development and support – supporting the economic activities aiming to transform the South African economy towards a knowledge-based economy.</li> </ul> </li> </ul> <p>DST direct contribution to the Project will be its support in implementing Output 3.1.</p>
<b>Linkages to other donor funded programmes and projects</b>	
Multi-donor ABS Capacity Development Initiative	The ABS Capacity Development Initiative has global scope and has been rolled out in collaboration with the Governments of Brazil, India and South Africa, commissioned national studies to review each country's experiences with Access and Benefit Sharing. Lessons learned from these experiences will inform the global implementation of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from its Utilization (Nagoya Protocol). Country studies were prepared to provide background information in preparation for the first Dialogue on Practical Ways Forward for the Implementation of the Nagoya Protocol, hosted by the Government of South Africa on 30-31 January 2014 in Cape Town, South Africa and the second Dialogue on the same topic, co-organized with the Ministry of Environment and Forests of India, from 4-6 August 2014 in Goa, India. The National Study on ABS Implementation for South Africa was concluded in 2014 and it provides information about <i>status quo</i> for year 2014 and therefore is extremely useful for the project as a 'baseline' of information.
JICA-SADC forest project	<p>JICA and Southern African Development Community (SADC) are jointly implementing, since June 2015, their first regional technical cooperation project titled "Forest Conservation and Sustainable Management of Forest Resources in Southern Africa" –or the JICA-SADC forest project, in short. The project was launched during the sixth edition of the Tokyo International Conference on African Development (TICAD VI) which took place in Nairobi, Kenya in August 2016. GEF Council member Japan suggested collaboration with the mentioned project. The following applies with respect to partnerships:</p> <ul style="list-style-type: none"> <li>• Within South Africa, the government focal point for the project will likely be the Department of Agriculture, Forestry and Fisheries (DAFF), which also functions as the focal point for phyto-sanitary oversight and regulation, including with respect to foreign trade aspects. ARC is an institution linked to DAFF and it is set to reach out to the mentioned JICA-SADC project during the GEF project's inception phase.</li> <li>• Currently, the management of forest resources is not an immediately relevant topic for the subject matter of this GEF project, but it can be in the future, if e.g. forest products (in particular non-timber) may be used as genetic resources. ABS issues may then come into play, along with the sustainable management of these resources, not least also within a regional context. At that point, linkages to the mentioned JICA-SADC forest project will be much more actively sought and consolidated.</li> </ul>

### **Stakeholder engagement:**

156. Relationships between providers and users of genetic resources involve the manufacturing industry (within and outside the country), local communities (among them, traditional knowledge holders), small businesses (among



them bioprocessors), the scientific and research community and government at different levels (see Figure 2 and Figure 3 further up for a representation of these relationships).

157. The following groups of stakeholders were identified during PPG phase of the project including their roles and involvement in the project:

**Table 8. Project's key stakeholders and their prospective roles in the project**

Stakeholder	Description	Role in project
<b>Government</b>		
Department of Environmental Affairs (DEA)	The DEA is mandated to give effect to the right of citizens to an environment that is not harmful to their health or wellbeing and to have the environment protected for the benefit of present and future generations. To this end, the department provides leadership in environmental management, conservation and protection towards sustainability for the benefit of South Africans and the global community. With reference to biodiversity and conservation, DEA's purpose is to ensure the regulation and management of all biodiversity, heritage and conservation matters in a manner that facilitates sustainable economic growth and development. With regards to ABS, a strategic objective is to improve socio-economic benefits and improve access and fair and equitable sharing of benefits.	DEA is the implementing partner for the overall project. The project will specifically support the implementation of the National Biodiversity Economy Strategy (NBES) by focusing on the current use of indigenous plants' genetic resources and their potential, either in pharmaceuticals, personal care products, cosmetics and enzymes or similar non-food uses. It will address both conservation and Access Benefit Sharing (ABS) issues linked to their development.
Department of Science and Technology	The DST seeks to boost socio-economic development in South Africa through research and innovation. To achieve its goals, the Department provides leadership, an enabling environment and resources for science, technology and innovation. Through its Programmes (Administration; Technology Innovation; International Cooperation and Resources; Research Development and Support; and Socio-economic Innovation Partnerships) and several entities that work alongside it, the Department is accomplishing ground-breaking science and enhancing the well-being of all South Africans.	DST's role in the project will be to implement <i>Output 3.1: The National Recordal System for TK linked to bioprospecting is supported for ensuring ABS compliance in current and future agreements between indigenous and traditional knowledge holders and industry.</i>
Agricultural Research Council	The ARC's core mandate is to act as the principal agricultural research institution in South Africa to conduct research, drive research and development, drive technology development and the transfer of information in order to: <ul style="list-style-type: none"> <li>- Promote agriculture and related industries;</li> <li>- Contribute to a better quality of life;</li> <li>- Facilitate/ensure natural resource conservation; and</li> <li>- Alleviate poverty.</li> </ul> Specifically, Medicinal Plant Research focuses on the propagation, cultivation and processing of South African medicinal plants, especially those species that are highly utilised.	The ARC's role is to implement <i>Output 1.2: Bioprospecting R&amp;D in the Northern Cape is supported, boosting the local Bioprospecting economy and establishing a strategically located 'Bioproducts Development Hub'.</i>
Council for Scientific and Industrial Research	The objectives of the CSIR are, through directed and particularly multi-disciplinary research and technological innovation, to foster, in the national interest and in fields which in its opinion should receive preference, industrial and scientific development,	The CSIR's role is to function as the responsible party for <i>Output 1.1: R&amp;D barriers linked to clinical studies and registration of African Ginger (Siphonochilus aethiopicus) as a bioresource to treat</i>



Stakeholder	Description	Role in project
	<p>either by itself or in co-operation with principals from the private or public sectors and thereby to contribute to the improvement of the quality of life of the people of the Republic. With reference to bioprospecting and ABS, Biosciences Unit has strong competencies in process and product development in agroprocessing, bioprocessing and biomanufacturing. These capabilities are positioned to support the creation of novel industries in biotechnology-based services and products, as well as translating these into new companies or supporting the competitiveness of the existing industries.</p>	<p><i>inflammatory and allergic diseases are systematically overcome in an ABS-compliant manner.</i></p> <p>CSIR will <b>not</b> be doing the clinical trials in view of developing a complementary medicine product. Rather, it will sub-contract the activity to a specialized service provider.</p>
South African National Biodiversity Institute (SANBI)	<p>The mandate of SANBI is broad and is derived from the National Environmental Management: Biodiversity Act (No10 of 2004), but also from other legislation and processes over the last decade. SANBI leads and coordinates research, and monitors and reports on the state of biodiversity in South Africa. With reference to bioprospecting and ABS, SANBI's role is to:</p> <ul style="list-style-type: none"> <li>- Monitor and report regularly to the Minister on the conservation status of all listed, threatened or protected species and listed ecosystems;</li> <li>- Act as an advisory and consultative body on matters relating to biodiversity;</li> <li>- Coordinate and promote the taxonomy of South Africa's biodiversity;</li> <li>- Collect, generate, process coordinate and disseminate information about biodiversity and the sustainable use of indigenous biological resources and establish and maintain databases in this regard.</li> <li>- Undertake and promote research on indigenous biodiversity and the sustainable use of indigenous biological resources.</li> </ul>	<p>The role of SANBI is to provide technical support to the project PMU as well as to the individual project outputs, particularly Output 3.2 <i>A biotrade certification system for South Africa is developed in view of safeguarding biodiversity conservation within bioprospecting value chains.</i></p>
<b>NGOs/CBOs/Other</b>		
TRAFFIC	<p>TRAFFIC is an NGO that specialises in:</p> <ul style="list-style-type: none"> <li>- Investigating and analysing wildlife trends, patterns, impacts and drivers to provide the leading knowledge base on trade in wild animals and plants;</li> <li>- Informing, supporting and encouraging action by governments, individually and through inter-governmental cooperation to adopt, implement, and enforce effective policies and laws;</li> <li>- Providing information, encouragement and advice to the private sector on effective approaches to ensure that sourcing of wildlife uses sustainability standards and best practices; and</li> <li>- Developing insight into consumer attitudes and purchasing motivation and guiding the design of effective communication interventions aimed to dissuade purchasing of illicit wildlife goods.</li> </ul>	<p>The role of TRAFFIC would be to potentially provide support to the PMU specifically in <i>Output 2.1: The implementation of the Pelargonium Biodiversity Management Plan (BMP) is supported in close collaboration between the Pelargonium Working Group, community businesses and CSO stakeholders.</i></p>

Stakeholder	Description	Role in project
Pelargonium Working Group (PWG)	<p>The PWG was established in 2007 and is represented by government, conservation, bioprospecting industries, public entities and research institutions. The responsibilities of the PWG include, but are not limited to:</p> <ul style="list-style-type: none"> <li>- Monitoring the implementation of the BMP for <i>Pelargonium sidoides</i>;</li> <li>- Ensuring that management of <i>P. sidoides</i> wild collection is supported by adequate and practical resource inventory, assessment, and monitoring of collection impacts.</li> <li>- Ensure that <i>P. sidoides</i> collection activities are carried out in a transparent manner with respect to management planning and implementation, recording and sharing information, and involving stakeholders.</li> <li>- Assist with establishing procedures for collecting, managing, and sharing information required for effective collection and management.</li> <li>- Contribute to the development of skills training for resource managers and collectors that will equip them to implement the provisions of the management plan.</li> <li>- Production of an annual report specifying progress in the implementation of the Biodiversity Management Plan as required by the Norms and Standards for BMP-S.</li> <li>- Drawing up proposals and fund raising for specific projects needed.</li> <li>- Implement the BMP for <i>P. sidoides</i>.</li> </ul>	<p>The role of the PWG would be to provide support to the PMU in implementing the activities proposed in <i>Output 2.1: The implementation of the Pelargonium Biodiversity Management Plan (BMP) is supported in close collaboration between the Pelargonium Working Group, community businesses and CSO stakeholders.</i></p>
Tyefu Traditional Trust	<p>The Tyefu Traditional Trust represents the Tyefu community. Tyefu is an area situated within the jurisdiction of the Ngqushwa Local Municipality of the Amathole District in the Eastern Cape Province. The Tyefu community consists of 10 villages that are under jurisdiction of and part of Chief Sizwe Msutu's land.</p>	<p>The PMU and the Tyefu Traditional Trust will be directly responsible for coordinating the implementation of <i>Output 2.2: Development of an Aloe ferox harvesting, processing and trading hub in the Eastern Cape for promoting sustainable and equitable benefit sharing across the value chain is supported.</i> The Tyefu Traditional Trust will, as the legal entity representing the livelihood interests of the community, be the beneficiary of activities proposed in <i>Output 2.2.</i></p>
Honeybush Community of Practice (HBCoP)	<p>The HBCoP was duly formed and launched by DEA on 4 November 2016. The role of the HBCoP is to:</p> <ul style="list-style-type: none"> <li>- Address issues of governance</li> <li>- Legislation (Compliance and Permitting issues)</li> <li>- Sustainability &amp; promotion of the industry</li> <li>- Community upliftment and address TK issues</li> <li>- Knowledge Sharing</li> <li>- Funding</li> <li>- Local value addition &amp; geographic indicators</li> <li>- To add Accountability, Confidentiality</li> <li>- Incorporate the San and Khoisan</li> </ul>	<p>The role of the HBCoP in the project is to provide support to the PMU in the implementation of <i>Output 2.3: Community-based enterprises in honeybush farming are supported, ensuring conservation and equitable benefit sharing outcomes across the Cyclopia spp. landscape in the Cape Region.</i></p>

158. The Project's Knowledge Management and Stakeholder Involvement Strategy is outlined in [Annex X-5](#).

## Gender Aspects

159. During the PPG phase, a gender specialist was part of the project team. Stakeholder consultations have been conducted with institutions involved in the bioprospecting sector to query on relevant gender issues in this project. The findings and recommendations from the gender screening are incorporated into the consultation reports.

160. Gender analysis has been undertaken during project preparation using the UNDP Guide to Conducting a Participatory Gender Analysis and Developing a Gender Action Plan for projects supported by UNDP with GEF financing. The analysis conducted revealed the following issues:

- (i) in rural areas women and youth are very much engaged in food production, but have little or no access to the generated income, no governance rights over the land and limited access to infrastructure;
- (ii) the loss of biological resources and biodiversity particularly impacts women, as the most dependent and vulnerable among all society members;
- (iii) the women present in bioprospecting sector are marginalised from decision making roles which are dominated by men. Women are over represented in the lower rungs of the value chains;
- (iv) South Africa faces a high youth unemployment challenge. The youth are marginalised in the bioprospecting sector because of their limited control over productive resources and marginalisation from the decision-making forums. The bioprospecting industry has potential to reduce youth unemployment by generating employment opportunities along the value chain;
- (v) the Government of South Africa, through DEA, acknowledged the role of women and youth in conservation and sustainable use of the natural resources, and prioritized gender mainstreaming, by developing a Strategy Towards Gender Mainstreaming in the Environment Sector and by other initiatives;
- (vi) there is a gap in consolidated data regarding gender issues in the bioprospecting sector; and
- (vii) lack of attention to gender issues at a provincial level.

161. The project will respond to the above listed findings in a number of ways:

- (i) mainstreaming gender in the initiatives where it does not exist;
- (ii) empowering local women by positioning them and promoting a greater involvement in decision making. The project will take measures to ensure adequate representation of women in community-level management committees;
- (iii) building capacity through appropriate training conducted in a gender-sensitive manner. The training will ensure the improvement of sustainable cultivation and harvesting skills, as well as contribute to combating illiteracy among women and youth;
- (iv) all community-engagement and outreach activities will be designed and implemented considering gender dimensions, including household power relationships. Consultations with women are going to be conducted at all stages of Project's implementation, through appropriate structures and in local languages, to ensure the participation of women;
- (v) introducing licensing regimes that will favour land controlled by local municipalities or the state, to empower women's equity in its governance;
- (vi) targeting women as beneficiaries in specific interventions; and
- (vii) supporting the generation of gender disaggregated data in the bioprospecting sector.

162. The project falls within the **Gender Targeted** ranking (UNDP GEN 2 - *Gender equality is not the main objective of the expected output, but the output promotes gender equality in a significant and consistent way*): It will target a 50/50 ration of women, men or marginalized populations. The project recognizes the role of culture and local customs in the way local communities govern access to and control over natural resources. The bioprospecting sector value chains in South Africa exhibit distinct gender patterns, with women over-represented in labor-intensive and poorly remunerated activities (such as gathering and nursing of the species) and men dominating the trading and other superior value chain activities which are more profitable. Unemployment and lack of economic opportunities contribute to high rural-urban migration rates, unsustainable harvesting and commercialization of biodiversity species. The sustainability of initiatives to catalyse change in gender will extend beyond the project's life cycle. Project interventions seeking to increase

the participation and beneficiation of women from the biodiversity sector are included in the multi-year workplan and articulated in the gender mainstreaming action plan below. A full report, including a detailed gender action plan are in [ANNEX X-7. Gender Mainstreaming](#).

163. Furthermore, relevant gender representation on various levels of project governance will be pursued, i.e. through including rules for gender balance in conservancy governance, as well as adequate women representation on the project board. All project staff recruitment shall be specifically undertaken inviting and encouraging women applicants.
164. The TORs for key project staff all incorporate gender mainstreaming related responsibilities.
165. The project will promote gender mainstreaming and capacity building within its project staff to improve socio-economic understanding of gender issues, and will appoint a designated focal point for gender issues to support development, implementation, monitoring and strategy on gender mainstreaming internally and externally. This will include facilitating gender equality in capacity development and women's empowerment and participation in the project activities. The project will also work with UNDP experts in gender issues to utilize their expertise in developing and implementing GEF projects. These requirements will be monitored by the UNDP Gender Focal Point during project implementation.
166. Based on the findings of the gender analysis conducted during the PPG, the project will adopt the following gender action plan to ensure that gender is comprehensively mainstreamed into the implementation of the project, through the project outputs.

Outcome & Output	Considerations and planned actions
<b>Outcome 1 – Research and development of products in line with the definition of utilisation of genetic resources of the Nagoya Protocol</b>	
Output 1.1 R&D barriers linked to clinical studies and registration of African Ginger ( <i>Siphonochilus aethiopicus</i> ) as a bioresource to treat inflammatory and allergic diseases are systematically overcome in an ABS-compliant manner.	Output 1.1 will facilitate the validation and contribute to the preservation of indigenous knowledge of using plants for medicinal purposes, which is a domain of women in South Africa, through clinical testing. Women will also benefit from the community-level training, as well as from revision of the existing ABS agreements with the (CSIR) Scientific community to make it more ABS compliant and inclusive.
Output 1.2 Bioprospecting R&D in the Northern Cape is supported, boosting the local Bioprospecting economy and establishing a strategically located 'Bioproducts Development Hub'.	Output 1.2 will increase women's access to technology and participation in generating of the scientific information. Women will benefit from the knowledge generated by the scientific hub. They will also secure employment opportunities in the nursery, securing livelihoods from the seedlings cultivation at the hub. Therefore, the community will be able to secure income and increase access to the market through the linkages to demand for product by consumers and those involved in clinical trials. They will also benefit from knowledge disbursed by the extension officer.
<b>Outcome 2 - Cooperation models support the conservation of, and commercial trade in, indigenous bioproducts</b>	
Output 2.1 The implementation of the Pelargonium Biodiversity Management Plan (BMP) is supported in close collaboration between the Pelargonium Working Group, community businesses and CSO stakeholders.	Output 2.1 will contribute to generating benefits for women through capacity building to increase the participation of women in the Pelargonium value chain and representation in decision making structures. The output will help improving the visibility, participation and representation of women and their roles in the species' cultivation and in the value chain by ensuring that women are represented in the selection of the staff for capacity building in the Eastern Cape. Women in the communities will benefit from the improved management of community based trusts and distribution of funds in line with the Nagoya Protocol.
Output 2.2 Development of an <i>Aloe ferox</i> harvesting, processing and trading hub in the Eastern Cape for the promotion of sustainable and equitable benefit sharing across the value chain.	Output 2.2 will generate employment for women as aloe harvesters, nursery worker's, aloe processors, packers in the plantation and factory operations. This will allow women to save their time and gain professional skills and knowledge through training regarding sustainable aloe cultivation and health and safety practices. Women will benefit from increased income and diversified opportunities for income generation, as well as from the increased access to land as a result of the formal agreement between the project and the traditional authority. Women will also benefit from the contract agreements that will be concluded with manufacturers and consumers of the product.
Output 2.3 Community-based enterprises in honeybush farming are supported, ensuring conservation and equitable benefit sharing outcomes across the <i>Cyclopia</i> spp. landscape in the Cape Region	Output 2.3 will increase women's land tenure security through the formalization of land control. The women will also benefit from capital input which will enable them to start their business. They will also benefit from increased output income and market access. They will gain skills through training interventions. They will benefit from support of a suitable grant-making mechanism to be selected during the procedural Local Project Appraisal Committee Meeting (LPAC), to be held once the PRODOC is CEO Endorsed by UNDP and DEA.

Outcome & Output	Considerations and planned actions
<p>Output 2.4</p> <p>The ABS implementation in Rooibos farming is strengthened ensuring, fairness, equity and sustainability in relevant relationships among TK holders and industry.</p>	<p>Output 2.4 activities will lead to benefitting women through the development of better governed ABS mechanisms. Women will be recognized as indigenous knowledge holders. Women will also benefit from the bursaries, training, outsourcing of business and business support opportunities that will arise from the project. Women will benefit from the increased number of opportunities to be represented and to participate in the governance and institutionalization framework for implementing and monitoring the TK benefit sharing mechanism, that will be developed.</p>
<p><b><i>Outcome 3 - Bioprospecting and value addition knowledge transfer is enhanced for an equitable benefit sharing</i></b></p>	
<p>Output 3 .1</p> <p>The National Recordal System for TK linked to bioprospecting is supported for ensuring ABS compliance in current and future agreements between indigenous and traditional knowledge holders and industry.</p>	<p>Output 3 .1 will enable women to benefit from their recognition as traditional knowledge holders. Their information will be recorded and recognized which will improve their capacity to benefit from ABS. Women will be employed to document and research on traditional knowledge holders. Women will benefit from increased access to information that will be generated by the output's activities.</p>
<p>Output 3.2.</p> <p>A biotrade certification system for South Africa is developed in view of safeguarding biodiversity conservation within bioprospecting value chains.</p>	<p>Women will generally benefit from a protected and sustainable environment. They will also benefit from the recognition of their role in safeguarding the biodiversity and from the species conservation. They will benefit through recruitment for training and employment as certifiers.</p>

---

## IV. FEASIBILITY

### Cost efficiency and effectiveness:

167. Cost effectiveness of the project will be achieved through: a) using best experience in the project design (see Strategy section); and b) through strong collaboration with on-going government initiatives, projects and donors via leveraging resources for all project components (see [Partnership](#) section).
168. **Component 1** benefits from investments ongoing or planned by ARC, CSIR and partners in the Northern Cape Province, including the Department of Agriculture, Forests and Fisheries (DAFF), which is ceding the land for the Northern Cape Hub.
169. For **Component 2** several site-specific baseline investments are relevant see [Annex X-2](#) and [X-3](#) for details), and this project specifically addresses identified gaps to a successful implementation of pilots, some of which are also linked to Component 1 for the R&D aspect.
170. The Output on the Pelargonium Management Plan (Output 2.1) implementation will be done in close collaboration with the Pelargonium Working Group. For the cultivation of *Aloe ferox* (Output 2.2), the project will collaborate with the Tyefu Community and ARC respectively. ARC will also be key for achieving results with the extension aspects of the Northern Cape Hub, along with the Department of Agriculture of Northern Cape (but with own funds). The Honeybush pilot (Output 2.3) will be rolled out through a suitable grant-making mechanism targeting community-level beneficiaries, to be selected during the procedural **Local Project Appraisal Committee Meeting (LPAC)**, to be held once the PRODOC is CEO Endorsed by UNDP and DEA. Finally, the negotiations pertaining to the flagship ABS agreement on Rooibos would not be possible without the assistance of South African Rooibos Council (SARC), San & Khoi Traditional Council.
171. For **Component 3**, which focuses on systemic measures, two partners are particularly important: DST and SANBI. Regarding these aspects, the baseline investments made by these two partners in respectively developing the TK recordal systems for ABS and researching the interlinkages between conservation and ABS (through certification schemes) have created the good condition for the proposed activities to have a positive systemic impact.
172. During implementation, the project will adopt a standard set of measures required for GEF-funded projects to achieve cost-effectiveness and maximise the financial resources available to project intervention activities while decreasing management costs (as already planned in this project document). All activities will be included in the Annual Work Plan, which will be discussed and approved by the Project Board to ensure that proposed actions are relevant and necessary. When the activities are to be implemented and project outputs monitored and evaluated, cost-effectiveness will be taken into account but will not compromise the quality of the outputs.
173. When hiring third party consultants/service providers, the project will follow a standard recruitment and advertising process to have at least three competitors for each consultant position. Selection will be based on qualifications, technical experience and financial proposal, to ensure hiring the best consultant (individual or organization) for optimal price. Economy fares will be applied for necessary air and road travel, and appropriate lodging facilities will be provided to the project staff that ensures staff safety and cost-effectiveness.
174. Expenses will be accounted for according UNDP rules and in line with the GEF policy. The project will follow a tendering process for equipment purchase and any printing/publishing that accounts for more than USD 10,000, comparing at least three vendors. In case there is a single vendor only for any activity, appropriate official norms will be followed to obtain approval from UNDP. Co-location of the PMU within DEA and UNDP will also deliver significant cost-effectiveness in terms of reducing the need to hire technical staff within the PMU.

## Risk Management

175. As per standard UNDP requirements, the Project Manager will monitor risks quarterly and report on the status of risks to the UNDP Country Office. The UNDP Country Office will record progress in the UNDP ATLAS risk log. Management responses to critical risks will also be reported to the GEF in the annual PIR.

176. Three risks had been identified at PIF stage, of which one of them (concerning “industry funding conflicts”) had been reformulated. At PPG stage, a total of six (6) project level risks apply and have been validated, of which three (3) have been recorded as either social or environmental through the SESP and recorded there as well. For re-validated PIF stage risks, the responses have been enhanced.

177. Other risks at output-level may apply, but these do not threaten the achievement of the project objective as a whole or other key aspects of its implementation. These lower-tier risks were therefore either incorporated into the project’s Monitoring Plan ([Annex B](#)), or as ‘risks and issues to be watched’ with respect to different outputs (in [Annex X-3](#)). These will be monitored as ‘issues’ rather than project risks per se.

178. The table below summarizes the project-level risks (the guiding matrix in **Error! Reference source not found.** was applied):

**Table 9: Project Risks**

#	Risk	Type	Identified at PIF / PPG stage / validation	Impact, Likelihood, Level	Mitigation Measures
1	Overharvesting of species in the wild continues unregulated	Environmental	PIF stage, validated at PPG stage, response enhanced	Impact = Medium Probability = Highly likely Level = Moderate	The project will put in place an online system that will provide information about abundance and availability of resources for bioprospecting activities (linked to the permitting application system) and an online permitting system for efficient access to resource by national, regional and international traders. Furthermore, Biodiversity Management Plans supported by the project will ensure harvesting of genetic resources is based on current resource assessment, carried out under legitimate tenure arrangements and in compliance with relevant laws, regulations and agreements. Finally, the project, in its fully designed stage, established how it will support the strengthening of capacity at various levels for stricter enforcement of BABS regulations; monitoring of wild species’ populations, both through pilots and systemic measures.
2	Lack of coordination between national and provincial environmental protection agencies and/or district environmental agencies as well as across different sectoral ministries to ensure traceability and adherence to various legislations and regulations	Organizational	PIF stage, validated at PPG stage, response enhanced	Impact = Low Probability = Not likely Level = Low	Coordination will be improved by using platforms such as the bioprospecting forum and the biennial biodiversity economy Indaba whose capacity will be further strengthened by the project. In addition, the project, in its fully designed stage, carefully explored and clarified how it will support bioprospecting value chain development, e.g. in the Northern Cape and Eastern Cape provinces through the establishment of provincial hubs. Provincial authorities were duly consulted during the PPG Stage (see PRODOC <a href="#">Annex X-4</a> ), reducing thereby the project level risk.



#	Risk	Type	Identified at PIF / PPG stage / validation	Impact, Likelihood, Level	Mitigation Measures
3	The project has a complex financial set-up and implementation arrangements, which may limit the production of results	Financial	PPG stage	Impact = High Probability = Likely Level = Moderate	UNDP will work together with DEA and support the PMU by pre-inception activities such as “Orient PMU members (project upstart)”, an activity foreseen in PRODOC <a href="#">Annex A</a> , as well as through due diligence in connection with the capacity screening of responsible parties and the quality assurance of project design (refer to PRODOC <a href="#">Annex H</a> and PRODOC <a href="#">Annex J</a> respectively for additional information).
4	Private companies utilizing and commercializing the cultural heritage of TK holders by patenting traditional remedies from the wild and selling them at a vast profit, allowing little or none of that profit to go back to the country or indigenous and local communities of origin	Social, Strategic	PIF stage, but re-formulated at PPG stage, included in the SESP	Impact = High Probability = Highly likely Level = High	The Project aims to ensure the fair sharing of benefits throughout targeted value chains. Appropriate agreements will be put in place to prevent private companies from excluding local and indigenous communities from the value chains and to disable the situation, where the TK is commercialized, without any profits going back to the community. Altogether, the project will mainstream, within the plant bioprospecting segment, ABS compliant practices such as obtaining Free, Prior and Informed Consent (FPIC) from communities in addition to developing a variety of mechanisms for equitable benefit sharing.
5	Commercial cultivation of species encroaching into natural ecosystems, endangered species’ habitats, directly or indirectly transforming them in a negative way	Environmental	PPG stage, included in the SESP	Impact = Moderate Probability = Moderately likely Level = Moderate	The theory of change behind the overall Project Strategy explicitly adopts the Ecosystem Approach for helping shape strategies for the project’s pilots (see e.g. PRODOC Figure 10). Hence the efforts will focus on ensuring that (i) <i>Aloe ferox</i> , Pelargonium spp. and wild-harvested Honeybush landscapes are sustainably managed; (ii) the Northern Cape hub can create better conditions for ecologically-adapted cultivation systems for species of interest to the bioprospecting value chains; (iii) the Rooibos gene-pool, whose wild distribution falls mostly within the Western Cape and to a lesser extent the Northern Cape Province and covers an area of approximately 56,231 sq km, continues to be well conserved across multi-use landscapes; and (iv) the critically endangered African ginger recovers from the extinction path through a rapid and sustainable transition to cultivation, while also safeguarding its precious gene pool across its natural landscape. Further to this, all pilots that include cultivation will be subject to impact assessment in view of avoiding encroachment into natural ecosystems. As a guiding principle, the project will not promote cultivation in areas of land that had not been previously used for agriculture.

#	Risk	Type	Identified at PIF / PPG stage / validation	Impact, Likelihood, Level	Mitigation Measures
6	Indigenous, community-owned land arrangements and indigenous-claimed resources affected by commercial cultivation, threatening traditional livelihoods, and possibly making access to important resources such as traditional medicine more difficult.	Social	PPG stage, included in the SESP	Impact = Medium Probability Moderately likely Level = Moderate	The project will support the agreements between indigenous communities and the bioprospecting industry to make sure that the indigenous rights (including land rights) are being respected. Additionally, the project will contribute to improving the economic well-being of indigenous TK holders and communities of harvesters by securing fairer ways of sharing the financial returns from the production of the species-derived products. Overall, the project, now in its fully designed stage, has included a detailed investigation of the current use and access regimes of communities with respect to each of the proposed ABS pilots. The details are included in PRODOC <a href="#">Annex X-2</a> . Further to this, the project introduces across the value chains and within the bioprospecting sector, a few systemic measures based on existing legislation that will be highly strategic in terms of developing the national capacity for ABS.

Low risk count = 1  
Moderate risk count = 4  
High risk count = 1  
Critical risk count = 0

**General risk assessment at project level: MODERATE**

#### Box 5. Risk Assessment Guiding Matrix

Rating the impact of a risk

Score	Rating
5	Critical
4	High
3	Medium
2	Low
1	Negligible

Rating the probability of a risk

Score	Rating
5	Expected
4	High likely
3	Moderately likely
2	Not likely
1	Slight

Significance of a risk

**Impact**

<b>5</b>	5	10	15	20	25	
<b>4</b>	4	8	12	16	20	
<b>3</b>	3	6	9	12	15	
<b>2</b>	2	4	6	8	10	
<b>1</b>	not a risk	2	3	4	5	
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

**Probability**

**Risk level / significance**

**3-point scale: Green = LOW, Yellow= MODERATE, Red = HIGH**

Also, refer to [ANNEX F](#), for the UNDP Social and Environmental Screening report.

## Innovativeness, Sustainability and Scaling Up:

179. The **sustainability** of the specific project activities will be ensured by the continued availability of training materials and case-studies. These materials will be open access, available in electronic version, and disseminated widely. They will provide comprehensive guidance for stakeholders, and will be used in future projects, as well as other countries of the region and beyond.

180. The emphasis on developing a comprehensive capacity-building strategy for bioprospecting sector will ensure the continued engagement of government agencies, CSOs, CBOs and the private sector, complementing thereby the approach. This will include plans for **cost-recovery for financial sustainability**.

181. Lessons learnt on the implementation of projects incorporated in this proposal will be imparted to a broader stakeholder base in the planned **Biennial Biodiversity Economy Indaba**.

182. **Innovation** is otherwise weaved into the project's approach and strategy, but made explicit in particular in the following sections:

- **Long-Term Solution** [\[go\]](#)
- **The Project's Theory of Change (ToC)** [\[go\]](#)
- **Project Areas and Pilots** [\[go\]](#)
- **In Annex X-3, Subsection: Component 4 (Knowledge Management & M&E), Outcome 4** (Lessons learned and the application of a participatory and gender sensitive M&E framework effectively contribute to institutional, community and corporate learning on ABS), and Output 4.0) National and international stakeholders are encouraged to participate in the project M&E and will systematize lessons learned from its implementation. [\[go\]](#)

183. **Project pilots are conceived to be scalable examples** of both ABS compliance and ecological sustainability, as explained in the relevant sections listed above. **The scalability of pilots will be reinforced by systemic measures**, such as those proposed under [Component 3](#) of the project, as well as by lesson's learning and Stakeholder Engagement approach, outlined in [ANNEX X-5. Knowledge Management & Stakeholder Involvement Plan](#).

### **Box 6 (updated). New Sustainable Practices' Adoption, Uptake and Spread + Linkages**

New sustainable practices and the strategy for stakeholders to adopt them are part and parcel of [Outputs 3.1](#) "The National Recordal System for TK linked to bioprospecting is supported for ensuring ABS compliance in current and future agreements between indigenous and traditional knowledge holders and industry" and [Output 3.2](#) "A biotrade certification system for South Africa is developed in view of safeguarding biodiversity conservation within bioprospecting value chains".

Sustainability and Innovation are embodied in the project's work within the pilots, including both [Component 1](#) and [Component 2](#). Two bioprospecting hubs will be established, one in Northern Cape (through [Output 1.2](#)) and one in Eastern Cape (through [Output 2.2](#)) – the latter with focus on cultivation, habitat management and processing of *Aloe ferox* and enhanced value addition.

#### Scaling up & Replication

Outcome 3 stands for: "Bioprospecting and value addition knowledge transfer is enhanced for equitable benefit sharing". Knowledge transfer schemes can be replicated in other projects.

Particularly [Output 3.2](#) (certification scheme) has a strong potential for scaling up. The new species enter into a given bioprospecting value chain and become a certified basis for value chain development with a view to promoting biodiversity conservation. This mechanism is also envisaged to promote a fair trade and product

differentiation across the value chain. It works with the participation of local certification entities in the country within specific standards. This mechanism can be successfully transferred to other projects.

Also, National Recordal System, described in Output 3.1, can be implemented on the ground, building on other ABS projects.

The focus on extension services for African Ginger cultivation and Northern Cape species will cater for scale and sustainability, now fully government sponsored (previously proposed outputs were dropped as a response to comments from GEF). The same applies to ecosystem management practices envisaged under [Output 2.1 Pelargonium](#) and [Output 2.3 Honeybush](#).

Overall, sustainable practices' adoption, uptake and spread are embedded in the key expected results from the project, as follows:

- bioprospecting R&D that focuses on indigenous plants will make a more significant contribution to the national Bioprospecting economy through at least 1 (one) new patent being registered and at least 4 (four) new market niches being explored through sustainable and ABS-compliant value chains in the Northern Cape's Bioprospecting economy;
- the ways of working, management conditions and techniques will change within 5 (five) strategic value chains, as they become examples of how conservation and ABS-compliance can be simultaneously achieved through cooperation among bioeconomic players;
- Special attention will be paid to the sustainability of supplies that are sold by local groups, implying a much more rational approach, as the project will work with those groups to sustainably use landscapes; and national capacity for the protection of traditional knowledge within the bioprospecting segment, as well as the general mainstreaming of both conservation and ABS compliance within them, will be gradually improved.

#### ABOUT LINKAGES:

..THE RELATIONSHIP BETWEEN ACTIVITIES AND CONSERVATION NEEDS TO BE MADE EXPLICIT:.

ADDED IN RESPONSE TO COMMENTS FROM GEF SECRETARIAT

It is important to note that compliance with South Africa's Bioprospecting, Access and Benefit Sharing regulations (BABS) can be a powerful tool for promoting conservation and sustainable use of biodiversity – and not just a tool for ABS compliance. Furthermore, all species / products on focus will need to comply with BABS through the permitting system.

The BABS's regulated relationships between providers and users of genetic resources caters for the adherence to the permit's conditions, and thereafter, with the permit's issuance the conditions imply that key trade information that has a bearing for sustainability has been disclosed according to the conditions of the permit.

Regardless of whether business information relating to the permits will remain confidential or not, key information with a bearing for biodiversity management is necessarily disclosed to DEA. This includes for example information on traded volumes, trade routes, resource origin, product development and beneficiation. And because BABS is hierarchically under the National Environmental Management Biodiversity Act (NEMBA), compliance with BABS implies also compliance with NEMBA and due diligence is necessarily carried out by government as applicable. This is why it may be said that BABS compliance (i.e. ABS or Nagoya Protocol compliance) is a powerful tool for promoting conservation and sustainable use of biodiversity.

BABS compliance will be required of all value chains relevant for the project (including the relevant species-value chains highlighted: *Aloe ferox*, Roibos, African ginger, Honeybush and *Pelargonium* spp).

In addition, other tools for conservation, sustainable use and ABS will come into play in the project, and they are, or can potentially be within a given context, rather powerful tools for conservation. Their application was made explicit in the applicable activities.

- Biodiversity Management Plans (BMP) for species, but which by extension also applies to landscapes such as those for Pelargonium and Honeybush;
- Develop best management practices for cultivation and harvesting planning (testing approaches, techniques and methodologies) for each species;
- Implement pre-existing Guidelines for the Sustainable Harvesting of Wild Honeybush
- South African Medicines Control Council's (MCCZA) Good Agricultural and Collection Practices (GACP).
- The Biotrade Certification System for South Africa (to be developed / organized by the project) in connection with Component 3.

At the level of 'activities' and with reference to the above-listed 'tools', a simple screening of activities' budgets yielded the following table regarding explicit and implicit linkages:

EXPLICIT Linkages (unless when otherwise indicated)	Project budget (\$)
Conservation / sustainable use	305,000
Sustainable use	253,000
Conservation / sustainable use / ABS compliance	900,000
ABS compliance	130,000
ABS compliance / scale up	437,600
ABS compliance / Sustainable use	167,000
IMPLICIT ABS compliance / Sustainable use	1,037,000
IMPLICIT Conservation / sustainable use	20,000
<b>Grand Total</b>	<b>3,249,600</b>

In other words, the activity screening found that at least 30% of the project's budget will explicitly support the implementation of tools that focus on conservation, sustainable use or ABS compliance and up to 50% of implicit cases are also considered.

Furthermore, we draw the attention to several passages in the PRODOC where:

[a] either the linkage between the project's activities (or core proposals) and conservation / sustainable use was already part of the project strategy in the previous iteration; or

[b] the linkage has been strengthened in the current iteration.

The linkages and their reflection in the PRODOC are mentioned below:

On the PRODOC cover page, where it reads: "This project will [...] address both conservation and Access Benefit Sharing (ABS) issues linked to the development of different bioprospecting value chains, while also helping key players overcome related barriers and challenges." [a]

In Figure number 10 from the PRODOC, and which had also been included in the CEO Endorsement Request file with the same number. Indeed, it provided a theoretical framework for the Project Strategy. However, the information was too condensed for providing a meaningful explanation. Additional explanation regarding Figure 10 is now included in the PRODOC and in the CEO Endorsement Request. [a, b]

The content of PRODOC Annex X-2 has been expanded, better edited and illustrated with at least three maps added [b]

The descriptions of outputs for the relevant species has been significantly strengthened. [b]

The title of [Annex X-2.2](#) changed to: *“Background for Conservation Benefits for Species targeted by the Project, plus ABS Compliance Angle”*. [b]

More specifically on the above-mentioned annex, the suggestion from the GEF Secretariat was accepted. PRODOC Table 13. Species characteristics, conservation status, value chain development and research facts already included basic information on the species. It was now expanded to include **“Conservation Benefits”** and **“Social Benefits”** in the current PRODOC iteration [a, b]

Hence, at a closer look, one will be able to find several linkages between the proposed activities and the conservation and sustainable use of biodiversity could be found, rather than ‘a disconnect’.

## V. PROJECT RESULTS FRAMEWORK

**This project will contribute to the following Sustainable Development Goal (s):**

**Goal 1 No Poverty:** through rural development opportunities provided by community-engagement and livelihood improvement interventions through the engagement of small farmers and wild harvesters in bioprospecting and biotrade. Furthermore, the project touches upon **Goal 5 - Gender Equality** and **Goal 8 - Decent Work and Economic Growth**, where key principles of inclusive growth – among them, gender sensitive & gender sensible growth – will guide the development of business models based on the bioprospecting value chains that will be supported by the project. **Goal 9 - Industry, Innovation and Infrastructure** is highly relevant for the subject matter of the project, to the extent that it will promote inclusive and sustainable industrialization and foster innovation through a wide range of value chains linked to bioprospecting and the Bioprospecting economy. **Goal 12 Responsible Consumption and Production** will also be addressed, to the extent that the project will help infuse sustainability in the products and value chains supported by the project. **Goal 15 Life on Land:** where efforts will be made through the project to improve the management of terrestrial ecosystems and of specific plant species that are found in them, including for the preservation of their genetic diversity. **Goal 17 Means of Partnerships for the Goals:** where South Africa as megadiverse country and a BRICS emerging economy, is strategically placed to demonstrate examples of how to operationalize the bioeconomy and meet a number of other SDGs in the process.

**This project will contribute to the following country outcome included in the UNDAF/Country Programme Document:**

**Outcome 2:** Increase in the number of sustainable 'green jobs' created in the economy; Stabilisation and reduction of carbon emissions and climate change mitigation and adaptation strategies fully operational. (Programme Component II: Climate Change and Greening South Africa's Economy)

**This project will be linked to the following output of the UNDP Strategic Plan (2018-2021):**

**Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste**

	#	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
<b>Project Objective:</b> To strengthen value chains for products derived from indigenous plants' genetic resources in view of contributing to the equitable sharing of benefits and the conservation of biodiversity.	1	Increase in capacity to implement the Nagoya Protocol on ABS, as measured by the GEF6 Tracking Tool (TT) BD Program 8: (a) TT Section 1 (max points = 38) (b) TT Section 2 x 6 pilots (max points per pilot = 10; all pilots = 60) ----- (c = a + b) TT max points total = 98	(a) 29 out of 38  (b) 16 out of 60  (c) 53 out of 98	(a) 31 out of 38  (b) 30 out of 60  (c) 60 out of 98	(a) 35 out of 38  (b) 44 out of 60  (c) 74 out of 98	R&D of products in line with NP's definition of utilization of genetic resources of South Africa accumulates successful experiences with sustainable and ethical bioprospecting product development.  Cooperation models across key bioprospecting value chains support ABS-compliant trade in indigenous plant species and related conservation measures.
	2	Number of ABS monetary agreements negotiated for flagship products developed from genetic resources/derivatives of Rooibos and African Ginger)	0 (outdated) ABS agreements	At least 1 ABS agreement	At least 2 ABS agreements (for products derived from African Ginger and Rooibos)	Knowledge transfer in bioprospecting and value addition is enhanced for an equitable sharing of benefits
	3	Area (ha) under landscape management systems that mainstream ABS principles:  (a) Direct (pilots targeted landscape)	(a) XX ha (to be determined at project inception)  (b) no system in place	(a) XX ha (to be determined at project inception)  (b) An ABS and biodiversity certification	(a) XX ha (to be determined at project inception)  (b) An ABS and biodiversity conservation	

	#	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
		(b) An ABS and biodiversity conservation certification system in place for key value chains		system developed and being piloted	certification system approved and adopted.	
	4	Level of mainstreaming of gender considerations in project monitoring (measured through scoring on the state of advancement in gender disaggregated data collection and analysis in ABS pilots): 1.1 African Ginger product registration 1.2 N Cape R&D hub 2.1 Pelargonium 2.2 <i>Aloe ferox</i> 2.3 Honeybush 2.4 Rooibos ABS deal ----- ----- ALL PILOTS(max scoring for each pilot = 24 / sum for all pilots = 108, as of Scoring Matrix for composing Results Framework Indicator')	Scores at the baseline: For pilot 1.1) 5 For pilot 1.2) 7 For pilot 2.1) 5 For pilot 2.2) 6 For pilot 2.3) 12 For pilot 2.4) 7 ----- ALL PILOTS = 42 / 144 (or 28%)  Baseline scoring in PRODOC Table 'Gender Mainstreaming Assessment' (Annex X-7).	At least 60% for the sum of all pilots (i.e. around 65)	Close to 100% (i.e. around 100 and up)	
Outcome 1. Bioprospecting R&D that focuses on indigenous plants contributes to the national Bioprospecting economy	Outputs:  1.1 R&D barriers linked to clinical studies and registration of African Ginger ( <i>Siphonochilus aethiopicus</i> ) as a bioresource to treat inflammatory and allergic diseases are systematically overcome in an ABS-compliant manner.  1.2 Bioprospecting R&D in the Northern Cape is supported, boosting the local Bioprospecting economy and establishing a strategically located 'Bioproducts Development Hub'.					
	5	Number of ABS products developed as a result of Research & Development (R&D)	0	1 ABS product developed	1 ABS product developed and marketed	South Africa is able to accumulate successful experiences with sustainable and ethical bioprospecting product development and facilitate ABS arrangements between providers and users of plant genetic resources.  Pooling of R&D support enables local economies to develop successful bioprospecting supply chains that are both ABS-compliant and conservation-friendly.
	6	Number of new and strengthened <sup>24</sup> ABS-compliant supply chains facilitated in the Northern Cape's Bioprospecting economy	0 new supply chains, 2 existing supply chains that could be strengthened (Devil's Claw and Rooibos)	At least 1 new supply chain (for Kanna) and 1 strengthened supply chain (Rooibos)	At least 2 new supply chains (Kanna and Cancer Bush), and 2 strengthened Devil's Claw and Rooibos supply chains	

<sup>24</sup> Current supply of both Devil's Claw and Rooibos are limited, although the markets exist. With support for increased supply through harvesting and production, processing and packaging, there is potential to increase benefits to the local communities in the Northern Cape region. The Northern Cape R&D Hub is meant to provide this support to the underdeveloped markets and value chains in this region.



	#	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
	7	Number of patent registrations based on home-grown R&D facilitated by the project	0	n/a	1 (for African ginger as a product for allergies and asthma)	
<b>Outcome 2.</b> The ways of working, management conditions and techniques change within 5 (five) strategic value chains, and demonstrate how conservation and ABS-compliance can be simultaneously achieved through cooperation among Bioprospecting economy players	<b>Outputs:</b>  2.1 The implementation of the Pelargonium Biodiversity Management Plan (BMP) is supported in close collaboration between the Pelargonium Working Group, community businesses and CSO stakeholders.  2.2 Development of an Aloe ferox harvesting, processing and trading hub in the Eastern Cape for promoting sustainable and equitable benefit sharing across the value chain is supported.  2.3 Community-based enterprises in honeybush farming are supported, ensuring conservation and equitable benefit sharing outcomes across the Cyclopia spp. landscape in the Cape Region.  2.4 [*] ABS implementation in Rooibos farming is strengthened, ensuring fairness, equity and sustainability in relevant relationships among TK holders and industry.  * Output renumbered from 2.6 to 2.4, given that two outputs were dropped so as to provide an adequate response to GEF comments in February 2018.					
	8	Increased score for implementation of Nagoya Protocol on ABS as per the GEF6 Tracking Tool BD Program 8, Section 2) ABS Pilots = X / max score 40 (10 x 4 pilots) --PILOTS-- 2.1 Pelargonium 2.2 Aloe ferox 2.3 Honeybush 2.4 Rooibos ABS deal	Score = 17 out of 40 ----- For pilot 2.1) 2/10 For pilot 2.2) 5/10 For pilot 2.3) 2/10 For pilot 2.4) 8/10	Score = 24 out of 40 For pilot 2.1) 5/10 For pilot 2.2) 6/10 For pilot 2.3) 4/10 For pilot 2.4) 9/10	Score = 32 out of 40 For pilot 2.1) 10/10 For pilot 2.2) 8/10 For pilot 2.3) 4/10 For pilot 2.4) 10/10	The effective implementation of Biodiversity Management Plans (BMPs) ensures that species' carrying capacity are taken into account and that extraction rates are managed sustainably.  A well-managed transition from wild harvesting to cultivation for supplying bioprospecting value chains reduces threats to targeted species and helps safeguard their wild gene-pools.
	9	Number of harvesters trained as per the sustainable harvester guidelines for the following pilots: 2.1 Pelargonium 2.2 Aloe ferox 2.3 Honeybush	For pilot 2.1 = (data not available) For pilot 2.2 = 0 For pilot 2.3 = (data not available)	For pilot 2.1 = t.b.d. For pilot 2.2 = >50 For pilot 2.3 = t.b.d.	For pilot 2.1 = t.b.d. For pilot 2.2 = >50 For pilot 2.3 = t.b.d.	Traditional knowledge holders are duly recognized as important providers of genetic resources and receive an equitable share of benefits through adequate agreements and frameworks.
	10	Number of local community households for which members are employed in aloe cultivation, harvesting and processing	<25 households	64 households	>80 households	Conservation benefits and TK's contribution are taken into consideration in ABS agreements and mainstreamed into the permitting system.
	11	Total income (US\$/annum) derived from project pilots that focus on cultivation 2.1 Pelargonium 2.2 Aloe ferox 2.3 Honeybush	X ZAR (data will be collected at pilot level during the project's year 1)	X ZAR + Y%	X ZAR + Z%	Collaboration among economic players create opportunities for innovation and process improvement.

	#	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
	12	Cultivation area for Honeybush to mitigate the current impact of habitat destruction and overharvesting	147 ha	300 ha	450 ha	
Outcome 3. Bioprospecting and value addition knowledge transfer is enhanced for equitable benefit sharing	<u>Outputs:</u>  3.1 The National Recordal System for TK linked to bioprospecting is supported for ensuring ABS compliance in current and future agreements between indigenous and traditional knowledge holders and industry.  3.2 A biotrade certification system for South Africa is developed in view of safeguarding biodiversity conservation within bioprospecting value chains.					
	13	A certification system in place to promote biodiversity conservation in the biotrade sector focusing on threatened species <sup>25</sup> - securing species’ survival - protection of wild gene-pools - habitat management - sustainable transition towards cultivation	No system in place, only planned through the project	A certification system developed for 1-2 value chains	A certification system in place and in place for at least 5 value chains	The strengthening of DST’s National Recordal System ensures the adequate recording, maintenance, dissemination and protection of traditional knowledge and a more equitable sharing of benefits derived from bioprospecting value chains.  Targeted biodiversity conservation safeguards ensure that bioprospecting/biotrade economic activities will not deplete the stocks of indigenous biological resources or their gene pool – enabling thereby the effective contribution of value chains to conservation.
	14	Number of Internationally Recognized Certificates of Compliance (IRCC) registered in the CBD’s ABS Clearing House Mechanism	3 IRCCs as of July 2017	4-5 IRCCs by Mid-2020	At least 6 IRCCs by End-2023	
	15	A functional National Recordal System in place.	The current TK Recordal System is not functional (according to project’s baseline analysis – refer to Barrier #3)	The outline of the new National Recordal System is tested and approved by DST	The new National Recordal System is fully functional and under utilisation	
	Outcome 4) Lessons learned and the application of a participatory and gender sensitive M&E framework effectively	<u>Outputs</u>  National and international stakeholders supported to participate in the project M&E and to systematize lessons learned from its implementation.				
16		Number of project lessons generated and disseminated to share knowledge on implementation of ABS initiatives	0 lessons documented and disseminated	3 lessons documented and disseminated	6 lessons documented and disseminated	South Africa has an advanced ABS framework with fairly developed bioprospecting and biotrading sectors and has the capacity to share lessons with other countries in the region (including those it shares some plant

<sup>25</sup> This refers to Output 3.2. The proposed support initiative would: (i) Develop a documented Standard, comprising indicators and implementation guidelines; (ii) Conclude implementation agreements with at least one implementation agent; and (iii) Complete a certification test case.

	#	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
contribute to institutional, community and corporate learning on ABS	17	<p>Number of women and men participating and benefiting from project interventions</p> <p>50% women/50% men</p>	<p>XX men (to be determined at project inception)</p> <p>XX women (to be determined at project inception)</p>	<p>XX men (to be determined at project inception)</p> <p>XX women (to be determined at project inception)</p>	<p>XX men (to be determined at project inception)</p> <p>XX women (to be determined at project inception)</p>	<p><i>genetic resources with, e.g. Lesotho</i>) and beyond. Under this project, R&amp;D will be supported and key scientific findings will be generated that will be of use to the global community.</p>

---

## VI. MONITORING AND EVALUATION (M&E) PLAN

184. The project results as outlined in the project results framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results via implementation of **Outcome / Component 4: Lessons learned and the application of a participatory and gender sensitive M&E framework effectively contribute to institutional, community and corporate learning on ABS.**
185. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](#) and [UNDP Evaluation Policy](#). While these UNDP requirements are not outlined in this project document, the UNDP Country Office will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the [GEF M&E policy](#) and other relevant GEF policies.
186. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report. This will include the exact role of project target groups and other stakeholders in project M&E activities including the GEF Operational Focal Point and national/regional institutes assigned to undertake project monitoring. The GEF Operational Focal Point will strive to ensure consistency in the approach taken to the GEF-specific M&E requirements (notably the GEF Tracking Tools) across all GEF-financed projects in the country. This could be achieved for example by using one national institute to complete the GEF Tracking Tools for all GEF-financed projects in the country, including projects supported by other GEF Agencies.

### **M&E Oversight and monitoring responsibilities:**

187. **Project Manager:** The Project Manager is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The Project Manager will ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will inform the Project Board, the UNDP Country Office and the UNDP-GEF RTA of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.
188. The Project Manager will develop annual work plans based on the multi-year work plan included in Annex A, including annual output targets to support the efficient implementation of the project. The Project Manager will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g. gender strategy, KM strategy etc.) occur on a regular basis.
189. **Project Board:** The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.
190. **Project Implementing Partner:** The Implementing Partner is responsible for providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary and appropriate. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes, and is aligned with national systems so that the data used and generated by the project supports national systems.

191. **UNDP Country Office:** The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The annual supervision missions will take place according to the schedule outlined in the annual work plan. Supervision mission reports will be circulated to the project team and Project Board within one month of the mission. The UNDP Country Office will initiate and organize key GEF M&E activities including the annual GEF PIR, the *independent mid-term review* and the independent terminal evaluation. The UNDP Country Office will also ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality.
192. The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the [UNDP POPP](#). This includes ensuring the UNDP Quality Assurance Assessment during implementation is undertaken annually; that annual targets at the output level are developed, and monitored and reported using UNDP corporate systems; the regular updating of the ATLAS risk log; and, the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the GEF PIR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g. annual GEF PIR quality assessment ratings) must be addressed by the UNDP Country Office and the Project Manager.
193. The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure in order to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF Independent Evaluation Office (IEO).
194. **UNDP-GEF Unit:** Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor and the UNDP-GEF Directorate as needed.
195. **Audit:** The project will be audited according to UNDP Financial Regulations and Rules and applicable audit policies on NIM implemented projects.<sup>26</sup>

**Additional GEF monitoring and reporting requirements:**

196. **Inception Workshop and Report:** A project inception workshop will be held within two months after the project document has been signed by all relevant parties to, amongst others:
- a) Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project implementation;
  - b) Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms;
  - c) Review the results framework and finalize the indicators, means of verification and monitoring plan;
  - d) Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP in M&E;
  - e) Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; Environmental and Social Management Plan and other safeguard requirements; the gender strategy; the knowledge management strategy, and other relevant strategies;
  - f) Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; and
  - g) Plan and schedule Project Board meetings and finalize the first-year annual work plan.
197. The Project Manager will prepare the inception report no later than one month after the inception workshop. The inception report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board.
198. **GEF Project Implementation Report (PIR):** The Project Manager, the UNDP Country Office, and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual GEF PIR covering the reporting period July

---

<sup>26</sup> See guidance here: <https://info.undp.org/global/popp/frm/pages/financial-management-and-execution-modalities.aspx>

(previous year) to June (current year) for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission deadline so that progress can be reported in the PIR. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR.

199. The PIR submitted to the GEF will be shared with the Project Board. The UNDP Country Office will coordinate the input of the GEF Operational Focal Point and other stakeholders to the PIR as appropriate. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

200. Lessons learned and knowledge generation: Results from the project will be disseminated within and beyond the project intervention area through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the project. The project will identify, analyse and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally.

201. GEF Focal Area Tracking Tools: The GEF 6 Tracking Tool for Biodiversity, *Objective 3, Program 8: Implementing the Nagoya Protocol on ABS* will be used to monitor global environmental benefits of the project results. The baseline/CEO Endorsement ABS GEF Tracking Tool – submitted in **Annex D** to this project document – will be updated by the Project Manager/Team and shared with the mid-term review consultants and terminal evaluation consultants (not the evaluation consultants hired to undertake the MTR or the TE) before the required review/evaluation missions take place. The updated ABS GEF Tracking Tool will be submitted to the GEF along with the completed Mid-term Review report and Terminal Evaluation report.

202. Independent Mid-term Review (MTR): An independent mid-term review process will begin after the second PIR has been submitted to the GEF, and the MTR report will be submitted to the GEF in the same year as the 3<sup>rd</sup> PIR. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center \(ERC\)](#). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final MTR report will be available in English and will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and approved by the Project Board.

203. Terminal Evaluation (TE): An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terminal evaluation process will begin three months before operational closure of the project allowing the evaluation mission to proceed while the project team is still in place, yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability. The Project Manager will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center](#). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board. The TE report will be publically available in English on the UNDP ERC.

204. The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the corresponding management response to the UNDP Evaluation Resource Centre (ERC). Once uploaded to the ERC, the UNDP IEO will undertake a quality assessment and validate the findings and ratings in the TE report, and rate the quality of the TE report. The UNDP IEO assessment report will be sent to the GEF IEO along with the project terminal evaluation report.

205. Final Report: The project's terminal PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

**Table 10: Mandatory GEF M&E Requirements and M&E Budget**

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget <sup>27</sup> (USD)		Time frame
		GEF grant	Co-financing	
<b>Inception Workshop</b>	UNDP Country Office	USD 11,330		Within two months of project document signature
<b>Inception Report</b>	Project Manager	None	None	Within two weeks of inception workshop
<b>Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP</b>	UNDP Country Office	None	None	Quarterly, annually
<b>Monitoring of indicators in project results framework</b>	Project Manager	Per year: USD 1,000 (1,000 x 5 yrs= \$5,000)	None	Annually
<b>GEF Project Implementation Report (PIR)</b>	Project Manager and UNDP Country Office and UNDP-GEF team	None	None	Annually
<b>NIM Audit as per UNDP audit policies</b>	UNDP Country Office	Per year: USD 4,000 (\$4,000 x 5 yrs= \$20,000)	None	Annually or other frequency as per UNDP Audit policies
<b>Lessons learned and knowledge generation</b>	Project Manager	None	None	Annually
<b>Monitoring of environmental and social risks, and corresponding management plans as relevant</b>	Project Manager UNDP CO	None	None	On-going
<b>Addressing environmental and social grievances</b>	Project Manager UNDP Country Office BPPS as needed	None for time of project manager, and UNDP CO	None	On-going
<b>Project Board meetings</b>	Project Board UNDP Country Office Project Manager	Per year: USD 2,500 (\$2,500 x 5 yrs= \$12,500)	None	Annually
<b>Supervision missions</b>	UNDP Country Office	None <sup>28</sup>	None	Annually
<b>Oversight missions</b>	UNDP-GEF team	None <sup>28</sup>	None	Troubleshooting as needed

<sup>27</sup> Excluding project team staff time and UNDP staff time and travel expenses.

<sup>28</sup> The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget <sup>27</sup> (USD)		Time frame
		GEF grant	Co-financing	
Knowledge management as outlined in Outcome 4	Project Manager	None	None	On-going
GEF Secretariat learning missions/site visits	UNDP Country Office and Project Manager and UNDP-GEF team	None	None	To be determined.
Mid-term GEF Tracking Tool to be updated by PMU in coordination with ARC, CSIR and DST	Project Manager	USD 2,000	None	Before mid-term review mission takes place.
Independent Mid-term Review (MTR) and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 45,000	None	Between 2 <sup>nd</sup> and 3 <sup>rd</sup> PIR.
Terminal GEF Tracking Tool to be updated by PMU in coordination with ARC, CSIR and DST	Project Manager	USD 2,000		Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 45,000		At least three months before operational closure
<b>TOTAL indicative COST</b> Excluding project team staff time, and UNDP staff and travel expenses		USD 142,830 *		

*\*It is noted that the M&E budget is below 3% of the overall GEF investment.*



## VII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

206. Roles and responsibilities of the project's governance mechanism: The project will be implemented following UNDP's national implementation modality, according to the Standard Basic Assistance Agreement between UNDP and the Government of South Africa, and the Country Programme. The project will be implemented over a period of five years.

207. The **Implementing Partner** for this project is the Department of Environmental Affairs (DEA).

- More specifically, DEA will directly implement Outputs 2.1, 2.2, 2.3, 2.4 [newly renumbered] and 3.2. through its Project Management Unit (PMU).
- For certain Outputs above-mentioned, specific arrangements apply:
  - During year 1, DEA will tender out the work on Output 2.1 to a capable service provider.
  - Output 2.2 will be implemented by DEA in collaboration with Tyefu Traditional Trust as the partner on the ground. DEA will however retain budgetary control of the funds allocated to Output 2.2.
  - The funding for Output 2.3 is foreseen to be availed to grantees on the ground with a suitable grant-making mechanism to be selected during the procedural **Local Project Appraisal Committee Meeting (LPAC)**, to be held once the PRODOC is CEO Endorsed by UNDP and DEA. The selected mechanism will be used as the disbursement mechanism, whereby a specific call for proposals relevant to the output will be launched through a collaboration between the PMU and the selected mechanism. This will follow the UNDP Micro Capital Grants Policy.
  - Output 3.2 will be led by SANBI, through direct appointment, but DEA will also in this case retain budgetary control of the funds allocated to Output 3.2.

208. **Responsible Parties (RPs):**

- Council for Scientific and Industrial Research (CSIR), which will be responsible for Output 1.1
- Agricultural Research Council (ARC), which will be responsible for Output 1.2
- Department of Science & Technology (DST), which will be responsible for Output 3.1.

209. MOUs/Agreements will be signed between DEA and the Responsible Parties to facilitate transfer of funds to them. The overview of funds and responsibilities allocation is provided in the table below:

**Table 11. Overview of over budget allocations and responsibilities (according to the TBW)**

Output #	Project Output (Short)	Allocated budget (US\$)	Responsible Parties
1.1	Output 1.1 (Afr. Ginger) – CSIR	558,000	CSIR (Council for Scientific and Industrial Research)
1.2	Output 1.2 (Northern Cape) – ARC	900,000	ARC (Agricultural Research Council)
2.1	Output 2.1 (Pelag.) - DEA PMU	684,000	DEA (PMU)
2.2	Output 2.2 ( <i>Aloe ferox</i> ) - DEA PMU / Tyefu Community	1,017,000	DEA + Tyefu Traditional Trust
2.3	Output 2.3 (Honeybush) - DEA PMU	1,000,000	DEA (PMU) with funds rolled out through [*] UNDP Micro-Capital Grant mechanism
2.4 [**]	Output 2.4 (Roioibos) - DEA PMU  [** Output renumbered from 2.6 to 2.4, given that two outputs were dropped so as to provide an adequate response to GEF comments in February 2018.]	100,000	DEA (PMU)

Output #	Project Output (Short)	Allocated budget (US\$)	Responsible Parties
3.1	Output 3.1 (National Recordal System) – DST	437,600	DST (Department of Science & Technology)
3.2	Output 3.2 (Certification System) - SANBI	665,000	DEA (PMU) in collaboration with SANBI
TECHNICAL IMPLEMENTATION: Components 1, 2 and 3	<p>Project' technical implementation and composition of a PMU within DEA, including (i) and (ii):</p> <p>(i) The Project's Core Team:</p> <ul style="list-style-type: none"> <li>Project Manager (financed by GEF, DEA recruitment)</li> <li>Project Finance Officer (directly financed by DEA)</li> <li>Project's M&amp;E Officer (financed by GEF at 70%, UNDP recruitment)</li> </ul> <p>(ii) Other needed inputs into the project's technical implementation (strategic short-term consultancies equipment, furniture, vehicle, travel, supplies, etc.)</p>	402,400	DEA or UNDP, depending on the budget line
M&E + KM: Component 4	Monitoring & Evaluation plus Knowledge Management (refer to <a href="#">Section VII</a> for details)	150,330	DEA PMU or UNDP, depending on the budget line
PMC	Project Management Costs	295,716	DEA PMU and UNDP
<b>TOTAL</b>		<b>6,210,046</b>	

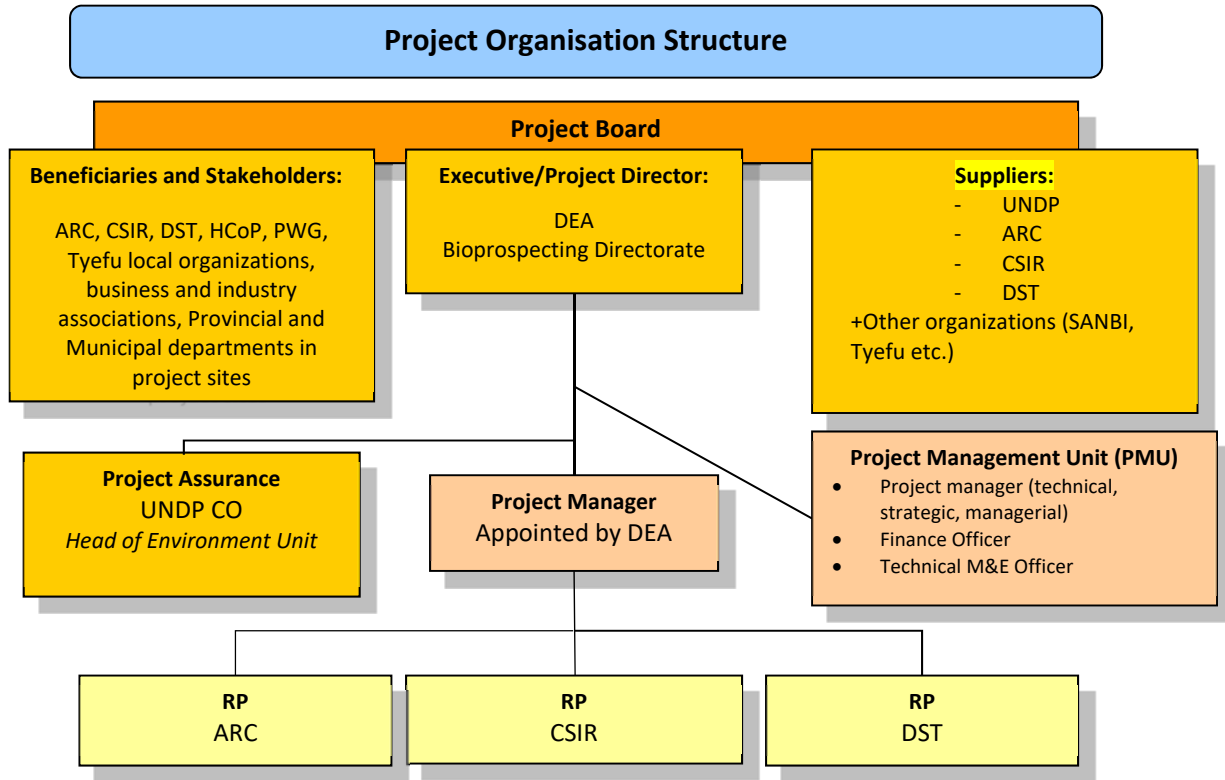
210. The Implementing Partner is responsible and accountable for managing the respective components and outputs of this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. The project organisation structure<sup>29</sup> is as follows:

<sup>29</sup> Definition of terms:

*Suppliers:* individuals or groups representing the interests of the parties concerned which provide funding and/or technical expertise to the project.

*Beneficiary Representative:* individuals or groups of individuals representing the interests of those who will ultimately benefit from the project. The primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries.

**Figure 15. Project organisation structure**



**LEGEND**

Agricultural Research Commission (ARC)  
Council for Scientific and Industrial Research (CSIR)  
Honeybush Community of Practice (HCoP)

Pelargonium Working Group (PWG)  
Tyefu Traditional Leader (Chief Msutu)  
Tyefu Traditional Council (TTC)  
Tyefu Traditional Trust (TTT)

211. The **Project Board** (also called Project Steering Committee) is responsible for making by consensus, management decisions when guidance is required by the Project Manager, including recommendation for UNDP/Implementing Partner approval of project plans and revisions. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case a consensus cannot be reached within the Board, final decision shall rest with the UNDP Programme Manager. The terms of reference for the Project Board are contained in Annex E. The Project Board is comprised of the following institutions: UNDP, the Department of Environmental Affairs (DEA), Department of Science and Technology (DST), Department of Trade (DoT), Agricultural Research Council (ARC), Council for Scientific and Industrial Research (CSIR), SANBI, Tyefu, and other relevant stakeholders as appropriate.

212. Other relevant stakeholders and representatives from project beneficiary groups may be invited to Project Board meetings, namely: civil Society and business associations representatives, representatives of the Provincial Governments of Northern Cape, Free State, Eastern Cape. A representative of the donor community with a stake in ABS issues in South Africa may also be invited on the board<sup>30</sup>. The Project Board will meet after the Inception Workshop and at least once each year thereafter.

<sup>30</sup> Possibly SECO.

213. The **Project Manager** will run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager function will end when the final project terminal evaluation report, and other documentation required by the GEF and UNDP has been completed and submitted to UNDP (including operational closure of the project). The terms of reference for the Project Manager are contained in [Annex E](#).
214. The **project assurance** role will be provided by the UNDP Country Office. Additional quality assurance will be provided by the UNDP Regional Technical Advisor as needed.
215. Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information: In order to accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy<sup>31</sup> and the GEF policy on public involvement<sup>32</sup>.
216. Project Management: The Project Manager will be supported by a Finance Officer and an M&E Officer, and together they form the Project Management Unit (PMU). The PMU will be housed within DEA, with strong links to UNDP to facilitate payments, approvals and other procedures. The TORs for the Project Manager, the Finance Officer and the M&E Officer are included in [Annex E](#).
217. Notably, the Project Manager will be recruited by DEA and following DEA's salary scale, while the Project's M&E Officer will be on-boarded at year 2 on a part-time basis to be recruited by UNDP on behalf of the DEA and upon their request. In turn, the Project's Finance Officer will be directly financed by DEA as part of its co-financing to the project.
218. UNDP Direct Project Services (DPC) as requested by Government: The UNDP, as GEF Agency for this project, will provide project management cycle services for the project as defined by the GEF Council. In addition, the Government of South Africa may request UNDP direct services for specific projects, according to its policies and convenience. The UNDP and Government of South Africa acknowledge and agree that those services are not mandatory, and will be provided only upon Government request. If requested the services would follow the UNDP policies on the recovery of direct costs. These services (and their costs) are specified in the Letter of Agreement (Annex K). As is determined by the GEF Council requirements, these service costs will be assigned as Project Management Cost, duly identified in the project budget as Direct Project Costs. Eligible Direct Project Costs should not be charged as a flat percentage. They should be calculated based on estimated actual or transaction based costs and should be charged to the direct project costs account codes: 64397 – 'Services to projects - CO staff' and 74596 – 'Services to projects - GOE for CO'.
219. The UNDP country office will provide, at the request of the Implementing Partner, the following support services for the activities of the project
- (a) Identification and/or recruitment of project personnel;
  - (b) Provision of Responsible Party Agreements;
  - (c) Identification and facilitation of implementation of activities;
  - (d) Procurement of goods and services required under the project.
220. These services, and their cost, have been outlined in the Letter of Agreement (see annex in the Prodoc) to be signed between government and UNDP, prior to the signing of the PRODOC between UNDP and government. See Annex L. Standard letter of agreement between UNDP and the Implementing Partner for the provision of

<sup>31</sup> See [http://www.undp.org/content/undp/en/home/operations/transparency/information\\_disclosurepolicy/](http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/)

<sup>32</sup> See [https://www.thegef.org/gef/policies\\_guidelines](https://www.thegef.org/gef/policies_guidelines)

support services and Annex L1. Indicative Procurement Plan for the first year of the project for further details on the Direct Project Services

## VIII. FINANCIAL PLANNING AND MANAGEMENT

221. The total cost of the project is USD 42,080,609.86. This is financed through a GEF grant of USD 6,210,046 to be administered by UNDP and USD 35,870,563.86 in partner managed co-financing.

222. UNDP, as the GEF Implementing Agency, is responsible for the execution of the GEF resources and the cash co-financing transferred to the UNDP bank account only.

223. Co-financing: The actual realization of project co-financing will be monitored during the mid-term review and terminal evaluation process and will be reported to the GEF. The planned co-financing will be used as follows:

Co-financing source	Co-financing type	Co-financing amount, USD	Planned Activities/Outputs	Risks	Risk Mitigation Measures
Recipient Government – DEA	Grants (\$30.387 M from baseline)	30,387,060.53	<ul style="list-style-type: none"> <li>Overall technical support and coordination for the whole project</li> <li>Salary of Project Finance Officer</li> <li>Implementation of project outputs as outlined in Table 11 above</li> </ul>	The possibility that the Project's Finance Officer is not on-boarded soon enough.	If needed, UNDP will negotiate alternative arrangement through its influence in the Project Board.
Department of Science and Technology (DST)	Grants, of which (\$500K are from baseline)	769,230.76	(a) Building and supporting appropriate indigenous knowledge networks in communities. (b) Enabling the discovery, cataloguing, capturing, validation and utilization of the national indigenous knowledge systems (IKS) heritage in an appropriate framework. (c) Initiating, enabling and maintaining a secure, accessible national repository for the management, dissemination, protection and promotion of IKS.	DST's approach being too focused on biotechnology, rather than TK.	Bring in other partners such as SANBI to contribute to Output 3.1
Council for Scientific and Industrial Research (CSIR)	70% in cash + 30% in kind (100% from baseline)	2,783,777	The achievement of project results with respect to its Output 1.1 <i>Siphonochilus aethiopicus</i> clinical studies, registration and product development.	Results from clinical trials end up being not as promising as expected and product registration never happens, resulting in limited benefits to be shared	The project will need to deal with this risk, as R&D has many unknowns.
Agricultural Research Council (ARC)	Grants, of which 100% is from baseline)	1,415,110.96	<ul style="list-style-type: none"> <li>Technical support and implementation of outputs as outlined in Table 11 above.</li> </ul>	Tbd	tbd

South African National Biodiversity Institute (SANBI)	Grants 100% in cash	515,384.61	<ul style="list-style-type: none"> <li>Overall technical support and coordination of Output 3.2 aimed at developing a comprehensive national certification system to safeguard biodiversity conservation within bioprospecting value chains</li> </ul>	Lack of collaboration between SANBI and the Nagoya Protocol Focal Point	DEA, as the IP, will closely facilitate collaboration among all RPs towards the achievement of project objectives
---	---------------------	------------	--	---	---

224. Budget Revision and Tolerance: As per UNDP requirements outlined in the UNDP POPP, the project board will agree on a budget tolerance level for each plan under the overall annual work plan allowing the project manager to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the Project Board. Should the following deviations occur, the Project Manager and UNDP Country Office will seek the approval of the UNDP-GEF team as these are considered major amendments by the GEF:

- a) Budget re-allocations among components in the project with amounts involving 10% of the total project grant or more;
- b) Introduction of new budget items/or components that exceed 5% of original GEF allocation.

225. Any over expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g. UNDP TRAC or cash co-financing).

226. Refund to Donor: Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the UNDP-GEF Unit in New York.

227. Project Closure: Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. On an exceptional basis only, a no-cost extension beyond the initial duration of the project will be sought from in-country UNDP colleagues and then the UNDP-GEF Executive Coordinator.

228. Operational completion: The project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report (that will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. At this time, the relevant parties will have already agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

226. Financial completion: The project will be financially closed when the following conditions have been met:

- a) The project is operationally completed or has been cancelled;
- b) The Implementing Partner has reported all financial transactions to UNDP;
- c) UNDP has closed the accounts for the project;
- d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

229. The project will be financially completed within 12 months of operational closure or after the date of cancellation. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the UNDP-GEF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.

## IX. TOTAL BUDGET AND WORK PLAN

Atlas Proposal of Award ID:	00106197	Atlas Primary Output Project ID:	00107047
Atlas Proposal or Award Title:	Nagoya Protocol – FSP		
Atlas Business Unit:	ZAF10		
Atlas Primary Output Project Title:	Development of Value Chains for Products derived from Genetic Resources in Compliance with the Nagoya Protocol on Access and Benefit Sharing and the National Biodiversity Economy Strategy		
UNDP-GEF PIMS no.:	5686		
Implementing Partner:	DEA		

GEF Component/Atlas Activity	Responsible Party/(Atlas Implementing Agent)	Fund ID	Donor Name	Atlas Budgetary Account Code and ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	Budget Note #
Comp 1) BIOPROSPECTING R and D	DEA PMU	62000	GEF	71800 Contractual Services - Individ	8,288.00	11,053.00	11,053.00	11,053.00	11,053.00	52,500.00	1
	CSIR	62000	GEF	72100 Contractual Services - Companies	215,500.00	215,500.00	-	-	-	431,000.00	2
	CSIR	62000	GEF	74100 Professional service	63,500.00	-	63,500.00	-	-	127,000.00	3
	ARC	62000	GEF	71300 Local Consultants	127,750.00	139,000.00	134,000.00	134,000.00	105,250.00	640,000.00	4, 5, 6, 7, 8
	ARC	62000	GEF	72100 Contractual Services - Companies	6,000.00	6,000.00	6,000.00	6,000.00	6,000.00	30,000.00	9
	ARC	62000	GEF	72200 Equipment and Furniture	70,000.00	-	-	-	-	70,000.00	10
	ARC	62000	GEF	72500 Supplies	2,500.00	-	2,500.00	2,500.00	2,500.00	10,000.00	11
	ARC	62000	GEF	73200 Premises Alternations	150,000.00	-	-	-	-	150,000.00	12
				<b>SUB-TOTAL Comp. 1</b>	<b>643,538.00</b>	<b>371,553.00</b>	<b>217,053.00</b>	<b>153,553.00</b>	<b>124,803.00</b>	<b>1,510,500.00</b>	
Comp 2) VALUE CHAIN DEVELOPMENT	DEA PMU	62000	GEF	71600 Travel	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00	40,000.00	21
	DEA PMU	62000	GEF	71800 Contractual Services - Individ	102,316.00	91,421.00	96,421.00	93,421.00	61,921.00	445,500.00	13, 14, 26, 27, 28
	DEA PMU / DEA PMU / Tyefu Community/	62000	GEF	72100 Contractual Services - Companies	349,500.00	247,000.00	116,000.00	56,000.00	8,500.00	777,000.00	15, 16, 17, 18, 19, 20, 23, 29, 30, 31, 41, 44,45, 46, 48
	DEA PMU / Tyefu Community	62000	GEF	72200 Equipment and Furniture	-	27,500.00	94,500.00	27,500.00	27,500.00	177,000.00	32, 33
	DEA PMU / Tyefu Community	62000	GEF	72300 Materials & Goods	24,500.00	169,000.00	40,000.00	40,000.00	43,500.00	317,000.00	34, 35, 36, 37, 38, 39
	DEA PMU / Tyefu Community	62000	GEF	72500 Supplies	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	10,000.00	40
	DEA PMU / Tyefu Community	62000	GEF	72600 Grants	12,000.00	249,000.00	231,000.00	225,000.00	225,000.00	942,000.00	22, 47
	DEA PMU	62000	GEF	74100 Professional service	40,000.00	-	-	-	-	40,000.00	42



GEF Component/Atlas Activity	Responsible Party/(Atlas Implementing Agent)	Fund ID	Donor Name	Atlas Budgetary Account Code and ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	Budget Note #
	DEA PMU/ DEA PMU / Tyefu Community/	62000	GEF	75700 Training, Workshops and Conferences	40,000.00	60,000.00	15,000.00	20,000.00	5,000.00	140,000.00	24, 25, 43
				<b>SUB-TOTAL Comp. 2</b>	<b>578,316.00</b>	<b>853,921.00</b>	<b>602,921.00</b>	<b>471,921.00</b>	<b>381,421.00</b>	<b>2,888,500.00</b>	
Comp 3) ABS CAPACITY BUILDING	DEA PMU	62000	GEF	71300 Local Consultants	76,220.00	61,220.00	61,220.00	61,220.00	61,220.00	321,100.00	50, 53
	UNDP	62000	GEF	71600 Travel	-	-	-	-	16,810.00	16,810.00	51
	DST/ DEA PMU	62000	GEF	71800 Contractual Services - Indiv	5,528.00	50,016.00	50,016.00	50,015.00	50,015.00	205,590.00	49, 52
	DST	62000	GEF	72100 Contractual Services - Companies	325,000.00	207,650.00	147,650.00	50,000.00	30,000.00	760,300.00	54, 59
	DST	62000	GEF	72800 Information Technology Equipmt	7,000.00	-	-	-	-	7,000.00	56
	DST/ DEA PMU/ SANBI	62000	GEF	75700 Training, Workshops and Conferences	54,200.00	-	-	-	-	54,200.00	55, 57, 58
				<b>SUB-TOTAL Comp. 3</b>	<b>467,948.00</b>	<b>318,886.00</b>	<b>258,886.00</b>	<b>161,235.00</b>	<b>158,045.00</b>	<b>1,365,000.00</b>	
Comp 4) KM and M&E	DEA PMU	62000	GEF	71300 Local Consultants	10,000.00	-	-	-	-	10,000.00	60
	DEA PMU/ UNDP	62000	GEF	72100 Contractual Services - Companies	500.00	1,000.00	46,000.00	1,000.00	45,500.00	94,000.00	62, 65, 66
	DEA PMU	62000	GEF	72500 Supplies	5,000.00	-	-	-	-	5,000.00	63
	UNDP	62000	GEF	74100 Professional service	4,000.00	4,000.00	-	8,000.00	4,000.00	20,000.00	67
	UNDP	62000	GEF	75700 Training, Workshops and Conferences	12,330.00	3,000.00	3,000.00	2,000.00	1,000.00	21,330.00	61, 64
				<b>SUB-TOTAL Comp. 4</b>	<b>31,830.00</b>	<b>8,000.00</b>	<b>49,000.00</b>	<b>11,000.00</b>	<b>50,500.00</b>	<b>150,330.00</b>	
Comp 5) PROJECT MANAGEMENT COSTS	DEA PMU	62000	GEF	71600 Travel	5,000.00	11,000.00	10,000.00	5,000.00	3,000.00	34,000.00	69
	DEA PMU	62000	GEF	71800 Contractual Services - Indiv	27,632.00	36,842.00	36,842.00	36,842.00	36,842.00	175,000.00	68
	DEA PMU	62000	GEF	72200 Equipment and Furniture	40,000.00	-	-	-	-	40,000.00	72, 73
	DEA PMU	62000	GEF	72500 Supplies	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	15,000.00	70
	DEA PMU	62000	GEF	72800 Information Technology Equipmt	12,000.00	-	-	-	-	12,000.00	74
	DEA PMU	62000	GEF	74500 Miscellaneous Expenses	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	10,000.00	71
	UNDP	62000	GEF	74596 Direct Project Cost	4,716.00	-	-	-	-	4,716.00	75
	UNDP	62000	GEF	75700 Training, Workshops and Conferences	5,000.00	-	-	-	-	5,000.00	76
				<b>SUB-TOTAL PMU</b>	<b>99,348.00</b>	<b>52,842.00</b>	<b>51,842.00</b>	<b>46,842.00</b>	<b>44,842.00</b>	<b>295,716.00</b>	
				<b>GRAND TOTAL</b>	<b>1,820,980.00</b>	<b>1,605,202.00</b>	<b>1,179,702.00</b>	<b>844,551.00</b>	<b>759,611.00</b>	<b>6,210,046.00</b>	

Responsible parties	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)
ARS	356,250	145,000	142,500	142,500	113,750	900,000
CSIR	279,000	215,500	63,500	-	-	558,000
DEA	729,594	934,184	682,184	545,184	467,994	3,359,140
DST	117,420	103,870	103,870	56,220	56,220	437,600
SANBI	325,000	160,000	100,000	50,000	30,000	665,000
UNDP	13,716	46,648	87,648	50,647	91,647	290,306
<b>Total</b>	<b>1,820,980</b>	<b>1,605,202</b>	<b>1,179,702</b>	<b>844,551</b>	<b>759,611</b>	<b>6,210,046</b>

Summary of funds:

Source of Fund	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)
GEFTF	1,820,980.00	1,605,202.00	1,179,702.00	844,551.00	759,611.00	6,210,046.00
ARS	283,022.19	283,022.19	283,022.19	283,022.19	283,022.19	1,415,110.96
CSIR	556,755.40	556,755.40	556,755.40	556,755.40	556,755.40	2,783,777.00
DEA	6,077,412.11	6,077,412.11	6,077,412.11	6,077,412.11	6,077,412.11	30,387,060.53
DST	153,846.15	153,846.15	153,846.15	153,846.15	153,846.15	769,230.76
SANBI	103,076.92	103,076.92	103,076.92	103,076.92	103,076.92	515,384.61
<b>Total</b>	<b>8,995,092.77</b>	<b>8,779,314.77</b>	<b>8,353,814.77</b>	<b>8,018,663.77</b>	<b>7,933,723.77</b>	<b>42,080,609.86</b>

Budget notes:

#	Budget Notes:
Comp 1	A
1	PMU team (Comp 1 technical implementation): Project Manager, full-time (with technical, strategic and managerial responsibilities). The technical and strategic aspects refer to support to the implementation of project components. The amount herein includes half of the budget reserve for a 5-year full-time engagement, spread across components as follows: C1 at 15%, C2 at 25%, C3 at 10 and 50% at PMU. The recruitment will be carried out by DEA, according to NIM procedures and applying DEA's 2017 salary scale. Upon common agreement between DEA and UNDP, this post has been classified at 'Deputy Director' level (DEA's salary scale 11), with an initial annual remuneration of ZAR 822,698. Standard salary increments, and possible currency devaluation were considered when calculating the budget reserve for this post. An average of \$70K p.a. and a basic ZAR/USD rate of 13 were considered for the of ease budgeting. Regardless, amounts for this budget reserve should be reassessed annually.
2	Inputs needed under Output 1.1 (Afr. Ginger), managed by CSIR: Budget reserve for developing the following activities: Act. #3 - Conduct clinical studies (clinical trials, adsorption/metabolism studies and observation studies). Refer to PRODOC Annex X-2, Section 2 for contextual information and to PRODOC Annex X-3 for more details on the proposed activities. CSIR is expected to submit a detailed work plan on the use of funds by the project's Inception Phase to facilitate funds transfer from the project to CSIR.
3	Inputs needed under Output 1.1 (Afr. Ginger), managed by CSIR: Budget reserved for engaging, as applicable, specialized legal services and/or expert advisory services: (Act #1) Amendment of the existing CSIR-Traditional Healers Committee Benefit Sharing Agreement to include clauses in alignment with the South African Biodiversity Act; and (Act #3) Registration of the product as a complementary medicine; ". Refer to PRODOC Annex X-2, Section 2 for contextual information and to PRODOC Annex X-3 on for more details on the proposed activities. CSIR is expected to submit a detailed work plan on the use of funds by the project's Inception Phase to facilitate funds transfer from the project to CSIR.
4	Inputs needed under Output 1.2 (Northern Cape), managed by ARC: Local consultancies in connection with output implementation: Northern Cape ABS Hub, recruitment managed by ARC: Site Supervisor and Research Manager, (budget reserved for a 4.5 to 5-year engagement).

#	Budget Notes:
5	Inputs needed under Output 1.2 (Northern Cape), managed by ARC: Local consultancies in connection with output implementation: Northern Cape ABS Hub, recruitment managed by ARC: Researcher, (budget reserved for a 4.5 to 5-year engagement).
6	Inputs needed under Output 1.2 (Northern Cape), managed by ARC: Local consultancies in connection with output implementation: Northern Cape ABS Hub, recruitment managed by ARC: Research technician (budget reserved for a 4.5 to 5-year engagement).
7	Budget reserved for ARC to avail professional staff time according to the project needs in view of supporting the ABS / bioprospecting in NC Hub regarding various activities under Output 1.2 (Northern Cape): ARC Professional Support (budget reserved for a 4.5 to 5-year engagement, which may be fulfilled by different in-house experts during different phases of the project). Training of African Ginger suppliers will be prioritized in view of sustainability.
8	Budget reserve for ARC to avail technical staff time according to the project needs in view of supporting the ABS / bioprospecting NC Hub regarding various Activities under Output 1.2 (Northern Cape): ARC Technical Support, (budget reserved for a 4.5 to 5-year engagement, which may be fulfilled by different in-house experts during different phases of the project). Training of African Ginger suppliers will be prioritized in view of sustainability.
9	Procurement of a specialised service provider company: ARC contracting regarding Activities under Output 1.2 (Northern Cape): Local Labour, (budget reserved for regular and ad hoc engagement through local sub-contracting).
10	Procurement of Equipment: ARC purchases relating to Activities under Output 1.2 (Northern Cape): Budget reserved for project vehicles (Max. 2), including supplies and fuel in bulk (items can be detailed upon project inception).
11	Procurement of various supplies: ARC purchases regarding Activities under Output 1.2 (Northern Cape): Budget reserve for Implements and tools in bulk (items can be detailed by project Inception).
12	Budget reserve for the construction work (and related services) foreseen under Output 1.2 (Northern Cape), managed by ARC relating to establishing the physical ABS/Bioprospecting hub in the NC Province: Infrastructure (permits and assessments – among them EIA and HSE plans, if required -- included in the package with support from DAFF). ARC contracting. Refer to details in PRODOC Annex X-3.
Comp 2	
13	PMU team (Comp 2 technical implementation): Project Manager, full-time (with technical, strategic and managerial responsibilities). The technical and strategic aspects refer to support to the implementation of project components. The amount herein includes half of the budget reserved for a 5-year full-time engagement, spread across components as follows: C1 at 15%, C2 at 25%, C3 at 10 and 50% at PMU. Refer to relevant budget note under Component 1 for more details.
14	DEA contracting (or sub-contracting) in connection with Activities under Output 2.1 (Pelag.) Act. #1: Outputs Manager for coordinating all activities under this output. Exact ToR to be defined during Project Inception Phase.
15	DEA contracting (or sub-contracting) in connection with Activities under Output 2.1 (Pelag.) Act. #2: Conduct global conservation assessment/NDF.
16	DEA contracting (or sub-contracting) in connection with Activities under Output 2.1 (Pelag.) Act. #5: Review and update BMP (expires 2018).
17	DEA contracting (or sub-contracting) in connection with Activities under Output 2.1 (Pelag.) Act. #3: Conduct ethnobotanical study.
18	DEA contracting (or sub-contracting) in connection with Activities under Output 2.1 (Pelag.) Act. #4: Conduct value chain analysis & socio-economic analyses.
19	DEA contracting (or sub-contracting) in connection with Activities under Output 2.1 (Pelag.) Act. #8: Development of sustainable harvesting guidelines.
20	DEA contracting (or sub-contracting) in connection with Activities under Output 2.1 (Pelag.) Act. #10: Facilitate improvement of the management of community-based Trusts, and distribution of trust funds. Refer to details in PRODOC Annex X-3.
21	Budget reserved for general support to stakeholder activities under Output 2.1 (Pelag.), more specifically Act. #12 (Support administration of Pelargonium Working Group), consisting primarily of travel in connection PWG meetings. The budget reserve may later be broken down into other types of inputs. The PWG is expected to work together with PMU officers towards consolidating a detailed workplan on the use of funds under Output 2.1 by the project's Inception Phase, when an Output Manager is expected to assume coordinating functions.
22	DEA competitive grant-making activities under Output 2.1 (Pelag.), Act. #11: Provide financial support to M.Sc. Students. Refer to details in PRODOC Annex X-3. This will follow the UNDP Micro-Capital Grant Policy to ensure that a cap of \$300,000 per recipient over the life of the project is not exceeded.
23	DEA contracting (or sub-contracting) regarding Activities under Output 2.1 (Pelag.) Act. #7: Support TK holders to review and renegotiate ABS agreements and supply agreements (procurement of specialised service provider company).
24	DEA contracting (or sub-contracting), plus and related travel, if applicable, regarding Activities under Output 2.1 (Pelag.) Act. #6: Training of selected staff from DEA, Eastern Cape DEDEAT and Free State DESTEA in implementing the BMP.
25	DEA contracting (or sub-contracting), plus and related travel, if applicable, regarding Activities under Output 2.1 (Pelag.) Act. #9: Training of local collectors to improve the sustainability of harvesting approaches.
26	Contracting by DEA regarding coordinating all activities under Output 2.2 ( <i>Aloe ferox</i> ) in close collaboration with the Tyefu Community Trust / Council, Act. #1: Outputs Manager for coordinating all activities under this output. Exact ToR to be defined during Project Inception Phase.
27	Contracting regarding Output 2.2 ( <i>Aloe ferox</i> ), Act. #3: Aloe Business Advisor. Exact ToR to be defined during Project Inception Phase.
28	Contracting regarding Output 2.2 ( <i>Aloe ferox</i> ), Act. #2: Independent community facilitator. Exact ToR to be defined during Project Inception Phase.
29	Budget reserve for regular and ad hoc engagement through local sub-contracting regarding Activities under Output 2.2 ( <i>Aloe ferox</i> ), Act. #10: Plantation management staff. Refer to details in Annex X-3.
30	Budget reserve for regular and ad hoc engagement through local sub-contracting regarding Activities under Output 2.2 ( <i>Aloe ferox</i> ), Act. #15: Testing, processing and packaging staff. Refer to details in Annex X-3.

#	Budget Notes:
31	Contracting regarding Output 2.2 ( <i>Aloe ferox</i> ), Act. #18: Engaging a marketing company aimed at developing and implementing a branding of Tyefu aloe products. Establish a digital presence for the Tyefu aloe brand. Exact ToR to be defined during Project Inception Phase.
32	Procurement in connection with Output 2.2 ( <i>Aloe ferox</i> ), Act. #11: Procurement (max. 2) (or rental, as required) of plantation vehicles and implements. Refer to proposals in Annex X-3. Else, the Output's procurement plan is expected be completed and validated by Project Inception.
33	Procurement in connection with Output 2.2 ( <i>Aloe ferox</i> ), Act. #14: Pre-fabricated modular testing, processing and packaging facility (including bulk services and facility equipment/ furniture). Refer to proposals in Annex X-3. The Output's procurement plan is expected be completed and validated by Project Inception.
34	Procurement of materials and goods in connection Output 2.2 ( <i>Aloe ferox</i> ), Act. #9: Pre-fabricated modular office and workshop for the plantation (including bulk services and office equipment/ furniture). Refer to details in Annex X-3.
35	Procurement in connection with Output 2.2 ( <i>Aloe ferox</i> ), Act. #12: Procurement (or rental, as required) of plantation and plantation equipment and implements. Refer to proposals in Annex X-3. The Output's procurement plan is expected be completed and validated by the Project's Inception.
36	Procurement in connection with Output 2.2 ( <i>Aloe ferox</i> ), Act. #13: Procurement of consumables for plantation staff and management. Refer to proposals in Annex X-3. The Output's procurement plan is expected be completed and validated by the Project's Inception.
37	Procurement of materials and goods in connection Output 2.2 ( <i>Aloe ferox</i> ), Act. #16: Procurement (or rental, as required) of processing plant equipment. Refer to proposals in Annex X-3. The Output's procurement plan is expected be completed and validated by the Project's Inception.
38	Procurement of materials and goods in connection Output 2.2 ( <i>Aloe ferox</i> ), Act. #8: Greenhouse tunnel supplier (and installer). Refer to details in Annex X-3.
39	Procurement of materials and goods in connection Output 2.2 ( <i>Aloe ferox</i> ), Act. #7: Fencing materials. Refer to details in Annex X-3.
40	Procurement of supplies in connection Output 2.2 ( <i>Aloe ferox</i> ), Act. #17: Procurement of consumables for processing staff and management. This includes fuel, storage containers, laboratory equipment and packaging materials. Refer to proposals in Annex X-3. The Output's procurement plan is expected be completed and validated by the Project's Inception.
41	Contracting in connection with Output 2.2 ( <i>Aloe ferox</i> ), Act. #5: Horticultural planning and engineering company. Details in Annex X-3.
42	Contracting in connection with Output 2.2 ( <i>Aloe ferox</i> ), Act. #6: EIA consulting firm. This is aimed at undertaking all EIA processes and facilitates applications for resource use licenses and permits. Further details in Annex X-3.
43	Contracting, plus and related travel, if applicable, in connection with Output 2.2 ( <i>Aloe ferox</i> ), Act. #4: Training service provider/s. Details in Annex X-3.
44	Contracting in connection with Output 2.3 (Honeybush), Act. #2: Contract service provider to conduct Scoping Baseline Determination Study. Refer to details in Annex X-3.
45	Contracting in connection with Output 2.3 (Honeybush), Act. #1: Establish technical advisory group (TAG) -- includes regular meetings and the costs thereof and may be broken down to include travel and other costs. The PMU and the TAG are expected to work together and submit a detailed workplan on the use of funds in due course. Refer to details in Annex X-3.
46	Contracting in connection with Output 2.3 (Honeybush), Act. #3: Contract service provider to develop guidelines for the administration of the grant system. Refer to details in Annex X-3.
47	Grant-making activity to be managed by suitable grant-making mechanism to be selected during the procedural Local Project Appraisal Committee Meeting (LPAC), to be held once the PRODOC is CEO Endorsed by UNDP and DEA. In connection with Activity #4 under Output 2.3 (Honeybush), refer to Activity description in Annex X-3 for more details on disbursements. This will follow the UNDP Micro-Capital Grant Policy to ensure that a cap of \$300,000 per recipient over the life of the project is not exceeded.
48	Engagement of specialized legal and/or advisory services for concluding an ABS agreement between Rooibos Council and TK holders. DEA managed and UNDP supported tender regarding Activities under Output 2.4 (Rooibos) [renumbered]: Refer to Activity description in Annex X-3 for more details.
Comp 3	
49	PMU team (Comp 3 technical implementation): Project Manager, full-time (with technical, strategic and managerial responsibilities). The technical and strategic aspects refer to support to the implementation of project components. The amount herein includes 20% of the budget reserve at for a 5-year full-time engagement, spread across components as follows: C1 at 15%, C2 at 25%, C3 at 10 and 50% at PMU. Refer to relevant budget note under Component 1 for more details.
50	Local Consultants: (i) Development of a detailed gender mainstreaming strategy for ABS pilots; and (ii) Monitoring and follow-up of gender mainstreaming effectiveness. Charged to Component 3, but covering all three technical components of the project.
51	Budget reserve for project monitoring by team members, including negotiation of details of exit/sustainability strategy with project stakeholders, involving travel to sites. Charged to Component 3, but covering all three technical components of the project.
52	PMU team: Project M&E Officer: Budget reserve for a part-time engagement by UNDP, indicatively at 70% over a 4-year period (years 2 through 5), indicatively as Level SB4/4. This is proposed to be charged to Component 3, but the M&E Officer has responsibilities for all three technical components of the project.
53	Inputs regarding various Activities under Output 3.1 (National Recordal System), managed by DST: Cost for IK Recorder (5 IK Recorders in total) (budget reserve for part-time service provision - approx. \$40K per IK recorder).

#	Budget Notes:
54	Budget reserve for needed purchases regarding activities under Output 3.1 (National Recordal System), managed by DST, in particular Act. #6: Develop a one-stop-shop to access IK (aligning DEA permitting system with the National Recordal Systems' ICT platform (NIKMAS)- to enable an electronic one-stop-shop system. Refer to Annex X-3 for more details. .
55	Budget reserve for SANBI to avail technical staff time training / capacity building activities under Output 3.1 (National Recordal System), managed by DST, in particular Act. #2: SANBI training of IK recorders to collect plant specimens. DST-SANBI MoU to be agreed upon during project inception. Refer to Annex X-3 for more details.
56	Budget reserve for needed purchases regarding activities under Output 3.1 (National Recordal System), managed by DST, in particular Act. #3: Cost of Recording Equipment (notebook, Camera, camera accessories, laptop bag) per IK recorder. Refer to Annex X-3 for more details.
57	Budget reserve, including travel costs, if applicable, for training / capacity building activities under Output 3.1 (National Recordal System), managed by DST, in particular Act. #1: Bio-cultural Community Protocol Workshops and documentation concluded (10 in total, 2 workshops/annum).
58	Budget reserve, including travel costs, if applicable, for training / capacity building activities under Output 3.1 (National Recordal System), managed by DST, in particular Act. #4: Training sessions on Documentation Methodology p/a. Refer to Annex X-3 for more details.
59	DEA institutional contracting of SANBI (through MoU) in connection with Activities under Output 3.2 (Certification System): Act. #1: Appoint Lead Consultant to coordinate and facilitate the development process on behalf of DEA over a three-year period; Act. #2: Appoint SANBI to develop a suitable Certification Standard with specific focus on biodiversity conservation and GEBs; Act. #3: Lead Consultant to conduct a thorough consultation process with existing certification agents, both in South Africa and internationally.; and Act. #4: Conduct a certification test case, and, based on the outputs of the test case, complete and formalise the Certification System. Refer to Activity descriptions in Annex X-3 for more details.
	#REF!
COMP 4	M&E and KM **
60	PMU team (PROJECT MANAGEMENT COSTS): Project Manager, full-time (with technical, strategic and managerial responsibilities). The amount herein includes half of (50%) the budget reserve at for a 5-year full-time engagement with respect to managerial tasks. Refer to relevant budget note under Component 1 for more detail;
61	Internal review (Annual Project Board Meetings) and organisation of indicator data
62	Measurement of indicators (incl. Local workshop for applying the GEF Tracking Tool)
63	Generation of missing baseline data for indicators
64	National Inception workshop
65	Mid-term review
66	Final evaluation
67	Project Audits
COMP 5	Project Management Costs*
68	PMU team (PROJECT MANAGEMENT COSTS): Project Manager, full-time (with technical, strategic and managerial responsibilities). The amount herein includes half of the budget reserve at for a 5-year full-time engagement with respect to managerial tasks. Refer to relevant budget note under Component 1 for more details.
69	PMU: Project management related travel
70	PMU: Stationary, fuel, maintenance of durable goods and procurement of consumables regarding project management activities (approx. \$3K p.a.)
71	PMU: Communication costs, financial costs and other miscellaneous
72	PMU: 1 Project vehicle
73	PMU: Furniture for the project team (once off purchase if needed)
74	PMU: IT Equipment for the project team (laptops, printers, software, installation)
75	UNDP Support for PMU recruitment (Year 1)
76	Orient PMU members (project upstart)

---

## X. LEGAL CONTEXT

Consistent with the Article III of the Standard Basic Assistance Agreement (SBAA), the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner's obligations under this Project Document.

The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via [http://www.un.org/sc/committees/1267/aq\\_sanctions\\_list.shtml](http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml). This provision must be included in all sub-contracts or sub-agreements entered into under/further to this Project Document".

Note that any designations on maps or other references employed in this project document do not imply the expression of any opinion whatsoever on the part of UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

---

## **XII. MANDATORY ANNEXES**

ANNEX A. Multi Year Work Plan - *pages 90-94*

ANNEX B. Monitoring Plan – *pages 95-97*

ANNEX C. Evaluation Plan – *page 98*

ANNEX D. GEF Tracking Tool (s) at baseline – *attached separately*

ANNEX E. Terms of Reference for key project staff – *pages 99-103*

ANNEX F. UNDP Social and Environmental and Social Screening Template (SESP)- *pages 104-113*

ANNEX G. Environmental and Social Management Plan (ESMP)- *NA*

ANNEX H. UNDP Project Quality Assurance Report - *forthcoming*

ANNEX I. UNDP Risk Log - *forthcoming*

ANNEX J. Results of the capacity assessment of the implementing partner / HACT micro-assessment – *ongoing*

ANNEX K. Letter of Agreement on Direct Project Services (DPC)

---

## **XIII. OTHER ANNEXES**

ANNEX X-1. Letters of confirmed Co-financing

ANNEX X-2. Project Context & Baseline: ABS frameworks & Species-value-chain interactions

- 1) Status Quo of the Implementation of Nagoya Protocol in South Africa
- 2) Conservation and Social Benefits from Species-Value Chain interactions targeted by the Project
- 3) The Context of African Ginger agreement registration and cultivation
- 4) The Context of the Bioprospecting in Northern Cape Province
- 5) The Context of Pelargonium Management Plan
- 6) The Context of Aloe ferox harvesting
- 7) The Context of Honeybush species transition to cultivation
- 8) The Flagship Context of Rooibos
- 9) The Project's Baseline Finance Assessment

ANNEX X-3. Detailed description of project design: Outputs and Activities

ANNEX X-4. Stakeholders consulted during the PPG

ANNEX X-5. Knowledge Management & Stakeholder Involvement Plan

- 1) Stakeholder Engagement Strategy and Approach
- 2) Stakeholder Involvement Plan
- 3) Coordination with other related initiatives

ANNEX X-6. The dynamics of resource overexploitation in bioprospecting value chain

ANNEX X-7. Gender Analysis and Mainstreaming Action Plan

ANNEX X-8. Bibliography

## ANNEX A. Multi Year Work Plan

Outcomes / Outputs	Sub-Act #	Description: Activities and Sub-Activities	Responsible entity / unit	Year 1				Year 2				Year 3				Year 4				Year 5			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>PROJECT M&amp;E and Mgt</b>																							
<b>PROJECT START UP</b>		Recruit PMU members of PMU team	UNDP / DEA	X	X																		
		Orient PMU members			X																		
		National Inception workshop			X																		
<b>Gender mainstreaming</b>		Development of a detailed gender mainstreaming strategy for ABS pilots	DEA PMU		X																		
		Monitoring and follow-up of gender mainstreaming effectiveness				X			X				X				X				X		
<b>Monitoring and evaluation</b>		Review of logical framework and indicators (+ development of specific TORs under pilots, review of budget allocations, detailed work-planning etc.)	DEA PMU		X			X				X				X				X			
		Generation of missing baseline data for indicators (includes <i>inter alia</i> the engagement of <i>ad hoc</i> M&E consultancy in year 1 for setting up the M&E framework and collecting data for the project's pilots)			X	X	X																
		Measurement of indicators (incl. Local workshop for applying the GEF Tracking Tool)				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
		Internal review (Annual Project Board Meetings) and organization of indicator data						X	X			X				X	X			X	X		
		Mid-term review										X											
		Final evaluation																				X	
<b>PROJECT CLOSURE</b>		Negotiation of details of exit/sustainability strategy	DEA PMU																				X
		Review/feedback workshop																					X
		Project Audits					X			X				X				X					X
		Administrative closure																					X
<b>OUTCOME 1) R&amp;D</b>																							
	#	<b>Activities under Output 1.1 (Afr. Ginger)</b>																					
	1	Amendment of the existing CSIR-Traditional Healers Committee Benefit Sharing Agreement to include clauses in alignment with the South African Biodiversity Act	CSIR	X	X	X	X																
	2	Conduct clinical studies (clinical trials, adsorption/metabolism studies and observation studies)	CSIR			X	X	X	X	X	X												
	3	Registration of the product as a complementary medicine	CSIR									X	X	X	X								
	#	<b>Activities under Output 1.2 (Northern Cape)</b>																					
	1	Obtain the requisite permits and authorizations for the establishment, of the Hub	ARC	X	X																		
	2	Establish a Bioprospecting RDI Hub at Upington in the Northern Cape	ARC		X																		
	3	Develop a 3-year research plan for a priority set of species including Devil's Claw and at least one complimentary species that could be cultivated in conjunction with Devil's Claw on community projects	ARC		X	X																	
	4	Implement the 3-year research plan	ARC			X	X	X	X	X	X	X	X	X	X	X	X	X					



Outcomes / Outputs	Sub-Act #	Description: Activities and Sub-Activities	Responsible entity / unit	Year 1				Year 2				Year 3				Year 4				Year 5			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	5	Develop best management practices (BMPs) for cultivation and harvesting planning (testing approaches, techniques and methodologies) for each species	ARC				X	X	X														
	6	Develop best management practices (BMPs) for grading, traceability, quality control and phyto-sanitary systems for product application each species	ARC				X	X	X														
	7	Develop best management practices (BMPs) for agro-processing support and quality control for product application each species	ARC				X																
	8	Establish a simple marketing plan, limited to the establishment of a suitable website presence with a view to establish market linkages.	ARC			X																	
	9	Develop a production potential plan for the Northern Cape, with production indicators	ARC				X	X	X	X	X	X	X	X	X	X	X						
	10	Design a support service to community projects through which the various BMP's will be transferred at a regular basis.	ARC						X	X	X												
	11	Monitor production	ARC				X	X	X	X	X	X	X	X	X	X	X	X					
	12	Produce seedlings for sale/supply to community projects	ARC			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Outcome 2) Value Chain Development																							
	#	Activities under Output 2.1 (Pelag.)																					
	1	Appoint Output Manager	DEA PMU		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	2	Conduct global conservation assessment/NDF	DEA PMU		X	X	X																
	3	Conduct ethnobotanical study	DEA PMU		X	X	X																
	4	Conduct value chain analysis & socio-economic analyses	DEA PMU		X	X	X																
	5	Review and update BMP (expires 2018)	DEA PMU			X	X	X	X														
	6	Training of selected staff from DEA, Eastern Cape DEDEAT and Free State DESTEA in implementing the BMP	DEA PMU						X	X	X												
	7	Support TK holders to review and renegotiate ABS agreements and supply agreements	DEA PMU				X	X	X	X	X	X	X										
	8	Development of sustainable harvesting guidelines	DEA PMU				X	X	X	X													
	9	Training of local collectors to improve the sustainability of harvesting approaches	DEA PMU						X	X	X	X	X	X	X	X	X	X	X	X			
	10	Facilitate improvement of the management of community-based Trusts, and distribution of trust funds	DEA PMU						X	X	X	X	X	X	X	X	X	X	X	X			
	11	Provide financial support to M.Sc. students	DEA PMU					X															
	12	Support administration of Pelargonium Working Group	DEA PMU	X				X				X				X				X			
	#	Activities under Output 2.2 (Aloe ferox)																					
	1	Appoint Output Manager	DEA PMU / Tyefu Community		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	2	Independent community facilitator	DEA PMU / Tyefu Community		X																		
	3	Aloe Business Advisor	DEA PMU / Tyefu Community		X																		

Outcomes / Outputs	Sub-Act #	Description: Activities and Sub-Activities	Responsible entity / unit	Year 1				Year 2				Year 3				Year 4				Year 5			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	4	Training service provider/s	DEA PMU / Tyefu Community			X																	
	5	Horticultural planning and engineering company	DEA PMU / Tyefu Community			X		X				X				X			X				
	6	EIA consulting firm	DEA PMU / Tyefu Community				X																
	7	Fencing materials	DEA PMU / Tyefu Community					X															
	8	Greenhouse tunnel supplier (and installer)	DEA PMU / Tyefu Community					X															
	9	Pre-fabricated modular office and workshop for the plantation (including bulk services and office equipment/ furniture)	DEA PMU / Tyefu Community					X															
	10	Plantation management staff	DEA PMU / Tyefu Community					X															
	11	Procurement (or rental, as required) of plantation vehicles and implements	DEA PMU / Tyefu Community					X			X				X				X				
	12	Procurement (or rental, as required) of plantation and plantation staff equipment and implements	DEA PMU / Tyefu Community					X			X				X				X				
	13	Procurement of consumables for plantation staff and management	DEA PMU / Tyefu Community					X			X				X				X				
	14	Pre-fabricated modular testing, processing and packaging facility (including bulk services and facility equipment/ furniture)	DEA PMU / Tyefu Community								X												
	15	Testing, processing and packaging staff	DEA PMU / Tyefu Community								X												
	16	Procurement (or rental, as required) of processing plant staff equipment	DEA PMU / Tyefu Community								X				X				X				
	17	Procurement of consumables for processing staff and management	DEA PMU / Tyefu Community								X				X				X				
	18	Marketing company	DEA PMU / Tyefu Community								X												
	#	Activities under Output 2.3 (Honeybush)																					
	1	Establish technical advisory group (TAG) -- includes regular meetings and the costs thereof	DEA PMU	X				X			X				X				X				
	2	Contract service provider to conduct Scoping Baseline Determination Study	DEA PMU	X																			
	3	Contract service provider to develop guidelines for the administration of the grant system	DEA PMU	X																			
	4	Disbursement of grant process by a suitable grant-making mechanism to be selected.	DEA PMU					X			X				X				X				
	#	Activities under Output 2.4 (Rodibos)	X																				
	1	Investigate and develop a suitable TK benefit sharing mechanism that effectively captures the resource rent resulting from the TK rights – such a benefit sharing mechanism needs to be effective,	DEA PMU	X																			

Outcomes / Outputs	Sub-Act #	Description: Activities and Sub-Activities	Responsible entity / unit	Year 1				Year 2				Year 3				Year 4				Year 5			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		transparent, minimise commercial risks and maximise TK benefits, and would require financial and economic modelling and forecasting;																					
	2	Investigate and develop non-monetary TK benefit sharing mechanisms which may support rights-holding communities through contributions-in-kind and related mechanisms by the private sector	DEA PMU		X																		
	3	Develop and propose a suitable and simple governance and institutionalisation framework for implementing and monitoring the TK benefit sharing mechanism	DEA PMU		X																		
	4	Record the current negotiation processes of SARC as a case study with a view to the creation of a "blueprint" for other products and TK agreements	DEA PMU		X																		
	5	Disseminating the case study outcomes as example to ABS stakeholders in SA and beyond.	DEA PMU					X															
<b>Outcome 3) Capacity Development</b>																							
	#	<b>Activities under Output 3.1 (National Recordal System)</b>																					
	1	Bio-cultural Community Protocol Workshops and documentation concluded (10 in total, 2 workshops/annum)	DST		X																		
	2	SANBI training of IK recorders to collect plant specimens	DST		X																		
	3	Cost of Recording Equipment (notebook, Camera, camera accessories, laptop bag) per IK recorder	DST	X																			
	4	Training sessions on Documentation Methodology p/a	DST	X																			
	5	Cost for IK Recorder (5 IK Recorders in total)	DST	X				X				X				X				X			
	6	Develop a one-stop-shop to access IK (aligning DEA permitting system with the National Recordal Systems' ICT platform (NIKMAS)- to enable an electronic one-stop-shop system	DST					X				X											
	#	<b>Activities under Output 3.2 (Certification System)</b>																					
	1	Appoint Lead Consultant to coordinate and facilitate the development process on behalf of DEA over a three-year period	DEA PMU / SANBI	X				X				X											
	2	Appoint SANBI to develop a suitable Certification Standard with specific focus on biodiversity conservation and GEBs	DEA PMU / SANBI		X																		
	3	Lead Consultant to conduct a thorough consultation process with existing certification agents, both in South Africa and internationally.	DEA PMU / SANBI			X																	
	4	Conduct a certification test case, and, based on the outputs of the test case, complete and formalise the Certification System.	DEA PMU / SANBI					X				X											
	Added #5	Added Activity # 5: Provision of ABS Training and Capacity Building Services for Selected Communities	DEA PMU / SANBI			X	X	X	X	X	X	X	X	X	X	X	X						

## ANNEX B. Monitoring Plan

#	Monitoring / Indicator Description	Data source / Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks linked to indicator monitoring
	<b>Monitoring level: Project Objective</b>					
1	GEF Tracking Tool (TT) score	TT updates	At MTR and TE	DEA (PMU), validated by MTR and TE	Collaborative application of TT by relevant stakeholders with scoring duly justified through descriptions (see Table 12 for justification at the baseline).	<p><u>Assumption:</u> TT reflects the stage of advance of Nagoya Protocol implementation in the country.</p> <p><u>Risk:</u> TT baseline scores are relatively high, leaving little room for tangible improvement.</p>
2	Number of ABS agreements for priority species facilitated by the project	Normal monitoring of project pilots	When events happen and with annual progress reports summarized in the PIR	DEA (PMU), validated by MTR and TE	DEA's ABS Database, project's regular and ad hoc reports.	<p><u>Assumption:</u> What constitutes a new ABS agreement (as opposed to an arrangement e.g.) has been unambiguously defined.</p> <p><u>Risk:</u> Legal and comprehensive benefit agreements may take long to negotiate.</p>
3	Mainstreaming of conservation concerns into pilot value chains: (a) Direct (pilots targeted landscape) (b) Indirect (national level) (c) Conservation scheme for value chains in place	TT updates	At MTR and TE	DEA (PMU), validated by MTR and TE	SANBI can advise through activities relevant for Output 3.1.	<p><u>Assumption:</u> The "blanket" mainstreaming target is linked to one or more species distribution within SA.</p> <p><u>Risk:</u> It may not meaningful to monitor mainstreaming targets in a simplistic and area-based manner.</p>
4	Level of mainstreaming of gender considerations in project monitoring (measured through the state of advancement in gender disaggregated data collection and analysis in ABS pilots - refer to Table 16)	Matrix scoring updates	At MTR and TE	DEA (PMU), validated by MTR and TE	Collaborative application of Gender Mainstreaming: Scoring Matrix by relevant stakeholders with scoring duly justified through descriptions – task overseen by the PMU.	<p><u>Assumption:</u> Gender Mainstreaming: Scoring Matrix reflects the feasibility of mainstreaming gender into targeted value chains.</p> <p><u>Risk:</u> Baseline scores for some questions in some of the pilots = 0, what means that it is not feasible to collect data regarding gender.</p>

#	Monitoring / Indicator Description	Data source / Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks linked to indicator monitoring
	<b>Monitoring level: Outcome 1 (R&amp;D)</b>					
5	TT Section 2) ABS Pilots = X / max score 20 (10 x 2 pilots) --PILOTS-- 1.1 African Ginger product 1.2 N Cape R&D hub	TT updates	At MTR and TE	DEA (PMU), validated by MTR and TE	Collaborative application of TT by relevant stakeholders with scoring duly justified through descriptions (see Table 12 for justification at the baseline).	<i>Assumption:</i> TT reflects the stage of advance of Nagoya Protocol implementation in the country.  <i>Risk:</i> TT baseline scores are relatively high, leaving little room for tangible improvement.
6	Research plan for priority Northern Cape species	Normal monitoring of project pilots	When events happen and with annual progress reports summarized in the PIR	DEA (PMU), validated by MTR and TE	DEA's ABS Database.	<i>Assumption:</i> NC hub will develop quickly.  <i>Risk:</i> The NC Research Plan becomes quickly obsolete.
7	Number of patent registrations based on home-grown R&D facilitated by the project	Normal monitoring of project pilots	When events happen and with annual progress reports summarized in the PIR	DEA (PMU), validated by MTR and TE	DEA's ABS Database.	<i>Assumption:</i> Patent registration will be achieved quickly.  <i>Risk:</i> Clinical trials do not yield satisfactory results.
	<b>Monitoring level: Outcome 2 (Value Chain Development)</b>					
8	TT Section 2) ABS Pilots = X / max score 60 (10 x 6 pilots) --PILOTS-- 2.1 Pelargonium 2.2 Aloe ferox 2.3 Honeybush 2.4 Rooibos ABS deal	TT updates	At MTR and TE	DEA (PMU), validated by MTR and TE	Collaborative application of TT by relevant stakeholders with scoring duly justified through descriptions (see Table 12 for justification at the baseline).	<i>Assumption:</i> TT reflects the stage of advance of Nagoya Protocol implementation in the country.  <i>Risk</i> TT baseline scores are relatively high, leaving little room for tangible improvement.
9	Number of harvesters trained as per the sustainable harvester guidelines for the following pilots: 2.1 Pelargonium 2.2 Aloe ferox 2.3 Honeybush	Normal monitoring of project pilots	At MTR and TE	DEA (PMU), Activity coordinators	Regular and ad hoc porting from activity coordinators for each of the pilots.	<i>Assumption:</i> Training is useful and effective.  <i>Risks:</i> Training does not achieve critical mass.
10	Number of local community households for which members are employed in aloe cultivation, harvesting and processing	Normal monitoring of project pilots	At MTR and TE	DEA (PMU), Activity coordinators	Regular and ad hoc porting from activity coordinators for each of the pilots.	<i>Assumption:</i> The project will generate improved income in Tyefu Community.

#	Monitoring / Indicator Description	Data source / Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks linked to indicator monitoring
						<i>Risks:</i> Training does not achieve critical mass.
11	Total income (US\$/annum) derived from project pilots 2.1 Pelargonium 2.2 Aloe ferox 2.3 Honeybush	Normal monitoring of project pilots / questionnaires	At MTR and TE	DEA (PMU), validated by MTR and TE	Regular and ad hoc porting from activity coordinators for each of the pilots.	<i>Assumption:</i> The project will result in improved income.  <i>Risks:</i> Income measures change very little as a result of the project.
12	Cultivation area for Honeybush expanded	GIS measures	At MTR and TE	DEA (PMU), Activity coordinators	DEA's ABS Database. Regular and ad hoc porting from activity coordinators for each of the pilots.	<i>Assumption:</i> The project will result in an expanded area under cultivation.  <i>Risks:</i> Area expansion is not significant.
<b>Monitoring level: Outcome 3 (Capacity Development)</b>						
13	Conservation measures supported by the project and focusing on threatened species - securing species' survival - protection of wild gene-pools - habitat management - sustainable transition towards cultivation	SANBI is expected to assist	At the baseline (status quo established)	SANBI and PMU	Regular and ad hoc porting from activity coordinators for each of the pilots.	<i>Assumption:</i> Conservation measures are needed in pilots.  <i>Risks:</i> It may be difficult to implement certain measures.
14	Number of Internationally Recognized Certificates of Compliance (IRCC) registered in the CBD's ABS Clearing House Mechanism	Normal monitoring of project pilots	When events happen and with annual progress reports summarized in the PIR	DEA (PMU), validated by MTR and TE	DEA's ABS Database	<i>Assumption:</i> IRCC are a token of advancement in ABS implementation.  <i>Risks:</i> Bureaucracy makes it less desirable for entrepreneurs to request IRCCs.
15	Adequacy of the National Recordal System viz. TK	Normal monitoring of project pilots	At MTR and TE	DEA (PMU), validated by MTR and TE	Comprehensiveness and quality of TK data recorded	<i>Risks:</i> It may be difficult to evaluate the adequacy of the National Recordal System in a relatively short-time scale.

ANNEX C. Evaluation Plan

Evaluation Title	Planned start date Month/year	Planned end date Month/year	Included in the Country Office Evaluation Plan	Budget for consultants	Other budget (i.e. travel, site visits etc...)	Budget for translation
Mid-Term Review	May 2021	August 2021	Yes/No	USD 35,000	USD 15,000	USD 0
Terminal Evaluation	October 2023	December 2023	Yes/No	USD 35,000	USD 15,000	USD 0
Total evaluation budget				USD 100,000		

## ANNEX D. GEF Tracking Tool (s) at baseline

[SEE SEPARATE FILE]

## ANNEX E. Terms of Reference

### *ABS Project Manager, Full-time*

<p>Background</p> <p>The Department of Environmental Affairs (DEA) is seeking to appoint an experienced Project Manager to serve the project. He/she will be a nationally recruited professional managed by the Department of Environmental Affairs (DEA), dually reporting to both DEA and the United Nations South Africa Country Office (UNDP). He/she shall be responsible for the overall project management of the project and will work under the supervision of the relevant senior officer on ABS issues in DEA as well as in close collaboration with UNDP.</p> <p>The Project Management Unit (PMU) will be headed up by a Project Manager (PM), working out of the Department of Environmental Affairs. The PM will take charge of all outcomes under Project Document. The PM will also have managerial responsibilities vis-à-vis the approval of payments within UNDP's system.</p> <p>In view of her/his responsibilities to deliver these outcomes, the PM should be an expert in ABS and the Nagoya Protocol and all related institutional aspects, in addition to having the required experience in management of this type of project. The post of PM will be a full-time post over the project lifespan. This is a critical position and it is important that person filling this position has a continuous global view of the overall project.</p> <p>The PM shall be in overall charge, and have overall responsibility for the PMU. The execution of the PM's duties in the PMU will be supported by a Monitoring and Evaluation Officer and a Finance and Administrative Associate. She/he will be responsible for the day-to-day running of the PMU, under the supervision of DEA and the UNDP. The PM is ultimately responsible for organizing and overseeing delivery on all aspects and activities of the Project.</p>
<p>Summary of Key Functions</p> <ul style="list-style-type: none"><li>• The PM shall be responsible for the overall performance of the project, and be responsible for the coordination of all aspects of the Project.</li><li>• He/she shall liaise directly with designated officials of all the project partners (including NGOs and government bodies), other members of the Project Steering Committee (PSC), the GEF Implementing Agency (UNDP), the GEF Executing Agency (DEA), existing and potential additional project donors/stakeholders, National Focal Points, and others as deemed appropriate and necessary by the PSC or by the Project Coordinator him/herself.</li><li>• The budget and associated work plan will provide guidance on the day-to-day implementation of the approved Project Document and on the integration of the various partnerships and opportunities to mainstream and institutionalize the project</li><li>• He/she shall be responsible for delivery of all substantive technical, managerial and financial reports from and on behalf of the Project.</li><li>• He/she will provide overall supervision for all staff in the PMU.</li></ul>
<p>Specific Duties</p> <p>The PM will have the following specific duties:</p> <ul style="list-style-type: none"><li>• Manage all components of the PMU, its staff and project budget;</li></ul>



<ul style="list-style-type: none"> <li>• Prepare an Annual Work Plan of the project on the basis of the Project Document, under the general supervision of the Project Steering Committee and guidance by UNDP and DEA;</li> <li>• Coordinate and monitor the activities described in timely and efficient manner in accordance to the work plan;</li> <li>• Flag any risks emerging during the project implementation that will hamper timely progress of the project implementation or successful delivery of intended outputs and outcomes.</li> <li>• Direct and be ultimately responsible for project monitoring, evaluation and reporting processes;</li> <li>• Oversee the development of information management tools to ensure evaluation, monitoring and replication activities;</li> <li>• Ensure project compliance with all UNDP and GEF policies, regulations and procedures;</li> <li>• Ensure consistency between the various project elements and related activities provided;</li> <li>• Coordinate and oversee preparation of the substantive and operational reports from the project; <ul style="list-style-type: none"> <li>○ Foster and establish close linkages with relevant projects in South Africa, regionally and internationally, and with other related GEF programs where applicable;</li> <li>○ Represent the project at meetings and other project-related forums in South Africa, and within the region and globally, as required; and</li> <li>○ Submit quarterly reports of relevant project progress and problems to UNDP, DEA and the Project Steering Committee.</li> </ul> </li> </ul>
Education
At least a Masters Degree in Resource Economics, Biodiversity Management, Value Chain Development, or Environmental Law
Experience
<ul style="list-style-type: none"> <li>• At least 10 years of Project Management experience, showing a progressive increase in scope and responsibilities;</li> <li>• Demonstrated coordination and project leadership skills, and ability to multi-task;</li> <li>• Demonstrated experience on institutional and policy matters, and technical knowledge on aspects relating to ABS;</li> <li>• Familiarity with the goals and procedures of government institutions, including those of UNDP and GEF as it relates to the Project goals and objectives;</li> <li>• Availability for extensive domestic travel;</li> <li>• Ability to work under high pressure.</li> </ul>
Language
Excellent command of English and good communication skills.

### **Project M&E Officer, Part-time @ 70%**

The M&E Officer will execute a trio of strongly inter-related functions. S/he will be responsible for implementing the M&E plans of the project, developing relevant gender tools and M&E tracking systems for the project, and supporting all project staff and partners in monitoring progress on project implementation and gender mainstreaming. S/he will particularly focus on the documentation of lessons learnt and the appropriate communication of project results and learning. S/he will report to the Project Manager.

#### Duties and Responsibilities

- Responsible for the formulation and implementation of the gender mainstreaming plan, including training project staff on gender, and coordinating training on gender for other project stakeholders;
- Providing tools required for mainstreaming and monitoring the mainstreaming of gender;
- Responsible for operationalizing the project's Monitoring and Evaluation plans, based on the Project Results Framework;
- Responsible for working with project partners in establishing relevant data capturing and tracking in quarterly and annual (PIR/APR) reporting;
- In particular ensure that gender makers are included in the M&E plan and are considered;

- Synthesizing and documentation of project results and lessons learnt, and sharing thereof;
- Responsible for project communications. Oversee the development, implementation and maintenance of a communications strategy to ensure that all stakeholders are informed on an on-going basis about the project's objectives and activities; overall project progress; and the opportunities for involvement in various aspects of the project's implementation;
- Perform other duty relevant to the assignment.

#### Qualifications

- Education: MSc degree in development studies with additional training in Monitoring and Evaluation and project management and reporting. At least 7 years' experience in project management, with a focus on monitoring and evaluation (M&E), and distilling lessons learnt from project interventions;
- Demonstrable skills in Results Based Management (RBM) concepts;
- Capability and proven experience in crafting communications strategies with an eye toward results-based management.
- Capability and proven experience crafting messages in various formats (press releases, websites, success stories, blog entries, tweets, etc.) targeting a variety of audiences.
- Familiarity with mobile technologies, social media, and their application in rural communities is an advantage.
- Ability and proven experience in multi-tasking, in taking initiative and working effectively under pressure.
- Familiarity with branding compliance.
- Excellent written, oral and interpersonal skills.
- Knowledge of Microsoft Office and related communications software.
- Fluency in written and spoken English and one or more of the other official South African languages are required.

#### Corporate Competencies:

- Ethics and Values: Promoting Ethics and Integrity / Creating Organizational Precedents.
- Organizational Awareness: Building support and political acumen.
- Developing and Empowering People / Coaching and Mentoring: Building staff competence, creating an environment of creativity and innovation.
- Working in Teams: Building and promoting effective teams.
- Communicating Information and Ideas: Creating and promoting an enabling environment for open communication.
- Self-management and Emotional intelligence: Creating an emotionally intelligent organization.
- Conflict Management /Negotiating and Resolving Disagreements: Leveraging conflict in the interest of the organization and setting standards.
- Knowledge Sharing / Continuous Learning: Sharing knowledge across the organization and building a culture of knowledge sharing and learning.
- Appropriate and Transparent Decision Making: Fair and transparent decision-making; calculated risk-taking.

#### Functional Competencies:

#### Knowledge Management and Learning;

- Promotes a knowledge-sharing and learning culture in the office.
- Understanding of how to make knowledge easily accessible to country offices.
- In-depth knowledge on development issues.
- Ability to advocate and provide policy advice.
- Actively works towards continuing personal learning and development in the office.
- Knowledge of UNDP policies and programmes.

- Knowledge of UNDP regulations, rules, policies, procedures and practices.

#### Technical Knowledge;

- Knowledge of M&E and its applications in project management.
- Knowledge of gender and development issues.

#### Operational Effectiveness;

- Ability to perform a variety of research and administrative support tasks in a fast-paced
- Excellent drafting skills.
- Excellent organizational skills.
- Ability to lead strategic planning, results-based management and reporting.
- Ability to lead implementation of new systems and processes.

#### Leadership and Self-Management;

- Focuses on result for the client and responds positively to feedback.
- Consistently approaches work with energy and a positive, constructive attitude.
- Remains calm, in control and good humoured even under pressure.
- Demonstrates openness to change and ability to manage complexities.
- Leads teams effectively and shows conflict resolution skills.

#### Communication skills;

- Communicates effectively with staff at all levels of the organization and acts with tact and diplomacy.
- Demonstrates compelling communication skills and cross-cultural effectiveness.
- Possesses the ability to convey difficult issues and positions to senior officials, proven political judgment

#### Outputs

- a. M&E Quarterly & Annual Reports
- b. ROAR Report
- c. Project gender mainstreaming strategy
- d. Final project report

### **Project Finance and Admin Assistant – full-time**

The Finance and Admin Officer will be a nationally recruited professional selected based on an open competitive process managed by DEA. He/she shall be responsible for the overall financial management of the project and project accounting, as well as for basic administrative support to the project. He/she will work under the supervision of the PM.

#### Duties and Responsibilities:

##### *With respect to Financial Management*

- Facilitate auditing and financial controls with respect to the Project;

- Ensure that all procurements and disbursements are carried out in accordance with the UNDP/GEF and Government of Botswana requirements, which requires familiarity with the financial management procedures;
- Implementation of procurement related to this project, working with MENT 's procurement unit, in particular;
- Ensure that project-related disbursements are carried out in a timely and efficient manner;
- Ensure the smooth flow of funds to enable the timely implementation of project activities amongst the various implementation partners, including the timely replenishment of the project account;
- Compile the quarterly and annual financial reports in a timely manner, with a focus on the financial delivery of the project;
- Prepare a monthly project bank reconciliation;
- Maintain a logical and comprehensive record of financial transactions, with supporting documentation, for reference and audit purposes;
- Provide the necessary assistance and documentation for the statutory audit of annual financial statements;
- Perform all other duties as requested by the PM;
- Perform any other duty relevant to the assignment.

*With respect to administrative support*

- Ensure that office equipment and furniture are procured for and maintained in good working order;
- Responsible for meeting agendas and booking of meeting venues and related workshops;
- Responsible for Vehicle fleet management;
- Support project reporting needs;
- Perform other duties as requested by the PM and relevant to the project.

Qualifications

- At least a Bachelor's Degree in Business Administration;
- Knowledge of accounting policies and principles;
- At least five (5) years' work experience in administration, of which at least one year was closely related to support of project / program activities;
- Capable of working fairly independently;
- Excellent organizational skills;
- Excellent inter-personal skills and the ability to establish and maintain effective working relations with people;
- Excellent communication skills (oral and written); in English and one or more South African official languages;
- Good computer skills and proficiency in standard computer applications (MS Word, MS Excel, etc.).

## ANNEX F. UNDP Social and Environmental and Social Screening Template (SESP)

The completed template, which constitutes the Social and Environmental Screening Report, must be included as an annex to the Project Document. Please refer to the [Social and Environmental Screening Procedure](#) for guidance on how to answer the 6 questions.]

### Project Information

Project Information	
1. Project Title	Development of Value Chains for Products derived from Genetic Resources in Compliance with the Nagoya Protocol on Access and Benefit Sharing and the National Biodiversity Economy Strategy
2. Project Number	PIMS 5686
3. Location (Global/Region/Country)	South Africa

### Part A. Integrating Overarching Principles to Strengthen Social and Environmental Sustainability

QUESTION 1: How Does the Project Integrate the Overarching Principles in order to Strengthen Social and Environmental Sustainability?
<b>Briefly describe in the space below how the Project mainstreams the human-rights based approach</b>
<p>This project will positively impact South African society, particularly members of its vulnerable, rural part. The positive changes that the project will bring go along with the content of the Universal Declaration of Human Rights, especially the articles regarding the right to work, ending gender discrimination and securing cultural, economic and social rights of the people (Article 23, Article 7, Article 22 respectively).</p> <p>More specifically, the project will create jobs in the bioprospecting sector, and targeting vulnerable social groups as potential employees. This way, the project will contribute to improving the economic status of the rural communities in South Africa. It will also provide an appropriate training, to boost the professional skills of the targeted groups. This, on the other hand, will help secure economic and social well-being of vulnerable and marginalised groups in society and indirectly contribute to ensuring fair and equal pay for the work.</p> <p>One of the goals of this project is to ensure that the intellectual property rights and expectations of traditional knowledge (TK) holders are recognised and respected in the use of the genetic resources and the development of value chains. This will be done through, among others, negotiating appropriate agreements and arrangements for equitable benefit sharing and by providing required training, capacity development opportunities and, in some cases, investments.</p> <p>The project will also help ensure more equitable benefit sharing, through inclusion of marginalised groups within rural society into decision-making bodies and ensuring their participation in activities is placed higher-up in the value chains.</p>
<b>Briefly describe in the space below how the Project is likely to improve gender equality and women's empowerment</b>

This project aims to contribute to reduced gender discrimination by promoting increased recognition of the role of women in the bioprospecting sector in South Africa. The project strategy includes a strong gender action plan to ensure that implementation of project interventions incorporates aspects of gender equality and empowerment throughout. The gender action plan is included in Annex X-7.

Specifically, the project will empower women by positioning them and promoting a greater involvement in decision making and taking measures to ensure adequate representation of women in community-level management institutions and decision-making structures. The project will contribute to building capacity through training and capacity building that targets women as well as men, and strive for a 50/50 gender parity in participation. The training will also ensure the improvement of sustainable cultivation and harvesting skills. All community-engagement and outreach activities will be designed and implemented considering gender dimensions, including household power relationships. The consultations with women are going to be conducted at all stages of Project's implementation, through appropriate structures and in local languages, to ensure the participation of women. Additionally, the project will support collecting gender disaggregated data and ensuring that this is used to continually improve the focus on gender equality and women's empowerment during implementation and beyond.

**Briefly describe in the space below how the Project mainstreams environmental sustainability**

This project has a strong biodiversity conservation aspect, aiming to ensure environmental sustainability mainstreaming into the bioprospecting sector of South African economy. The envisaged long-term solution for the project highlights the environmental benefits that the project will generate, and ensures that environmental and economic sustainability are mainstreamed into the bioprospecting sector.

Nevertheless, the project directly contributes to biodiversity conservation and sustainable use of the natural resources, through the Outputs under Component 2 (2.1 to 2.4 – the latter was renumbered in response to comments from GEF Secretariat) and through targeting biodiversity conservation safeguards to ensure that bioprospecting/biotope economic activities will not deplete the stocks of indigenous biological resources or their gene pool – enabling thereby the effective contribution of value chains to conservation.

## Part B. Identifying and Managing Social and Environmental Risks

<b>QUESTION 2: What are the Potential Social and Environmental Risks?</b> <i>Note: Describe briefly potential social and environmental risks identified in Attachment 1 – Risk Screening Checklist (based on any "Yes" responses).</i>		<b>QUESTION 3: What is the level of significance of the potential social and environmental risks?</b> <i>Note: Respond to Questions 4 and 5 below before proceeding to Question 6</i>		<b>QUESTION 6: What social and environmental assessment and management measures have been conducted and/or are required to address potential risks (for Risks with Moderate and High Significance)?</b>
<b>Risk Description</b>	<b>Impact and Probability (1-5)</b>	<b>Significance (Low, Moderate, High)</b>	<b>Comments</b>	<b>Description of assessment and management measures as reflected in the Project design. If ESIA or SESA is required note that the assessment should consider all potential impacts and risks.</b>
Private companies utilizing and commercializing the cultural heritage of TK holders by patenting traditional remedies from the wild and selling them at a vast profit, allowing little or none of	I = High (4) P = Highly Likely (4)	High	Risk identified at PPG stage (now reformulated), incorporating risks flagged in Risk Screening Checklist	The Project aims to ensure the fair sharing of benefits throughout targeted value chains. Appropriate agreements will be facilitated to prevent private companies from excluding local and indigenous communities from the value chains and to disable the

<b>Risk Description</b>	<b>Impact and Probability (1-5)</b>	<b>Significance (Low, Moderate, High)</b>	<b>Comments</b>	<b>Description of assessment and management measures as reflected in the Project design. If ESIA or SESA is required note that the assessment should consider all potential impacts and risks.</b>
that profit to go back to the country or indigenous and local communities of origin.				situation, where the TK is commercialized, without any profits going back to the community.
Commercial cultivation of species encroaching into natural ecosystems, endangered species' habitats, directly or indirectly transforming them in a negative way.	I = Medium (3)  P = Likely (3)	Moderate	Risk identified at PPG stage, summarizing risks flagged in Risk Screening Checklist	The theory of change behind the overall Project Strategy explicitly adopts the Ecosystem Approach for helping shape strategies for the project's pilots (see e.g. PRODOC Figure 10). Hence the efforts will focus on ensuring that (i) <i>Aloe ferox</i> , <i>Pelargonium</i> spp. and wild-harvested Honeybush landscapes are sustainably managed; (ii) the Northern Cape hub can create better conditions for ecologically-adapted cultivation systems for species of interest to the bioprospecting value chains; (iii) the Rooibos gene-pool, whose wild distribution falls mostly within the Western Cape and to a lesser extent the Northern Cape Province and covers an area of approximately 56,231 sq km, continues to be well conserved across multiple-use landscapes; and (iv) the critically endangered African ginger recovers from the extinction path through a rapid and sustainable transition to cultivation, while also safeguarding its precious gene pool across its natural landscape. Further to this, all pilots that include cultivation will be subject to impact assessment in view of avoiding encroachment into natural ecosystems. As a guiding principle, the project will not promote cultivation in areas of land that had not been previously used for agriculture.
Indigenous, community-owned land arrangements and indigenous-claimed resources affected by commercial cultivation, threatening traditional livelihoods and possibly making access to important resources such as traditional medicine more difficult.	I = Medium (3)  P = Moderately Likely (3)	Moderate	Risk identified at PPG stage, summarizing risks flagged in Risk Screening Checklist	The project will support the agreements between indigenous communities and the bioprospecting industry to make sure that the indigenous rights (including land rights) are being respected. Additionally, the project will contribute to improving the economic well-being of indigenous TK holders and communities of harvesters by securing a fairer way of sharing the financial returns from bioproducts.

<i>Risk Description</i>	<i>Impact and Probability (1-5)</i>	<i>Significance (Low, Moderate, High)</i>	<i>Comments</i>	<i>Description of assessment and management measures as reflected in the Project design. If ESIA or SESA is required note that the assessment should consider all potential impacts and risks.</i>
<b>QUESTION 4: What is the overall Project risk categorization?</b>				
<b>Select one (see <a href="#">SESP</a> for guidance)</b>	<b>Comments:</b> The project has been classified as MODERATE RISK for reasons explained in this section. However, all applicable risks at this stage have been fully identified and they have been scoped in time and scale with a reasonable degree of certainty. For each risk that can be avoided, reduced or mitigated through project design, appropriate measures have been foreseen in this Project Document. For planned activities that can potentially pose environmental risks (e.g. construction and earth works under outputs 1.1, 1.2, 2.1), environmental impact assessment studies have been foreseen and budgeted for within the scope of the relevant activities. Activities involving indigenous people and their cultural heritage are in fact tailored towards consulting them through FPIC and other means of ABS compliance, in line with national policy and regulations and the Nagoya Protocol. Hence, the project's social and environmental risks exist, but these can be contained within proposed project activities, standard best practices, stakeholder engagement and other risk mitigation measures during project implementation (refer to all relevant project sections). Therefore, the need for a specific and additional Environmental and Social Management Plan (ESMP) -- normally placed in PRODOC Annex G -- is NOT foreseen at this stage.			
<b>Low Risk</b>	<input type="checkbox"/>			
<b>Moderate Risk</b>	<input checked="" type="checkbox"/>	Moderate and low risks associated with this project prevail (See also <a href="#">Risk Management</a> section)		
<b>High Risk</b>	<input type="checkbox"/>			
<b>QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are relevant?</b>				
<b>Comments:</b> <p>The project includes activities with potential adverse social and environmental risks and impacts and activities that include physical interventions (e.g. construction, cultivation). In addition, the project can potentially – but not intentionally – have an adverse impact on biodiversity conservation and natural resource management. More specifically, the project will proceed as follows with respect to risk management and negative impact mitigation:</p> <ul style="list-style-type: none"> <li>- (SES req. 1.2) The project will carry out activities within or adjacent to critical habitats and/or environmentally sensitive areas, but will apply best practice impact mitigation measures under the guidance of DEA, the national body responsible for environmental compliance in South Africa.</li> <li>- (SES req.1.3) The project will involve changes to the use of lands and resources that, although unlikely, could potentially cause a negative impact on habitats and livelihoods. Yet, these impacts, if any, will be prevented through careful planning of interventions, through environmental and social diligence and systematic risk monitoring. The relevant outputs for these risks already foresee impact assessment measures before permits can be issued and funds have been reserved for the purpose.</li> </ul>				



<b>Risk Description</b>	<b>Impact and Probability (1-5)</b>	<b>Significance (Low, Moderate, High)</b>	<b>Comments</b>	<b>Description of assessment and management measures as reflected in the Project design. If ESIA or SESA is required note that the assessment should consider all potential impacts and risks.</b>
<ul style="list-style-type: none"> <li>- (SES req.1.9) The project will involve utilization of genetic resources, including the collection, harvesting and commercial development of these resources, but with the explicit purpose of protecting valuable gene pools and promoting a much more equitable sharing of benefits thereof derived through ABS pilots and systemic measures.</li> <li>- (SES req.4.2) The project proposes the utilization tangible and/or intangible forms of cultural heritage for commercial or other purposes, but with the explicit purpose of protecting traditional knowledge promoting a much more equitable sharing of benefits thereof derived through ABS pilots and systemic measures.</li> <li>- (SES req.6.1 and 6.2) Project has a focus on traditional knowledge bearers of traditional ecological knowledge and includes various First Nations Indigenous groups, who reside in parts of the country where these resources are found. Among them, are tribes that are collectively known as Khoi-San and to whom knowledge on the use of Rooibos (<i>Aspalathus linearis</i>) and Honeybush (<i>Cyclopia</i> spp.) e.g. has been established in the literature. Given the project's national coverage it is not just possible but likely that the portions of the project may be located on lands and territories claimed by indigenous peoples, but it is not expected to potentially affect the rights, lands and territories of indigenous peoples. The project's limitations in terms of accepting related grievances regarding land claims will be duly explained to its stakeholders, including through the use of FPIC when and where needed.</li> <li>- (SES req.6.8 and 6.9) Overall, the project is slated to strengthen the equitable sharing of benefits thereof derived from the use of genetic resources, through both ABS pilots and other systemic measures.</li> </ul>				
<b>Principle 1: Human Rights</b>	<input type="checkbox"/>			
<b>Principle 2: Gender Equality and Women's Empowerment</b>	<input type="checkbox"/>			
<b>1. Biodiversity Conservation and Natural Resource Management</b>	<input checked="" type="checkbox"/>		3 flags	
<b>2. Climate Change Mitigation and Adaptation</b>	<input type="checkbox"/>			
<b>3. Community Health, Safety and Working Conditions</b>	<input type="checkbox"/>			
<b>4. Cultural Heritage</b>	<input checked="" type="checkbox"/>		1 flag	
<b>5. Displacement and Resettlement</b>	<input type="checkbox"/>			
<b>6. Indigenous Peoples</b>	<input checked="" type="checkbox"/>		3 flags	
<b>7. Pollution Prevention and Resource Efficiency</b>	<input type="checkbox"/>			

## Final Sign Off

<i>Signature</i>	<i>Date</i>	<i>Description</i>
QA Assessor		
QA Approver		
PAC Chair		UNDP chair of the PAC. In some cases, PAC Chair may also be the QA Approver. Final signature confirms that the SESP was considered as part of the project appraisal and considered in recommendations of the PAC.

## SESP Attachment 1. Social and Environmental Risk Screening Checklist

Checklist Potential Social and Environmental <u>Risks</u>		Answer (Yes/No)
<b>Principles 1: Human Rights</b>		
1.	Could the Project lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalized groups?	No
2.	Is there a likelihood that the Project would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups? <sup>33</sup>	No
3.	Could the Project potentially restrict availability, quality of and access to resources or basic services, in particular to marginalized individuals or groups?	No
4.	Is there a likelihood that the Project would exclude any potentially affected stakeholders, in particular marginalized groups, from fully participating in decisions that may affect them?	No
5.	Is there a risk that duty-bearers do not have the capacity to meet their obligations in the Project?	No
6.	Is there a risk that rights-holders do not have the capacity to claim their rights?	No
7.	Have local communities or individuals, given the opportunity, raised human rights concerns regarding the Project during the stakeholder engagement process?	No
8.	Is there a risk that the Project would exacerbate conflicts among and/or the risk of violence to project-affected communities and individuals?	No
<b>Principle 2: Gender Equality and Women's Empowerment</b>		
1.	Is there a likelihood that the proposed Project would have adverse impacts on gender equality and/or the situation of women and girls?	No
2.	Would the Project potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	No
3.	Have women's groups/leaders raised gender equality concerns regarding the Project during the stakeholder engagement process and has this been included in the overall Project proposal and in the risk assessment?	No
4.	Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?  <i>For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well being</i>	No
<b>Principle 3: Environmental Sustainability:</b> Screening questions regarding environmental risks are encompassed by the specific Standard-related questions below		
<b>Standard 1: Biodiversity Conservation and Sustainable <u>Natural</u> Resource Management</b>		
1.1	Would the Project potentially cause adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services?  <i>For example, through habitat loss, conversion or degradation, fragmentation, hydrological changes</i>	No

<sup>33</sup> Prohibited grounds of discrimination include race, ethnicity, gender, age, language, disability, sexual orientation, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority. References to "women and men" or similar is understood to include women and men, boys and girls, and other groups discriminated against based on their gender identities, such as transgender people and transsexuals.

<b>Checklist Potential Social and Environmental Risks</b>		<b>Answer (Yes/No)</b>
1.2	Are any Project activities proposed within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	Yes
1.3	Does the Project involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods? (Note: if restrictions and/or limitations of access to lands would apply, refer to Standard 5)	Yes
1.4	Would Project activities pose risks to endangered species?	No
1.5	Would the Project pose a risk of introducing invasive alien species?	No
1.6	Does the Project involve harvesting of natural forests, plantation development, or reforestation?	No
1.7	Does the Project involve the production and/or harvesting of fish populations or other aquatic species?	No
1.8	Does the Project involve significant extraction, diversion or containment of surface or ground water? <i>For example, construction of dams, reservoirs, river basin developments, groundwater extraction</i>	No
1.9	Does the Project involve utilization of genetic resources? (e.g. collection and/or harvesting, commercial development)	Yes
1.10	Would the Project generate potential adverse transboundary or global environmental concerns?	No
1.11	Would the Project result in secondary or consequential development activities which could lead to adverse social and environmental effects, or would it generate cumulative impacts with other known existing or planned activities in the area? <i>For example, a new road through forested lands will generate direct environmental and social impacts (e.g. felling of trees, earthworks, potential relocation of inhabitants). The new road may also facilitate encroachment on lands by illegal settlers or generate unplanned commercial development along the route, potentially in sensitive areas. These are indirect, secondary, or induced impacts that need to be considered. Also, if similar developments in the same forested area are planned, then cumulative impacts of multiple activities (even if not part of the same Project) need to be considered.</i>	No
<b>Standard 2: Climate Change Mitigation and Adaptation</b>		
2.1	Will the proposed Project result in significant <sup>34</sup> greenhouse gas emissions or may exacerbate climate change?	No
2.2	Would the potential outcomes of the Project be sensitive or vulnerable to potential impacts of climate change?	No
2.3	Is the proposed Project likely to directly or indirectly increase social and environmental <a href="#">vulnerability to climate change</a> now or in the future (also known as maladaptive practices)? <i>For example, changes to land use planning may encourage further development of floodplains, potentially increasing the population's vulnerability to climate change, specifically flooding</i>	No
<b>Standard 3: Community Health, Safety and Working Conditions</b>		
3.1	Would elements of Project construction, operation, or decommissioning pose potential safety risks to local communities?	No
3.2	Would the Project pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel and other chemicals during construction and operation)?	No
3.3	Does the Project involve large-scale infrastructure development (e.g. dams, roads, buildings)?	No

<sup>34</sup> In regards to CO<sub>2</sub>, 'significant emissions' corresponds generally to more than 25,000 tons per year (from both direct and indirect sources). [The Guidance Note on Climate Change Mitigation and Adaptation provides additional information on GHG emissions.]

<b>Checklist Potential Social and Environmental Risks</b>		<b>Answer (Yes/No)</b>
3.4	Would failure of structural elements of the Project pose risks to communities? (e.g. collapse of buildings or infrastructure)	No
3.5	Would the proposed Project be susceptible to or lead to increased vulnerability to earthquakes, subsidence, landslides, erosion, flooding or extreme climatic conditions?	No
3.6	Would the Project result in potential increased health risks (e.g. from water-borne or other vector-borne diseases or communicable infections such as HIV/AIDS)?	No
3.7	Does the Project pose potential risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during Project construction, operation, or decommissioning?	No
3.8	Does the Project involve support for employment or livelihoods that may fail to comply with national and international labor standards (i.e. principles and standards of ILO fundamental conventions)?	No
3.9	Does the Project engage security personnel that may pose a potential risk to health and safety of communities and/or individuals (e.g. due to a lack of adequate training or accountability)?	No
<b>Standard 4: Cultural Heritage</b>		
4.1	Will the proposed Project result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)? (Note: Projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	No
4.2	Does the Project propose utilizing tangible and/or intangible forms of cultural heritage for commercial or other purposes?	Yes
<b>Standard 5: Displacement and Resettlement</b>		
5.1	Would the Project potentially involve temporary or permanent and full or partial physical displacement?	No
5.2	Would the Project possibly result in economic displacement (e.g. loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	No
5.3	Is there a risk that the Project would lead to forced evictions? <sup>35</sup>	No
5.4	Would the proposed Project possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	No
<b>Standard 6: Indigenous Peoples</b>		
6.1	Are indigenous peoples present in the Project area (including Project area of influence)?	Yes
6.2	Is it likely that the Project or portions of the Project will be located on lands and territories claimed by indigenous peoples?	Yes
6.3	Would the proposed Project potentially affect the rights, lands and territories of indigenous peoples (regardless of whether Indigenous Peoples possess the legal titles to such areas)?	No
6.4	Has there been an absence of culturally appropriate consultations carried out with the objective of achieving FPIC on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	No
6.5	Does the proposed Project involve the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	No

<sup>35</sup> Forced evictions include acts and/or omissions involving the coerced or involuntary displacement of individuals, groups, or communities from homes and/or lands and common property resources that were occupied or depended upon, thus eliminating the ability of an individual, group, or community to reside or work in a particular dwelling, residence, or location without the provision of, and access to, appropriate forms of legal or other protections.

Checklist Potential Social and Environmental <u>Risks</u>		Answer (Yes/No)
6.6	Is there a potential for forced eviction or the whole or partial physical or economic displacement of indigenous peoples, including through access restrictions to lands, territories, and resources?	No
6.7	Would the Project adversely affect the development priorities of indigenous peoples as defined by them?	No
6.8	Would the Project potentially affect the traditional livelihoods, physical and cultural survival of indigenous peoples?	Yes
6.9	Would the Project potentially affect the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices?	Yes
<b>Standard 7: Pollution Prevention and Resource Efficiency</b>		
7.1	Would the Project potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or <a href="#">transboundary impacts</a> ?	No
7.2	Would the proposed Project potentially result in the generation of waste (both hazardous and non-hazardous)?	No
7.3	Will the proposed Project potentially involve the manufacture, trade, release, and/or use of hazardous chemicals and/or materials? Does the Project propose use of chemicals or materials subject to international bans or phase-outs?  <i>For example, DDT, PCBs and other chemicals listed in international conventions such as the Stockholm Conventions on Persistent Organic Pollutants or the Montreal Protocol</i>	No
7.4	Will the proposed Project involve the application of pesticides that may have a negative effect on the environment or human health?	No
7.5	Does the Project include activities that require significant consumption of raw materials, energy, and/or water?	No

## ANNEX G. Environmental and Social Management Plan (ESMP)

The preparation of an ESMP normally applies to project classified as Moderate or High-risk.

Note: This project has been classified as MODERATE RISK for reasons explained in the previous section. (See in particular SESP Question 4.) However, the after due diligence, UNDP and the project proponent DEA considered that the need for a specific and additional Environmental and Social Management Plan (ESMP) is NOT foreseen at this stage. UNDP will monitor all identified risks. Should the need for such a plan emerge during project implementation, applicable and additional measures will be introduced and budgets allocated for the purpose. The following summarizes the justification:

All applicable project risks at this stage have been dully identified and scoped in time and scale with a reasonable degree of certainty. They were considered manageable, either through project design, the application of standard best practice, mitigation measures and consistent stakeholder engagement during project implementation.

## ANNEX H. UNDP Project Quality Assurance Report

Forthcoming

## ANNEX I. UNDP Risk Log

Forthcoming – This is the log / see otherwise PRODOC Section V]

## **ANNEX J. Results of the capacity assessment of the implementing partner / HACT micro-assessment**

Ongoing

## **ANNEX K. Letter of Agreement on Direct Project Services (DPC)**

Forth coming



---

## XI. OTHER ANNEXES (X)

### ANNEX X-1. Letters of confirmed Co-financing

Department of Environmental Affairs (DEA)	USD 30,387,060.53
Department of Science and Technology (DST)	USD 769,230.76
Council for Scientific and Industrial Research (CSIR)	USD 2,783,777
South African National Biodiversity Institute (SANBI)	USD 515,384.61
Agricultural Resources Council (ARC)	USD 1,415,110.96
<b>Total co-financing</b>	<b>USD 35,870,563.86</b>



## **environmental affairs**

Department:  
Environmental Affairs  
**REPUBLIC OF SOUTH AFRICA**

Private Bag X 447 · PRETORIA · 0001 · Environment house · 473 Steve Biko Street · PRETORIA  
Tel (+ 27 12) 399 9590 · Fax (+ 27 12) 359 3636

Ref: EDMS 166396

Enquiries: Preshanthie Naicker- Manick

Tel: 012 399 9616 Fax: 012 359 3636 Email: Pnaicker@environment.gov.za

Mr. Gana Fofang  
UNDP Resident Representative and UN Resident Coordinator  
Pretoria,  
SOUTH AFRICA  
0001

### **CO-FINANCING COMMITMENT FOR THE UNDP-GEF 6 PROJECT ENTITLED "DEVELOPMENT OF VALUE CHAINS FOR PRODUCTS DERIVED FROM GENETIC RESOURCES IN COMPLIANCE WITH THE NAGOYA PROTOCOL ON ACCESS AND BENEFIT SHARING AND THE NATIONAL BIODIVERSITY ECONOMY STRATEGY"**

This is to confirm South Africa's commitment in supporting the implementation of the UNDP- GEF 6 Project on the development of value chains for products derived from Genetic Resources in compliance with the Nagoya Protocol on Access and Benefit Sharing and the national biodiversity economy strategy, through Programme 8: Implementing the Nagoya Protocol on Access and Benefit Sharing of the Global Environment Facility.

The programmes identified in the abovementioned project are in line with South Africa's priorities for ensuring sustainable and inclusive economic growth that is equitable to all its citizens and biasness towards improving ecological conditions, as well as local communities livelihoods, through strengthening the implementation of the Nagoya Protocol, and the implementation of the National Biodiversity Economy Strategy (NBES). The NBES is aimed at a) optimising the inclusive commercial use of its biological resources and their associated benefits and b) addressing the developmental challenges of the biodiversity economy in the country, which comprises *inter alia* the bioprospecting/ biotrade sector. The great potential of this sector was also realised during the recently held Biodiversity Phakisa, which seeks to unlock the economic potential of the South Africa's natural resources.

In lieu of the above, South Africa, through the Department of Environmental Affairs and partners, i.e. the Department of Science and Technology, Agricultural Research Council, South African National Botanical Institutions, Council for Science and Industrial Research and South African Rooibos Council will contribute a combined co-financing, through in-kind and cash contribution in the form of a) committed government personnel's time in the project implementation, b) operational budget, c) office spaces and the associated infrastructure, d) baseline information from the on-going governments' projects and activities in the country and e) planned investment towards the implementation of the abovementioned project. Hence, the DEA will commit a co-finance of a total amount of USD (value of **US\$30 387 060.53** at a conversion rate of USD 1 = R 13) will be contributed by the country during the duration of this project.

*Batho pele*- putting people first

**CO-FINANCING COMMITMENT FOR THE UNDP-GEF 6 PROJECT ENTITLED "DEVELOPMENT OF VALUE CHAINS FOR PRODUCTS DERIVED FROM GENETIC RESOURCES IN COMPLIANCE WITH THE NAGOYA PROTOCOL ON ACCESS AND BENEFIT SHARING AND THE NATIONAL BIODIVERSITY ECONOMY STRATEGY"**

The Department of Environmental Affairs greatly welcomes this project and the crucial role it will play on the strengthening the implementation of the Nagoya Protocol, and the NBES.



**Ms. Nosipho Ngcaba**  
**Director-General**  
**Department of Environmental Affairs**  
**Letter signed by: Mr Shonisani Munzhedzi**  
**Designation: Deputy Director-General: Biodiversity and Conservation**  
**Date: 28/09/2017**

Copies to:

- Dr. Janice Morén Golding, UNDP Program Manager for Energy & Environment (janice.golding@undp.org)
- Mrs. Natalie Feltman, DEA Director: Bioprospecting and Biodiversity Economy, (NFeltman@environment.gov.za)



Private Bsg X894, Pretoria, 0001 Tel.: +27 (0)12 843 6300 Fax: +27 (0)12 349 1030 www.dst.gov.za

Mr Gana Fofang  
UNDP Resident Representative and UN Resident Coordinator  
Pretoria  
SOUTH AFRICA  
0001

Dear Mr Fofang

**CO-FINANCING COMMITMENT WITH THE DEPARTMENT OF SCIENCE AND TECHNOLOGY TO THE UNDP-GEF SOUTH AFRICA'S NATIONAL ABS PROJECT**

This is to confirm that the Department of Science and Technology will co-finance the above-mentioned project for a total amount of R10 million for the period 2018-2022. More specifically, the co-financing provided will contribute to the achievement of project results with respect to its National Recordal System within the context of the "Access and Benefit Sharing Project":

- (a) Building and supporting appropriate indigenous knowledge networks in communities.
- (b) Enabling the discovery, cataloguing, capturing, validation and utilization of the national indigenous knowledge systems (IKS) heritage in an appropriate framework.
- (c) Initiating, enabling and maintaining a secure, accessible national repository for the management, dissemination, protection and promotion of IKS.

This co-financing amount represents our current expenditure (including staff time and operational expenses), along with planned investments, the costs of which are planned and will be disbursed during the period referred to above.

We expect to participate actively in the Project Steering Committee and work in collaboration with the Project Team to align our activities with theirs in view of ensuring maximum synergy.

Hoping for a swift and successful approval of the Global Environmental Facility project.

Warm regards

PHIL MJWARA  
DIRECTOR-GENERAL

DATE: 1 Aug 2017

Lesapha la Saense le Theknoloji • Umnyango waseSayensi neTheknoloji • Muhesho wa Sainsi na Theknoloji • Departement van Wetenskap en Tegnologie • Kgoro ya Saense le Theknoloji • Kizawulo ya Sayensi na Theknoloji • Litiko laTsayensi neTheknoloji • ISebe lezoNzulwazi neTheknoloji • UmNyango waseSayensi neTheknoloji

**Batho Pele - putting people first**



## CSIR Biosciences

PO Box 395 Pretoria 0001 South Africa  
Tel: +27 12 841 3233  
Fax: +27 12 349 1153  
Email: bsemete@csir.co.za

To the UNDP Representation in South Africa  
Att. Mr. Gana Fofang  
UNDP Resident Representative and UN Resident Coordinator  
Pretoria, South Africa

22 August 2017

Letter of co-financing commitment with respect to  
the UNDP-GEF 'South Africa's National ABS Project' Output 1.1 *Siphonochilus aethiopicus* clinical  
studies, registration and agro-processing  
developed in under the leadership of the Department of Environmental Affairs (DEA)

*"GEF ID 9255: Development of Value Chains for Products derived from Genetic Resources in  
Compliance with the Nagoya Protocol on Access and Benefit Sharing and the National Biodiversity  
Economy Strategy"*

This is to confirm that the Council for Scientific and Industrial Research (CSIR) contribution to co-financing the above-mentioned project is a total amount of R35 604 112 exclusive of VAT (2 783 777 USD indicative).

More specifically, the co-financing provided contributes to the achievement of project results with respect to its Output 1.1 *Siphonochilus aethiopicus* clinical studies, registration and product development.

This co-financing amount represents prior year's investments and future expenditure (i.e. staff time, operational expenses and patent costs) that will be incurred during the project implementation period (2017/2018 – 2021/2022 Financial Year). The co-financing is managed by the CSIR and serves therefore as in-kind (infrastructure costs such as access to research labs, research equipment, office space, telephones and other necessary support) and in-cash, partner-managed co-financing.

We expect to participate actively in the Project Steering Committee and work in collaboration with the GEF Implementation Team to align our activities with theirs in view of ensuring maximum synergy.

Yours sincerely,

Dr Boitumelo Semete-Makokotle  
Executive Director: CSIR Biosciences

*Copies to:*

- Dr Janice Morén Golding, UNDP Program Manager for Energy & Environment (janice.golding@undp.org)
- Mrs Natalie Feltman, Director for Bioprospecting and Biodiversity Economy, DEA (NFeltman@environment.gov.za)

Board members: Prof T. Majosi (Chairperson), Adv G. Badela, Ms P. Baleni, Dr P. Goyns, Dr A. Llobell, Dr R. Masango, Ms M. Maseko, Mr J. Netshilenzhe, Ms A. Noah, Prof M. Phakeng, Dr T. Dlamini (CEO)

[www.csir.co.za](http://www.csir.co.za)



# SANBI



Biodiversity for Life

South African National Biodiversity Institute

---

23 March 2018

Ms Nosipho Ngcaba  
Director General  
Department of Environmental Affairs  
Private Bag X447  
PRETORIA  
0001

Dear Ms Ngcaba

**LETTER OF CO-FINANCING FOR THE GEF-FUNDED PROJECT "DEVELOPMENT OF VALUE CHAINS FOR PRODUCTS DERIVED FROM GENETIC RESOURCES IN COMPLIANCE WITH THE NAGOYA PROTOCOL ON ACCESS AND BENEFIT SHARING AND THE NATIONAL BIODIVERSITY ECONOMY STRATEGY"**

This letter confirms the commitment of the South African National Biodiversity Institute (SANBI) to the implementation of the above GEF-funded project.

Co-financing contributions, both in cash and in kind, that are aligned with the ongoing programme of work of SANBI in support of the implementation of the project is estimated to be R6.7 million for the five years of project implementation.

This commitment is subject to annual budget allocations and procedures.

Yours sincerely,

Dr Moshibudi Rampedi  
Chief Executive Officer

Date: 23.03.2018



Ref:  
OoP/06/17

Enquiries:

#### **AGRICULTURAL RESEARCH COUNCIL**

P O Box 8783, Pretoria 0001 South Africa  
1134 Park Street, Hatfield, Pretoria 0083  
Tel: (012) 427 9703 Fax: (012) 342 8024 (Int: +27 12)  
E-mail: [ceosec@arc.agric.za](mailto:ceosec@arc.agric.za) Web site: [www.arc.agric.za](http://www.arc.agric.za)

To the UNDP Representation in South Africa  
Att. Mr. Gana Fofang  
UNDP Resident Representative and UN Resident Coordinator  
Pretoria, South Africa

Letter of co-financing commitment with respect to  
the UNDP-GEF 'South Africa's National ABS Project' (full title follows)  
developed under the leadership of the Department of Environmental Affairs (DEA)

*"GEF ID 9255: Development of Value Chains for Products derived from Genetic  
Resources in Compliance with the Nagoya Protocol on Access and Benefit Sharing  
and the National Biodiversity Economy Strategy"*

This is to confirm that the Agricultural Research Council, South Africa will contribute  
with in-kind co-financing to the above-mentioned project for a total amount of USD 1  
415 110,96 (value of R18 396 442,49 at a conversion rate of USD 1 = R 13) over a  
period of five years and referring to the period 2017-2021.

More specifically, the co-financing provided will contribute to the achievement of  
project results with respect to its Outputs 1.2 (Northern Cape Bioprospecting Research  
and Development Hub for bioproducts), 2.4 (Cultivation of African ginger), and 2.5  
(Extension, training and capacity building service linked to the Northern Cape  
Bioprospecting R&D hub).

This co-financing amount represents our recurrent expenditure (including time of  
staff/personnel to be involved in the projects), along with planned investments, the  
costs of which are planned disbursed during the period referred further up. These  
funds including infrastructure costs, are availed to us through the National Treasury  
and are complemented with the funds from our partners and financiers (such as the  
Department of Science and Technology, Department of Rural Development and Land  
Reform, Department of Agriculture, Forestry and Fisheries, etc).

The Agricultural Research Council, South Africa will avail to Project Outputs 1.2, 2.4,  
and 2.5 access to vehicles, office space and furniture, land, laboratory, agro-  
processing facility, some existing equipment and infrastructure, etc., for which the  
investment had been made in the past, the cost of which have been partly included in  
the above total amount, characterizing it as 'in-kind co-financing'.


#### **OFFICE OF THE PRESIDENT AND CHIEF EXECUTIVE OFFICER**

Prof. Sibutsiso Vil-Nkomo (Chairperson); Dr. Shadrack Moepholl (CEO); Dr. Joyce Chitja; Ms. Joyce Mashiteng; Mr. Andrew Makosete;  
Mr. Sipho Mthombeni; Dr. Saskia Van Oosterhout; Mr. Allan Bishop; Dr. Moraka Makhura; Mr. Mbulami Mahanjama; Dr. Mngqobi Ngidi;  
Mr. Michael Brinkhuis; Prof. PW Mashele; Dr. Aldo Stroebel; Dr. Mokgadi Ngoepe-Ntsoane; Ms. Bongile Kall; Adv. Edwin Mphahlele

We expect to participate actively in the Project Steering Committee and work in collaboration with the Project Team to align our activities with theirs as much as possible in view of ensuring maximum synergy.

Hoping for a swift and successful approval of the GEF project, we remain.

Yours sincerely,

  
**Dr Shadrack Mosephuli**  
**ARC President and CEO**  
**Date:**

---

*Copies to:*

- Dr Janice Morén Golding, UNDP Program Manager for Energy & Environment  
(janice.golding@undp.org)
- Mrs Natalie Feltman, Director for Bioprospecting and Biodiversity Economy, DEA  
(NFeltman@environment.gov.za)



## ANNEX X-2. Project Context & Baseline: ABS frameworks & Species-value-chain interactions

### 1) Status Quo of the Implementation of Nagoya Protocol in South Africa

**Table 12. Descriptive Results from the ABS Tracking Tool, Section 1**

<b>Capacity to ratify and implement basic measures of the Nagoya Protocol (NP)</b>	
1) Has the country carried out a stocktaking and assessment of ABS issues including policy-, legal- and regulatory-frameworks, and institutional capacity to develop and implement the Nagoya Protocol?	The White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity (Notice 1095 of 1997) provided the baseline for South Africa's policy, legal, regulatory framework and institutional capacity relating to ABS.
2) Did the country sign and ratify the Nagoya Protocol (NP)?	South Africa signed the NP on the 11 May 2011 and ratified on the 10 January 2013.
3) Is there a national policy or legal framework governing ABS?	There are two key legislative pieces: 1) National Environmental Management: Biodiversity Act 2004 & 2) Regulations on Bio-Prospecting, Access and Benefit Sharing
4) Is there a communications and public awareness plan or campaign to explain the Nagoya protocol, including challenges and opportunities for users and providers of genetic resources?	The information on BABS is seemingly only available to internet users, and people in the know how. It is not clear whether there is a plan to reach rural communities. However, there are provisions in the BABS regulations for public participation.
<b>Capacity to administer the measures of the Nagoya Protocol</b>	
5) Have the National Focal Point and Competent National Authority (ies) been designated and have the capacity to facilitate and administer the implementation of the protocol?	The National Focal Point and the Competent National Authority have been designated.
6) Are there clear administrative procedures for users and providers of genetic resources to develop, implement and monitor ABS agreements with proper Prior Informed Consent (PIC), Mutually Agreed Terms (MAT) and Benefit Sharing (BS) principles and guidelines	Sections 83 (Benefit Sharing Agreements) and 84 (Material Transfer Agreements) of the NEMBA (Act 2004) provide guidance. Furthermore, a guideline developed by the Department of Environmental Affairs (DEA) entitled: <i>South Africa's Bioprospecting, Access and Benefit Sharing Regulatory Framework: Guidelines for providers, users and regulators</i> , provides guidance.
7) Is there installed capacity to monitor compliance with the protocol and the utilization of genetic resources, including the designation of one or more checkpoints and whether benefits will support the the conservation and sustainable use of biodiversity?	Through the appointment of several environmental management inspectors (EMIs), South Africa is able to monitor compliance with the NP. The EMIs are a network of environmental enforcement officials from different government departments.
<b>Capacity of countries to develop their endogenous research capabilities to add value to their own genetic resources</b>	
8) Is there institutional capacity (infrastructure, scientists, technicians) in the public and/or private partners to carry out the research and development (R&D) associated with the valorization of genetic resources?	The Council for Scientific and Industrial Research (CSIR) has a Unit (Biosciences Unit) which is involved in the R&D of genetic resources. The Agricultural Research Council (ARC), has a program aimed at the cultivation, propagation and protection of genetic resources. Similarly, several Universities within SA have programs aimed at R&D in the genetic resources field
9) Is there capacity for the identification of commercial value of products derived from genetic resources, and to develop, update and maintain databases on these products and genetic resources?	The National Recordal System (NRS) was developed to assist communities, guilds and other traditional knowledge (TK) holders to record their knowledge holdings as to provide a resource to assist with future economic benefits and social good, based on TK. This NRS was initiated in 2013, but as yet has not been implemented fully.
<b>Capacity needs and priorities of indigenous and local communities and other relevant stakeholders</b>	
10) Do Indigenous and Local Communities (ILCOs) have the information to understand the challenges and opportunities that the Nagoya Protocol has to offer and to actively engage in ABS agreements?	Not specifically in a general sense, however on a project scale through public participation or the prior informed consent process this should be communicated to ILCO's
11) Are there clear procedures or model contractual clauses to obtain Prior Informed Consent (PIC) for the utilization of genetic resources and associated Traditional Knowledge (TK)?	Yes the procedures for PIC is in place in the BABS regulations guidelines in chapter 3.7.
12) Are there minimum requirements for Mutually Agreed Terms (MAT) to secure fair and equitable sharing of benefits arising from the utilization of TK associated with genetic resources?	Section 84 (Material Transfer Agreements) of the NEMBA (Act 2004) provides guidance.

### Capacity to ratify and implement basic measures of the Nagoya Protocol (NP)

13) Are there model contractual clauses for benefit-sharing arising from the utilization of TK associated with genetic resources?

Several contractual causes have been developed.

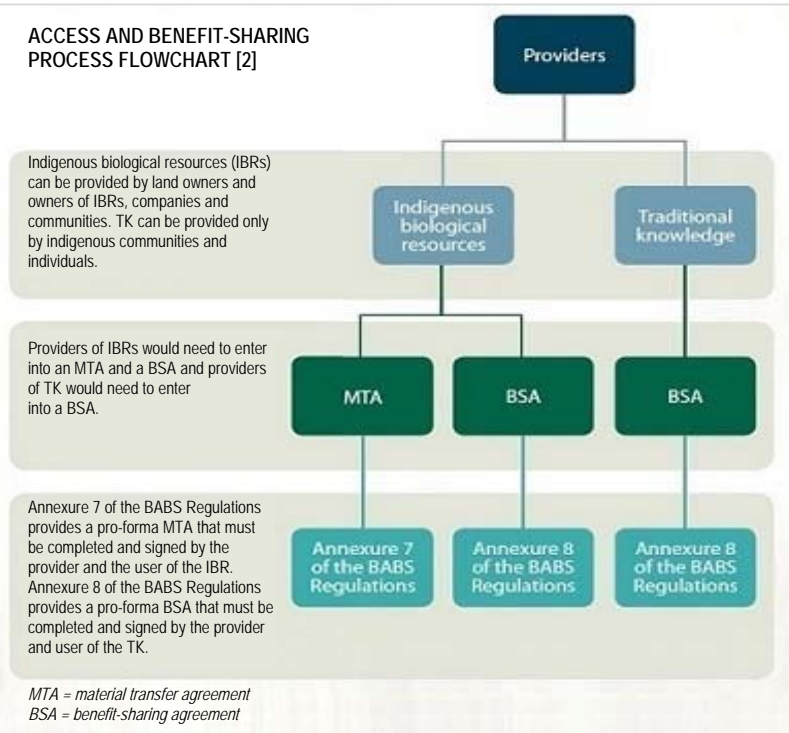
Notes: See otherwise ANNEX D. GEF Tracking Tool (s) at baseline.

### Box 7. ABS Procedures, Checkpoints and Flowchart

#### Particulars of bioprospecting permit applications [1]:

- To be eligible for a permit for bioprospecting derived from traditional knowledge, or from the traditional use of a biological resource, the applicant must disclose to stakeholders the full nature of the bioprospecting project.
- The applicant must also gain the prior informed consent of the Indigenous community providing access, and have both a mutual transfer agreement and a benefit-sharing agreement in place.
- The mutual transfer agreement must identify the particulars of the provider and the recipients of the biological resources, along with the type, area of source, quantity, purpose and present potential uses of the biological resource.
- Similarly, the benefit sharing agreement must specify the characteristics of the indigenous biological resources subject to the agreement, the parties to the agreement, the scope of the use of the biological resources, regular review intervals, and the manner and extent to which communities will share in the royalties derived from bioprospecting.
- Both respective agreements must be in a standard form, and are of no effect without Ministerial approval.
- Approval is granted when the Minister is satisfied there has been adequate disclosure to affected stakeholders, and that the benefit-sharing agreement is equitable.
- The Minister may also seek technical advice on the agreement, or interfere with the contractual terms to ensure that the equitable sharing of benefits occurs. Lastly, the holder of the permit is liable for all mitigation costs to remedy any adverse impact on the environment deriving from the bioprospecting project.

#### ACCESS AND BENEFIT-SHARING PROCESS FLOWCHART [2]



[1] Quoted from: Medaglia et al (2014): *Overview of national and regional measures on access and benefit sharing challenges and opportunities in implementing the Nagoya Protocol*. Third Edition CISDL Biodiversity & Biosafety Law Research Programme, 25 June 2014.

[2] Source: DEA (2012): *South Africa's Bioprospecting, Access and Benefit-Sharing Regulatory Framework: Guidelines for Providers, Users and Regulators*. Prepared for the Department of Environmental Affairs by: The Environmental Evaluation Unit, University of Cape Town and Natural Justice.

Box 8. From CBD's ABS Clearing House Mechanism (accessed on 17 Jul 2017)

CBD's Access and Benefit-Sharing Clearing-House

Accessed on 7/17/2017

South Africa

<https://absch.cbd.int/countries/ZA>

Party Status:

Entered into force on:

Ratification on:

Signatory:

CBD Country Profile:

Party to the Nagoya Protocol

12 Oct 2014

10 Jan 2013

Signed on 11 May 2011

[www.cbd.int/countries/?country=za](http://www.cbd.int/countries/?country=za) (<https://www.cbd.int/countries/?country=za>)

EXPORT

– ABS National Focal Point (NFP)

Ms. Lactitia Tshililo Tshitwamulomoni

27 APR 2017

– Competent National Authorities (CNA)

National Department of Environmental Affairs

ABSCH-CNA-ZA-203907-1 | 30 APR 2015

– Legislative, administrative or policy measures on access and benefit-sharing (MSR)

Select the ABS Measures to be displayed in the overview

☒ 1. National Environmental Management: Biodiversity Act 2004 (database/record/ABSCH-MSR-ZA-202223)  
NATIONAL / FEDERAL | LAW | LEGALLY BINDING | ENTRY INTO FORCE: 31 DEC 2005

☒ 2. Patents Amendment No. 25 of 2005. (database/record/ABSCH-MSR-ZA-202221)  
NATIONAL / FEDERAL | LAW | LEGALLY BINDING | ENTRY INTO FORCE: 08 DEC 2005

☒ 3. Regulations on Bio-Prospecting, Access and Benefit-Sharing (database/record/ABSCH-MSR-ZA-202222)  
NATIONAL / FEDERAL | REGULATORY OR ADMINISTRATIVE MEASURES | LEGALLY BINDING | ENTRY INTO FORCE: 31 MAR 2008

Overview of Key ABS Measure Elements

Collapse All

SCOPE OF THE MEASURE

Genetic Resources

No provisions for this element

ACCESS

No provisions for this element

BENEFIT-SHARING

No provisions for this element

COMPLIANCE

No provisions for this element

RELATIONSHIP WITH OTHER INTERNATIONAL INSTRUMENTS

No provisions for this element

OTHER

No provisions for this element

– National Databases and Websites (NDB)

1

ABSCH-NDB-ZA-202038-1 | 01 OCT 2014

– Checkpoints (CP)

1

National Department of Environmental Affairs  
ABSCH-CP-ZA-203906-1 | 30 APR 2015

– Internationally Recognized Certificates of Compliance (IRCC)

3

South Africa/NEMBA/BABS/BP0020  
ABSCH-IRCC-ZA-237653-1 | 23 JUN 2017

South Africa/NEMBA/BABS/BP201601  
ABSCH-IRCC-ZA-208241-1 | 10 NOV 2016

South Africa/NEMBA/BABS/EP0045  
ABSCH-IRCC-ZA-206780-1 | 23 MAR 2016

– Checkpoint Communiqués (CPC)

0

+ Interim National Report on the Implementation of the Nagoya Protocol (NR)

0

🔍 back to top



Convention on  
Biological Diversity (<http://www.cbd.int>)

© 2016 SCBD (<http://www.cbd.int>) | Privacy Policy (<http://www.cbd.int/privacy>) | Terms of Use (<http://www.cbd.int/terms>)

## 2) Conservation and Social Benefits from Species-Value Chain interactions targeted by the Project

Content of the sub-section of this Annex (X-2.1) has been expanded, better edited and, for three selected species, illustrated with a map, in response to comments from the GEF Secretariat to the PRODOC.

**Table 13. Species characteristics, conservation status, value chain development and research facts**

No	Species	Species distribution, reference to Map and level of threat	Research and Development	IUCN Red List status	SANBI Red List of South African Plants status	Value Chain Development	Conservation Benefits	Social Benefits
1	<i>Aloe ferox</i>	<p><b>Distribution and characteristics:</b> Eastern Cape, Free State, KZN. <i>Aloe Forex</i> grows naturally and abundantly within the Tyefu Community and is widely acknowledged for its medicinal properties. The leaves and gel are also commonly used for cosmetic products.</p> <p><b>See: Selected Plant Distribution Sheets from PRODOC Annexure, Section IV - PPG Study, Sheet #3: <i>Aloe ferox</i></b></p> <p><b>Threat:</b> Localized extinctions have occurred in some areas around the country due to overharvesting. Intense harvesting occurs in the Eastern Cape (Peddie, Butterworth, Idutywa and Qunu) which are surrounding areas to Tyefu.</p>	<i>A. ferox</i> has been harvested for its sap (known as bitters) for almost 250 years. R&D can be further undertaken to find potential use for harvested and drained leaves that currently are not used. The resource assessment of <i>A. ferox</i> within the Tyefu community indicates an abundance of the resource which occurs in a wide range of habitats and shows high adaptability. However, it is being harvested inefficiently and only restricted by slope of the terrain, distance from the village and presence of thicket surrounding the resource.	Taxon not yet assessed for the IUCN Red List	Least Concern	<p><i>Aloe forex</i> has a year-round demand, and harvesting is an important economic activity in the Tyefu community where it is considered as a key contributor to combating rural poverty. This high potential has prompted interest from Funding Agents seeking opportunities for local level enterprise development in rural areas. The harvesting is a task mainly performed by woman and youth but at present no formal structure exists. Leaves are cut and then are stacked around a hollow ground. The yellow bitter exudate (sap) released from the edges is collected in the center and sold for half of the market value. Harvested and drained leaves are left in the field and have no further use.</p> <p>The Tyefu community has shown interest in the sustainable harvesting of the natural resource of <i>A. ferox</i>, as well as the manufacturing of value-adding products from this resource. The need has thus been identified to implement a formal and sustainable harvesting plan for this area, together with setting up the infrastructure for the manufacturing and trade of value adding products from this resource, such as gel, crystals, powders, and cosmetic products.</p>	<p>Although the IUCN Red List assessment for <i>A. ferox</i> is Least Concern, and the population trend is stated to be increasing, there are reports that over-exploitation of leaves has caused localized extinctions (Raimondo <i>et al.</i> 2012). Melin and co-workers (2017) have recently identified unsustainable aloe harvesting practices associated with a rural development initiative in the Eastern Cape, which threatens to undermine the livelihoods of poor local residents.</p> <p>Through the establishment and management of <i>A. ferox</i> crop plantations, the project will significantly ease the harvesting pressure on existing wild aloe populations.</p>	<p>The <i>A. ferox</i> plantations will:</p> <ul style="list-style-type: none"> <li>(i) considerably ease the strenuous efforts of the – mostly female – harvesters and tappers;</li> <li>(ii) improve the income of these harvester and tappers, with little capital and maintenance cost to the communal land owners; and</li> <li>(iii) open further opportunities for the Tyefu community to commercially develop, market and sell value-adding aloe products.</li> </ul>

No	Species	Species distribution, reference to Map and level of threat	Research and Development	IUCN Red List status	SANBI Red List of South African Plants status	Value Chain Development	Conservation Benefits	Social Benefits
2	<i>Aspalathus linearis</i> Rooibos	<p><b>Distribution and characteristics:</b> Endemic species for South Africa, distributed over Northern and Western Cape. The plant is being used for preparing herbal tea and has a long history of harvesting.</p> <p><b>Species distribution map in PRODOC Annexure:</b> Plant Distribution Sheet 6: Rooibos</p> <p><b>Threat:</b> Climate change</p>	It is proved that Rooibos contains polyphenols and aspalathin (chemicals with strong antioxidant properties), hydroxy acid and zinc. It helps in the formation of HDL (good) cholesterol. Even though the medicinal properties of Rooibos are relatively well documented, the research is constantly being conducted.	Taxon not yet assessed for the IUCN Red List	Least Concern	Harvested from the wild and cultivated. Over 36 000 hectares of land are cultivated with Rooibos and it's a source of income for almost 10,000 people hired in the Rooibos farms. The annual production of Rooibos varies between 10,000 and 18,000 tones. The plant has a 4-level processing value chain before it eventually reaches the consumer. The production of products derived from <i>A. linearis</i> and use of the 'Rooibos' name (and other names) for them is restricted with the legal rules since 2013.	The project will not address any conservation outcomes, but rather ABS.	The project will: (i) Investigate and develop a suitable benefit sharing mechanism for traditional knowledge (TK) holders that effectively captures the resource rent resulting from the TK rights, (ii) Investigate and develop non-monetary TK benefit sharing mechanisms which may support rights-holding communities through contributions-in-kind and related mechanisms by the private sector, and (iii) Develop and propose a suitable and simple governance and institutionalization framework for implementing and monitoring the benefit sharing mechanism
3	Honeybush <i>Cyclopia</i> species: <i>C. intermedia</i> <i>C. genistoides</i> <i>C. subternata</i>	<i>C. intermedia</i> : southern part of Eastern Cape. Other species are distributed mostly in a pattern of 'islands' over Western and Eastern Cape. The species are harvested from the wild and processed for the use of the food industry and due to its antioxidant properties. All three <i>Cyclopia</i> spp. are located within the Cape Floral Kingdom, making them particularly vulnerable to habitat loss caused by land-use change.	Further R&D needs to be undertaken to better investigate the antioxidant properties of Honeybush and to develop its use in cosmetics and as medication.	Taxon not yet assessed for the IUCN Red List	<i>C. intermedia</i> Least Concern <i>C. genistoides</i> Near Threatened <i>C. subternata</i> Least Concern	The Honeybush species are mostly harvested from the wild (70% of all production), but also cultivated (30%). The harvesting is an important source of income for the communities. Most of the derived species is exported abroad, however, the domestic market has a potential for growing, as <i>Cyclopia</i> products have a potential to be used in the cosmetics, medical and other industries due to its antioxidant properties. Although up to date only	<p>The species is listed as Least Concern (LC) on the Red Data Species List, although it is being seen to be declining in the wild. The Red List of South African Plants indicates the following conservation status of commercially valuable <i>Cyclopia</i> spp:</p> <ul style="list-style-type: none"> <li><i>C. intermedia</i>- Declining;</li> <li><i>C. subternata</i>- Declining;</li> </ul>	The project will provide previously disadvantaged community members with business and value addition skills to harvest, process, package and market natural products from <i>Cyclopia</i> spp.

No	Species	Species distribution, reference to Map and level of threat	Research and Development	IUCN Red List status	SANBI Red List of South African Plants status	Value Chain Development	Conservation Benefits	Social Benefits
		<p><b>Species distribution map in PRODOC Annexure:</b> Plant Distribution Sheet 5: Honeybush</p> <p><b>Threat:</b> Overharvesting, as some species can be obtained only by harvesting from the wild. Likely also habitat loss.</p>				few industries use honeybush in its products (mostly cosmetics).	<ul style="list-style-type: none"> <li>• <i>C. genistoides</i>- Near Threatened;</li> <li>• <i>C. maculate</i>- Near Threatened;</li> <li>• <i>C. plicata</i>- Endangered; and</li> <li>• <i>C. sessiliflora</i>- Near Threatened.</li> </ul> <p>By providing wild harvesters with support to develop sustainable agricultural practices, pressure on wild populations of <i>Cyclopia spp.</i> will be decreased.</p>	
4	<i>Pelargonium sidoides</i>	<p><b>Distribution and characteristics:</b> <i>P. sidoides</i> is endemic to Lesotho and South Africa. The species is harvested from the wild.</p> <p><b>Species distribution map in PRODOC Annexure:</b> Plant Distribution Sheet 2: Pelargonium</p> <p><b>Threat:</b> Ongoing studies have shown that intensive harvesting of <i>P. sidoides</i> from the wild, due to the growing demand, has been placing pressure on some wild populations.</p>	Research commissioned by the German Department of Nature Conservation (BfN) identified slow resource recovery from overharvested sites and expressed concern about the long-term survival of <i>P. sidoides</i> in the wild due to overharvesting which directly affects the livelihoods of communities and other stakeholders.	Taxon not yet assessed for the IUCN Red List	Least Concern	The species is harvested from the wild for a bio-active substance found in its lignotubers that is processed and used by the local and international pharmaceutical industry. In South Africa, interest in this species has been growing due to its industrial use, its potential as a source of income for rural communities, strong relevance to access and benefit sharing legislation being developed at that time, but simultaneously, concern about the sustainability of harvest.	<p>The focus of the GEF-funded support will be the implementation of the Pelargonium Biodiversity Management Plan (BMP). The BMP, will lead to the implementation of sustainable management practices for wild populations of <i>P. sidoides</i>. The conservation benefits of the BMP are:</p> <ol style="list-style-type: none"> <li>1. Wild collection of <i>P. sidoides</i> is carried out in a manner that maintains survival of the species in the wild;</li> <li>2. Wild collection of <i>P. sidoides</i> does not affect the environment, other wild species or neighboring eco-systems;</li> <li>3. Collection and management activities are carried out under legitimate tenure arrangements and comply with relevant laws, regulations and agreements,</li> </ol>	<p>The social benefits of the BMP are:</p> <ul style="list-style-type: none"> <li>• Customary rights of local and indigenous communities to use and manage collection areas are recognized and respected,</li> <li>• Trade is conducted in an equitable manner resulting in the fair allocation of benefits to all resource stakeholders in accordance with National and International legislation.</li> </ul>

No	Species	Species distribution, reference to Map and level of threat	Research and Development	IUCN Red List status	SANBI Red List of South African Plants status	Value Chain Development	Conservation Benefits	Social Benefits
							4. Wild collection of <i>P. sidoides</i> is based upon adaptive, practical, participatory and transparent management practices.	
5	<i>Siphonochilus aethiopicus</i> (African ginger)	<p><b>Distribution and characteristics:</b> Distributed over Limpopo and Mpumalanga provinces. The current use of African ginger is based on anecdotal evidence to treat mild allergic asthma, colds, influenza and sinus problems without scientific data to substantiate these traditional claims.</p> <p><b>Species distribution map in PRODOC Annexure:</b> Plant Distribution Sheet 1: African Ginger – Reproduced further down.</p> <p><b>Threat:</b> This species is over-harvested in South Africa and considered to be endangered and almost regionally extinct. It has recently become extinct in Kwa-Zulu Natal. Occurs in critical biodiversity areas within Limpopo and Mpumalanga (falls under protected area zones)</p>	<p>The <i>Traditional Healers Committee</i> (THC) as knowledge holders of the African ginger entered into several agreements with the CSIR which conducted extensive research and development activities on African ginger. This led to the identification of the biochemical metabolites, expressed in this indigenous plant species responsible for the anti-asthmatic and anti-inflammatory properties. Genetic fingerprinting of the species was undertaken through research and development to aid quality assurance and to prevent possible confusion with related species. Conducted scientific research demonstrated the beneficial properties of the plant extract in the improvement of the symptomatology associated with allergic and inflammatory diseases. The research also provided scientific evidence substantiating its traditional use and potential inclusion in complementary medicine products. The intellectual property was produced through the research and development and later protected through a</p>	Not assessed yet	Critically Endangered <sup>36</sup>	The species has rather limited distribution and yet, its roots are being harvested in large quantities from the wild. Currently, it is tagged in IUCN's Red List as critically endangered. CSIR was granted a PCT patent for use of the extract and compound (PCT/IB2007/050649). The CSIR also established a successful propagation program for African ginger from tissue-cultured material to ensure a reliable supply of plant material for commercialization purposes. Reasonable quantities of plant material are needed for the research, and the only viable source seems to be handful of experimental farms in Central South Africa.	Overharvesting in the wild has resulted in the near extinction of the species and increasing demand means that this trend is unlikely to be reversed. By investing in a sustainable harvesting programme, pressures on wild harvested populations of <i>S. aethiopicus</i> are expected to be reduced.	Through the GEF funding, the project will amend the existing benefit sharing agreement between CSIR and THC for effective equitable sharing of benefits arising from the utilization of the THC' traditional knowledge and associated plant genetic resources through technology commercialization, as part of the implementation of the South African legislation, National Environmental Management: Biodiversity Act 2004, Bioprospecting, Access and Benefit Sharing, 2008.

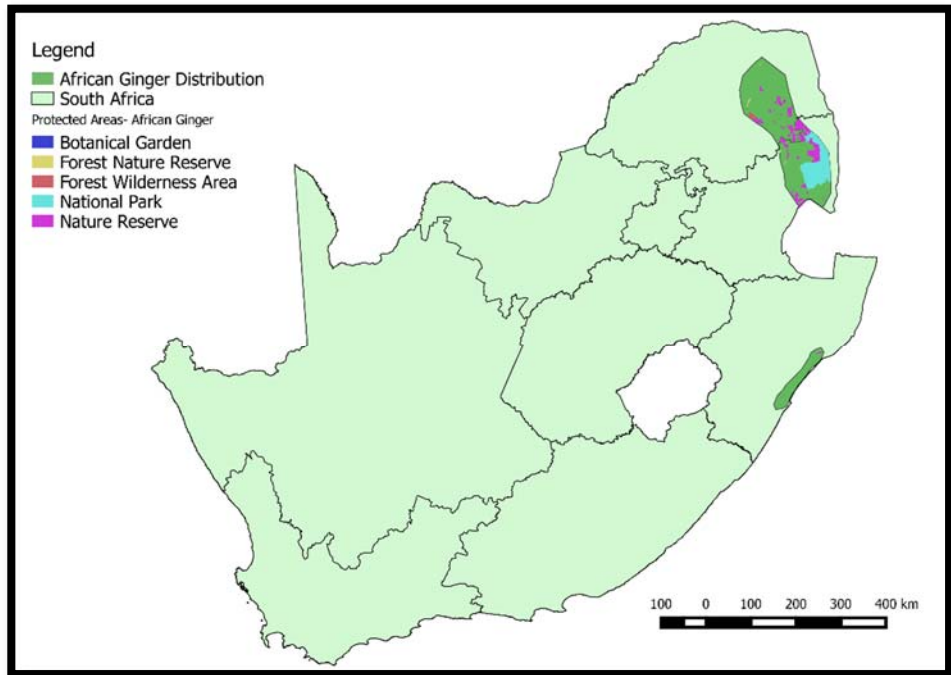
<sup>36</sup> Reference: <http://redlist.sanbi.org/species.php?species=2061-1>



No	Species	Species distribution, reference to Map and level of threat	Research and Development	IUCN Red List status	SANBI Red List of South African Plants status	Value Chain Development	Conservation Benefits	Social Benefits
			patent system as a potential agent for the treatment of inflammatory and allergic diseases such as asthma. Further R&D needs to be undertaken in order to find sustainable harvesting mechanisms and to ensure sustainable supply of this species					

Selected Plant Distribution Sheets from PRODOC Annexure, Section IV - PPG Study

**Sheet #1: Distribution of African Ginger**

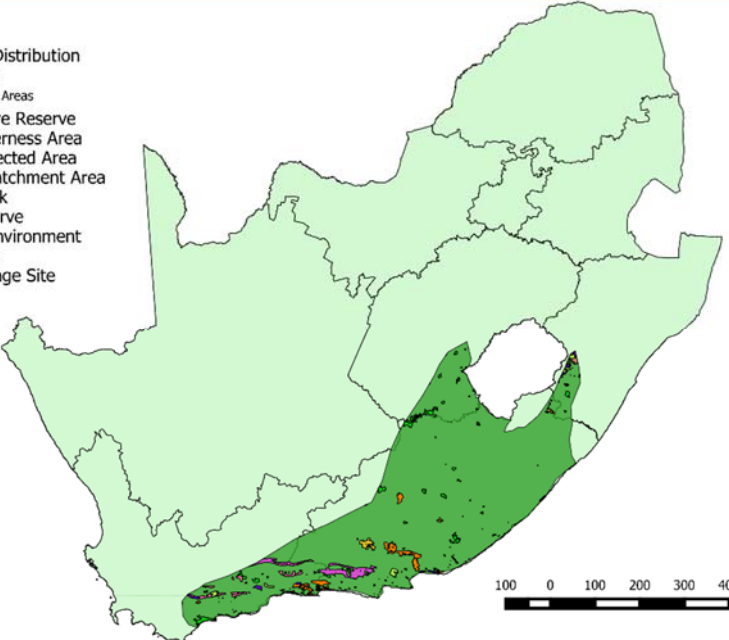
<b>Species:</b> <i>Siphonochilus aethiopicus</i>	<b>Common name:</b> African Ginger	<b>Distribution/ extent:</b> The natural distribution of African Ginger falls within Kwa-Zulu Natal, Mpumalanga and Limpopo with a total distributional area of 35 324 km <sup>2</sup> .													
<b>Note on distribution:</b> Almost a quarter (24%) of the species natural distributional range falls within protected areas.		<div><div>Legend</div><div><div>African Ginger Distribution</div><div>South Africa</div><div>Protected Areas- African Ginger</div><div><div>Botanical Garden</div><div>Forest Nature Reserve</div><div>Forest Wilderness Area</div><div>National Park</div><div>Nature Reserve</div></div></div></div>													
<table><tr><th>Type</th><th>Area (Km<sup>2</sup>)</th></tr><tr><td>Botanical Garden</td><td>1</td></tr><tr><td>Forest Nature Reserve</td><td>93</td></tr><tr><td>Forest Wilderness Area</td><td>160</td></tr><tr><td>National Park</td><td>4,485</td></tr><tr><td>Nature Reserve</td><td>3,892</td></tr><tr><td>Grand Total</td><td>8,632</td></tr></table>			Type	Area (Km <sup>2</sup> )	Botanical Garden	1	Forest Nature Reserve	93	Forest Wilderness Area	160	National Park	4,485	Nature Reserve	3,892	Grand Total
Type	Area (Km <sup>2</sup> )														
Botanical Garden	1														
Forest Nature Reserve	93														
Forest Wilderness Area	160														
National Park	4,485														
Nature Reserve	3,892														
Grand Total	8,632														

## Sheet #2: Distribution of Pelargonium

<b>Species:</b> <i>Pelargonium sidoides</i>	<b>Common name:</b> South African geranium	<b>Distribution/ extent:</b> Pelargonium is naturally distributed throughout much of South Africa. The total extent covers approximately 342 048 km <sup>2</sup> covering much of Gauteng, North West, Mpumalanga, Free State, Eastern and Western Cape Provinces.
<b>Note on distribution:</b> Although it has a large range, only 6% is officially protected.		<div> </div>

Type	Area (Km <sup>2</sup> )
Forest Nature Reserve	902
Forest Wilderness Area	2,150
Marine Protected Area	14
Mountain Catchment Area	2,457
National Park	2,547
Nature Reserve	5,065
Protected Environment	1,356
Ramsar Site	2,365
World Heritage Site	3,904
<b>Grand Total</b>	<b>20,761</b>

### Sheet #3: Distribution of Aloe ferox

<b>Species:</b> <i>Aloe ferox</i>	<b>Common name:</b> Bitter aloe	<b>Distribution/ extent:</b> Aloe Ferox is naturally distributed over approximately 197 734 km2 of South Africa. Much of this area falls within the Eastern Cape with smaller abundances in Western Cape, Natal and Free State Provinces.																						
<b>Note on distribution:</b> Although it has a large range, only 6% is officially protected.																								
<table><tr><th>Type</th><th>Area (Km²)</th></tr><tr><td>Forest Nature Reserve</td><td>724</td></tr><tr><td>Forest Wilderness Area</td><td>731</td></tr><tr><td>Marine Protected Area</td><td>64</td></tr><tr><td>Mountain Catchment Area</td><td>1,197</td></tr><tr><td>National Park</td><td>2,532</td></tr><tr><td>Nature Reserve</td><td>2,831</td></tr><tr><td>Protected Environment</td><td>691</td></tr><tr><td>Ramsar Site</td><td>771</td></tr><tr><td>World Heritage Site</td><td>2,807</td></tr><tr><td>Grand Total</td><td>12,349</td></tr></table>			Type	Area (Km²)	Forest Nature Reserve	724	Forest Wilderness Area	731	Marine Protected Area	64	Mountain Catchment Area	1,197	National Park	2,532	Nature Reserve	2,831	Protected Environment	691	Ramsar Site	771	World Heritage Site	2,807	Grand Total	12,349
Type	Area (Km²)																							
Forest Nature Reserve	724																							
Forest Wilderness Area	731																							
Marine Protected Area	64																							
Mountain Catchment Area	1,197																							
National Park	2,532																							
Nature Reserve	2,831																							
Protected Environment	691																							
Ramsar Site	771																							
World Heritage Site	2,807																							
Grand Total	12,349																							
<div><div><div>Legend</div><div><div>Aloe Ferox Distribution</div><div>South Africa</div><div>Aloe Ferox Protected Areas</div><div><div>Forest Nature Reserve</div><div>Forest Wilderness Area</div><div>Marine Protected Area</div><div>Mountain Catchment Area</div><div>National Park</div><div>Nature Reserve</div><div>Protected Environment</div><div>Ramsar Site</div><div>World Heritage Site</div></div></div></div><div></div></div>																								

### 3) The Context of African Ginger agreement registration and cultivation

Allergies are a major health-care problem worldwide with about 30-40% of the world's population effected by one or more allergic condition/s. Current products on the market for allergies have a wide range of side-effects. Collectively, all the pre-clinical results of *Siphonochilus aethiopicus* (African Ginger) demonstrated the beneficial properties of the plant extract in the improvement of the symptomatology associated with allergic and infectious diseases.

**Picture 1. African Ginger Experimental Farm visited by the PPG Team in Brits, North West Province**



As there is currently no clinical evidence of its safety and efficacy, the Council for Scientific and Industrial Research of South Africa (CSIR) would like to capitalize on the years of research invested in scientifically validating African Ginger by conducting a Phase I and II Clinical Study on a formulated ethanolic extract of the plant (quality control and chemical analysis completed). This will enable it to be registered as a complementary medicine. A novel product based on African Ginger will be provided for the treatment of allergic diseases with associated benefits and it will contribute to the growth of the natural product industry in South Africa and worldwide.

Furthermore, *S. aethiopicus* is Red-listed as 'critically endangered'. The natural distribution of this plant species in South Africa is restricted to Mpumalanga, Northern Province and Kwa-Zulu Natal in South Africa. At the same time, the fresh rhizomes and roots are very popular in traditional medicine in southern Africa. Extraction from the wild has been intensified in the past few years, to the extent that concern has been expressed about regional extinction.

In 1992, the Traditional Healers Committee approached Council for Scientific and Industrial Research (CSIR) regarding a panel of medicinal plant species that are associated with their traditional knowledge. African ginger was one of the plant species that was on the list among other plant species. Traditional Healers Committee uses it to treat flu. The Traditional Healers Committee constitutes eight members drawn from different provinces of South Africa, representing their Traditional Health Practitioners constituents. CSIR then signed the Heads of State Agreement, Material Transfer Agreement and Benefit Sharing Agreement.

The latter agreement on benefit sharing was signed in 2003 – that is, before the adoption of the South African Biodiversity Act on access and benefit sharing could define an appropriate framework for it, and long before the Nagoya Protocol on Access and Benefit Sharing was agreed upon by countries (in 2010) and ratified by South Africa (2010). Currently, this agreement is not ABS compliant and needs to be revisited.

Finally, the engagement of local communities in based agro-processing businesses can accelerate the transition of the exploitation of *S. aethiopicus* from the wild to cultivation, and possibly lift the pressure from wild resources.

However, this is not a given, if agronomic, technological and ABS related barriers are not lifted. The Box below provides additional information.

**Box 9. (new) Win-Win A promising value chain with African Ginger and a gateway to sustainable use**

ADDITIONAL EXPLANATION IN CONNECTION WITH THE FEBRUARY 2018 RE-SUBMISSION OF THE PRODOC
<p><b>The Output justification is strengthened by additional content covering three important aspects:</b></p> <ul style="list-style-type: none"> <li>(1) <i>Why are clinical trials actually needed;</i></li> <li>(2) <i>Providing more information on the process proposed and background; and</i></li> <li>(3) <i>What GEF funds will add to the process</i></li> </ul>
<p><b>(1) Why are clinical trials actually needed:</b> Registering any complementary medicine – also termed herbal medicinal product (HMP) -- by the South African Medicines Control Council (MCCZA) normally requires clinical data on efficacy vis-à-vis the stated health enhancement claims. When the HMP is to register as a ‘low risk’ HMP, an abridged process of registration that dispenses clinical evidence is possible. However, in such cases, the applicant would only be able to label it as being effective for the “relief of minor symptoms” and “not related to a disease or disorder”<sup>37</sup></p> <p>Proving African ginger’s efficacy for treating asthma and allergies through clinical trials is currently the only major barrier to be overcome for product registration. It is in fact CSIR’s strategic choice for maximizing the potential benefits from years of R&amp;D and a standing partnership with THC.</p>
<p><b>(2) Process proposed and background:</b> CSIR will be overseeing the work of clinical trials and co-financing it. Hence, the CSIR will be sharing the R&amp;D risks with the GEF, in view of generating, through partnerships, tangible global biodiversity benefits. Given the past results from R&amp;D, partners believe that the prospects of developing a viable commercial product are promising, in particular in the form of a HMP. The work of overseeing the clinical trials will be done in collaboration of the THC.</p> <p>Previously, CSIR and the THC had entered into several agreements and the CSIR has in fact conducted extensive R&amp;D activities on African ginger. This led to the identification of several biochemical metabolites, expressed in this indigenous plant species, substances that are responsible for the anti-asthmatic and anti-inflammatory properties.</p> <p>Genetic fingerprinting of the species was undertaken through previous R&amp;D to aid quality assurance and to prevent possible confusion with related species. The mentioned research conducted scientific studies and demonstrated the beneficial properties of the plant extract in the improvement of the symptomatology associated with allergic and inflammatory diseases. The research also provided scientific evidence substantiating its traditional use and potential inclusion in complementary medicinal products.</p> <p>The intellectual property was produced through the research and development and later protected through a patent system as a potential agent for the treatment of inflammatory and allergic diseases such as asthma.</p>
<p><b>(3) What GEF funds will add to the process:</b> On the backdrop of the above-described robust R&amp;D baseline, the focused contribution of the GEF project is expected to facilitate three important shifts:</p> <p><b>First,</b> the CSIR and the THC will reach a more comprehensive benefit sharing agreement regarding African ginger and the proposed use. They will do that in the framework of more current legislation, namely the</p>

<sup>37</sup>Republic of South Africa (2016): The Medicines Control Council of South Africa: Registration of Medicines, Guidelines (CMs DS Safety & Efficacy), Complementary Medicines - Discipline-Specific Safety and Efficacy, version 3, June 2016 (7.01\_CM\_S\_E\_DS\_Jun16\_v3.doc). Accessed on 14 Feb 2018. [\[Link\]](#)

South African legislation, National Environmental Management: Biodiversity Act 2004, Bioprospecting, Access and Benefit Sharing, 2008. This, in and on itself, represents a **tangible ABS compliance benefit**.

**Second**, the Southern African variants of the species *Siphonochilus aethiopicus* (African ginger), will be part a more a formal and nationally branded value chain, aimed at sustainably producing and trading a commercially viable HMP, with all due controls as required by national regulations the licensing and registration of such products in South Africa. In due course, this will may lead to new partnerships, that will build on the hopefully successful outcome of clinical trials and product registration.

The GEF project will help overcome specific barriers to that effect. The benefit that may generated will likely be much more significant.

**Thirdly**, the above aspect is linked to the species conservation status and this is important in the context of GEF project. Currently, African ginger is already being used and traded in South Africa within the informal market for traditional medicines. In spite of the best intentions by organizations such as the THC, they acknowledged (e.g. in PPG event) that, without the typical ‘surveillance’ and ‘controls’ that the product would be imposed in compliance / formal markets, the high demand for the plant’s roots in home-made remedies has effectively resulted in the plant being red-listed as Critically Endangered where it occurs in Southern Africa. The Healer’s Council would like to ‘turn this stark reality around’, working with DEA, the scientific community through CSIR and possibly ARC, when it comes to extension services for cultivation.

These efforts, are also proposed supported by the GEF project through Output(s?) XXXX as a way to address the threats to the species *Siphonochilus aethiopicus*.

More specifically, it can be expected that, **along with the product registration at the MCCZA, other requirements on sustainability at the landscape level also apply, namely of Good Agricultural and Collection Practices (GACP).**

The applicable MCCZA 2016 Guidelines on HMPs state the following:

*“Compliance with Good Manufacturing Practice (GMP), Good Laboratory Practice (GLP) and Good Agricultural and Collection Practices (GACP) All manufacturers of complementary medicines shall comply with all relevant aspects of Good Manufacturing Practice as outlined in the latest version of the MCC’s “Guide to Good Manufacturing Practice for Medicines in South Africa” and Good Laboratory Practice, as well as the WHO Guidelines on Good Agricultural and Collection Practices (GACP) for Medicinal Plants, if applicable. Any alternative standards must be specified, referenced and justified.”*

**The above creates a “good lever” for conservation and sustainable practices on the management of *Siphonochilus aethiopicus* within its South African habitats** – as well as the envisaged transition to cultivation, which according to DEA and SANBI specialists, is what is needed for addressing the

Finally, Additional and R&D – not related to clinical trials – also needs to be undertaken in order to establish thresholds for sustainable harvesting and further pathways towards sustainable cultivation and for refining the mechanism that will ensure the sustainable supply of the species to the industry.

#### 4) The Context of the Bioprospecting in Northern Cape Province

The Northern Cape Province (NC) is South Africa's largest, driest and least populated Province. The Province is home to many poor rural communities and has significant economic development challenges. Various community businesses, NGO and private sector bioprospecting activities are already operating in the Province in production organization modes that can be generally characterized as '**community businesses**', comprising project-based wild harvesting, cultivation and trading of bio-products. These NC community businesses face various challenges, across their value chains, which require research, development, technology transfer and related innovation interventions.

The three, key species (other than Rooibos) that are commonly used in projects by community business are: Devil's Claw (*Harpagophytum procumbens*); Kanna (or Kougoed, *Sceletium tortuosum*) and Cancer Bush (*Sutherlandia frutescens*). (See Picture 2). These species occur widely across several bioregions of southern Africa, and specifically the NC. Devil's Claw, Kanna and Cancer Bush are complimentary species from a production perspective. Whereas Devil's Claw is a slow grower that takes up to 5 years to mature, Kanna and Cancer Bush can be harvested earlier enabling earlier project cash flow.

Other species harvested on an *ad hoc* basis in the Northern Cape include Elands Boontjie (*Elephantorrhiza elephantina*) and Tsamma (*Citrullus lanatus*). Other potential species mentioned by experts interviewed by the PPG Team include Kooigoed (*Helichrysum petiolare*), Bulbine (*Bulbine frutescence*) and Kraalbos (*Galenia africana*).

**Challenges and Sites.** Community projects in the Northern Cape typically comprise land reform and farm projects of multiples of 1000 hectares in size, in remote areas. The projects are located between 200 km - 500 km from the nearest urban centres. Harvesting is mostly from wild plants and is done in an ad hoc, often in the absence of sustainable harvesting plans. Cultivation does exist but is limited. Achieving scale through cultivation and improved community business viability through bioprocessing faces several different challenges in the form of cultivation material, knowhow, and technology and market access. (See additional justification in Box 10).

Currently, most community projects perform their own quality control, and conduct their own processing. Phyto-sanitary processes and clinical trials require a level of technological sophistication and know-how that are currently inaccessible to most of the community businesses that engage in the Northern Cape bioprospecting value chain. (See more information on the context in Box 11 further down).

##### **Box 10. (new) Background: The value added of a RDI hub in the Northern Cape**

ADDITIONAL EXPLANATION IN CONNECTION WITH THE FEBRUARY 2018 RE-SUBMISSION OF THE PRODOC	
<b>The Output justification is strengthened by additional content covering three important aspects:</b>	
<b>(1) A strong baseline for the hub</b>	
<b>(2) What the GEF project will help realize in the Northern Cape regarding R&amp;D</b>	
<b>(3) A token of government commitment</b>	
<b>(1) A strong baseline supports the "Northern Cape Bioprospecting RDI Hub regarding 'Research, Development and Innovation Hub in bioproducts'.</b> The GEF investment that is proposed made in a government-owned facility. In the baseline, this facility functions mostly as an 'agronomic' small center, with some R&D activities being implemented, primarily focused on seeds' improvement. The facility simply lacks the mandate, the appropriate equipment, the specialized human resources and access to technical capacity embedded in a strong parent institution. Most importantly, it the center lacks the ability to network and to function as a hub that can produce results in the field of bioprospecting.	
<b>(2) What the GEF project will help realize in the Northern Cape regarding R&amp;D.</b> With the investment by both GEF and government, the facility will become much more focused on R&D linked to plants' genetic resources. It is expected to prime innovation and service provision to a surrounding community of both users and providers of genetic resources and with. All of these elements will be boosted for focusing on R&D. It will represent a 'qualitative leap forward' for the current Upington facility, namely to be transformed into a new ' <b>Research, Development and Innovation (RDI) Hub for Bioproducts in the Northern Cape</b> '.	



**(3) A token of government commitment.** Regarding government the co-financing, it should be noted that the ARC has committed to \$1,415,110.96 in co-financing and DEA has committed \$30,387,060.53.

### **Box 11. Background: Bio-trading of in the Northern Cape**

#### **About key uses in promising value-chains:**

- **Devil's Claw** secondary root tubers are harvested (and the primary root is saved for replanting) by hand. The root tubers contain approximately 1.2% harpagoside, an anti-inflammatory substance<sup>1</sup>. The plant has been used for centuries by the Khoisan people of southern Africa to treat diverse health disorders, including fever, diabetes, hypertension, and various blood related diseases<sup>2,3</sup>.
- **Kanna** leaves contains approximately 1–1.5% alkaloids include mesembrine, mesembrenone, mesembrenol and tortuosamine. These alkaloids are believed to elevate mood and decrease anxiety, stress and tension. <sup>[a]</sup>
- The leaves of **Cancer Bush** have traditionally been used as a remedy to treat fever, chicken pox, flu, rheumatism, hemorrhoids, diarrhea, and stomach and liver problems, and symptoms of cancer, however, its efficacy has not been scientifically proven. <sup>[b], [c]</sup>

#### **Key contextual issues regarding the Case of Bioprospecting in Northern Cape**

A market for complimentary medicines health food supplements, cosmetics & personal care products, teas, and veterinary products containing extracts and material of these three species these exist. These products are freely available in South Africa through retailers such as Clicks and various online retailers such as takealot.com and other direct sellers. The products are also sold in Europe and other parts of the world. However, the current market seems small as a result of limited supply, limited producers, little product development and competition from substitute products. The Southern African market size for Devil's Claw tuber is estimated to be between US\$1 million – US\$20 million per year, with Namibia producing nearly 80%.

Devil's Claw, Kanna, Cancer Bush and other species lend themselves well to community-project and similar production projects and activities. These species occur in the wild and can also be cultivated in remote areas of the Northern Cape, to be harvested on a regular basis (March to October) as cash crops. In addition, on-site agro processing can be done, enabling the community projects to add value to the raw material whilst also reducing transport costs to market. These species thus hold both job creation and small business ownership potential.

The value chain for Devil's Claw is segmented into 4 parts: **Harvesting; Quality Control; Processing and Distribution**<sup>[d]</sup>:

(1) Harvesting is predominantly from wild plants, but cultivation activities also exist. Harvesting is labour intensive – with a yield of 16 kg fresh tuber (yielding 2 kg dried material) for three hours of digging. Men generally dig using sticks and spades while women mainly use sticks only and dig less deep. Thereafter tubers are washed and sliced (with knives) in 5mm thick slices, and placing on shade nets to dry for 3-5 days. The dried slices are packed into 25kg bags (by weight). At this point, the dried material may be sold to bio-processors, unless bio-processing is done by the community or farmers themselves.

(2) A quality control process then happens at a suitable site for handling, storage, repacking and quality control activities. Different markets would have unique quality standards. General there are two grades (1 and 2) and they are tested for harpagoside concentration. Traceability is crucial aspect of the quality control process, and thus Grade 1 material are marketed with batch numbers, quality specifications, year of harvest and batch numbers. This number is used on purchase sheets to ensure the continuation of traceable material through the supply chain. A quality control report is prepared for each batch.

(3) From there the material proceeds to processing, which may take the form of extract manufacturing, tea manufacturing, tincture and pill manufacturing and veterinary herbal medicine manufacturing. Extracts may be further value added by blending into other products.

(4) The final value chain segment is distribution and retailing. This is done through traditional wholesale and retail activities as well as direct online sales. The value chains for Kanna and Cancer Bush has a similar structure with the major difference being the method of harvesting. As the leaves of these two species are used, harvesting can be done much sooner in the plant life cycle and harvesting is less laborious.

Sources:

- [a] Harvey, A. L.; Young, L. C.; Viljoen, A. M.; Gericke, N. P. (2011). Pharmacological Actions of the South African Medicinal and Functional Food Plant *Sceletium tortuosum* and its Principal Alkaloids. *Journal of Ethnopharmacology*. 137 (3): 1124–1129.
- [b] Ojewole, JA (2004). "Analgesic antiinflammatory and hypoglycemic effects of *Sutherlandia frutescens* R. BR. (variety *Incana* E. MEY.) Fabaceae shoot aqueous extract". *Methods and Findings in Experimental and Clinical Pharmacology*. 26 (6): 409–16.
- [c] Johnson, Q; Syce, J; Nell, H; Rudeen, K; Folk, WR (2007). "A randomized, double-blind, placebo-controlled trial of *Lessertia frutescens* in healthy adults". *PLoS Clinical Trials*. 2 (4): e16.
- [d] Beckett, K; Lombard, C. (2008). Value Chain Specialist Component (CRIA SA-DC / PhytoTrade Africa) of the Indigenous Natural Products: Producer and Processor Organisations Sub-Activity. Millennium Challenge Corporation. [\[online\]](#).

**Picture 2. Priority species targeted for the development of bioprospecting in the Northern Cape**



Several challenges exist in commercialisation of Devil's Claw, Kanna and Cancer Bush, and these are spread across the value chain. On the supply side, the challenge lies in supplying the existing niche markets with a reliable, high quality product of sufficient quantities and at an acceptable profit level for the harvesters and processors.

--oOo--

## 5) The Context of *Pelargonium* Management Plan

*Pelargonium sidoides* is endemic to Lesotho and South Africa. The species is an evergreen herb with aromatic, maroon flower and long stalked heart shaped leaves (Roberts 2000). The species is widely distributed at a range of altitudes throughout South Africa found in the provinces of North West, Eastern Cape, Free State, Western Cape, Mpumalanga and the southern parts of Gauteng.

The leaves, tuber and roots are used to make a variety of tonics and beverages. The leaves are drunk like tea and the root contains essential oils, vitamins, amino acids, minerals and phyto-chemicals. Interest in *P. sidoides* has been steadily growing due to its commercial use and its potential as a source of income for rural communities both in South Africa and in Lesotho. The use of this plant also has strong relevance to access and benefit sharing as well as the customary rights of local and indigenous communities to use and manage collection areas.

Traditionally, the species has been used to treat flu, coughs, colds and chest un-comfort (Roberts 2000). The tuber is used to treat dysentery and diarrhoea and the root has been shown to have anti-bacterial, anti-viral and expectorant properties. The species is listed as Least Concern on the South African Red Data List. Although there is significant harvesting pressure on the species, its abundance together with large distributional range and re-sprouting ability after harvest, maintains the species at suitable levels.

The species is used in the pharmaceutical industry both locally and internationally for the production of phyto-medicine. Studies conducted in the Eastern Cape and Lesotho have shown the wild harvested plant can be sold between R2 and R4 per kilogram of wet harvested material (van Niekerk and Wynberg 2012). There are great uncertainties of the total traded volumes, however it was estimated that between 2001 and 2003, 9 000kg to 45 000kg (wet) was wild harvested in SA.

*P. sidoides* is included in a range of commercially produced pharmaceuticals. A specific example is Umckaloabo, a treatment for bronchitis that has increased revenues ten-fold between 2001 and 2006 becoming a top selling plant based remedy in Germany (Brendler and Van Wyk 2008, van Niekerk and Wynberg 2012). This resulted in large scale commercial wild harvesting over the same period. A study conducted by DEA (2014) showed that 7% (40) of 549 products sampled contained this indigenous plant resource. These all fell within the complementary medicines category, focused on assistance with colds, cough booster, fighting infection, bronchitis, sinus, tonsils, sore throat, allergies and as a vitamin for children.

**Challenges.** The extractive use of the species required the development of a Biodiversity Management Plan (BMP) as specified in the National Environmental Management: Biodiversity Act (NEMBA) (Act No. 10 of 2004). The aim of the BMP is to ensure the long-term survival of the species in the wild, and making sure that the livelihoods of stakeholders are respected.

Recommendations have been made to ensure control of wild harvesting towards minimising impacts and making provision for restoration and avoiding long-term depredation of the associated landscapes.

It is proposed that sustainable management practices will be developed and endorsed through the *Pelargonium* Working Group (PWG) and ultimately formalised through this BMP-S (in terms of the NEMBA) as legally binding conditionalities on stakeholders for continued harvesting and trade.

The purpose of the PWG is to implement the objectives of the BMP. Currently, the PWG is financially under-supported in several key implementation tasks.

**ADDITIONAL EXPLANATION IN CONNECTION WITH THE MARCH 2018 RE-SUBMISSION OF THE PRODOC**

**The Output justification is strengthened by additional background analysis:**

**The ultimate objective of output 2.1** is to address threats to the species *Pelargonium sidoides*, more specifically, and biodiversity more generally, within the 'Pelargonium landscape'. The project will do so

Preparing and implementing a new Biodiversity Management Plan (BMP) for the Pelargonium landscape is an important means to it.

Harvesting of wild populations of *P. sidoides* is fuelled by demand from the pharmaceutical industry, both locally and internationally, and for manufacturing herbal medicinal products, in which the rootstocks (or lignotubers) are used in different preparations. The raw materials for the industry are mainly obtained from wild populations. Cultivation faces challenges, namely that it takes several years for plants to generate mature tubers with the desirable commercial characteristics.

Additionally, *P. sidoides* is also used in the traditional remedies, but the value chains that supply the informal traditional medicine market are not well studied.

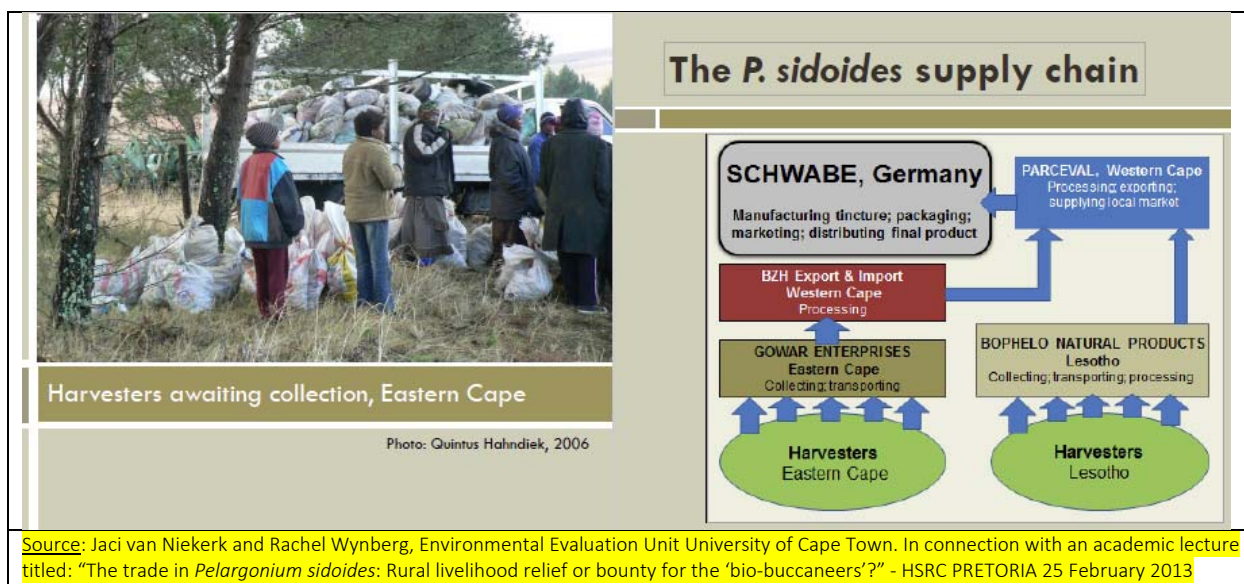
More equitable terms of trade for harvesters, including through industry compliance with bioprospecting permit conditions as required by South Africa's Bioprospecting, Access and Benefit Sharing regulations (BABS), are also an equally important aspect of Output 2.1, not only as way of sharing benefits in an inclusive and socially ethical way, but also as a means of advancing towards sustainability in the harvesting practices and greater supply security, as follows:

Once permits are issued and permit conditions are adhered to, trade information, including traded volumes, trade routes, resource origin, product development and beneficiation will become available. Facilitating BABS compliance is part and parcel of implementing the BMP.

Understanding the stakes at the landscape level with respect to the supplies of *P. sidoides*' raw materials will also enable value chain stakeholders to work together to seek solutions for common problems regarding supplies perhaps also price (see the stakes illustrated below).

**Figure 16. (new) Brief History and stark reality of the *P. sidoides* supply chain**

Brief history of commercialisation	The <i>P. sidoides</i> supply chain
 <ul style="list-style-type: none"> <li>□ <b>1987</b> Schwabe Group buys stake in ISO-Arzneimittel, R&amp;D</li> <li>□ <b>2008</b> – 'No 1 for colds' in Europe</li> <li>□ Schwabe <b>rolling out</b> the product in USA, South America, Eastern Europe</li> </ul>	<ul style="list-style-type: none"> <li>□ Sourcing from southern Africa ≈ <b>1989</b></li> <li>□ Mostly <b>wild-harvested</b></li> <li>□ <b>Harvesters:</b> poor, rural Eastern Cape and Lesotho</li> <li>□ <b>R2 - R4</b> per kilogram</li> <li>□ <b>Volumes:</b> 26 – 440 tonnes/annum</li> <li>□ <b>Moratorium:</b> 2007 – 2010 <ul style="list-style-type: none"> <li>■ Illegal harvesting</li> <li>■ Industry moved to Lesotho</li> </ul> </li> </ul>



By citing technical sources, the 2011 Official Biodiversity Management Plan for *Pelargonium Sidoides*<sup>38</sup> indicates that, currently, the greatest threat to the species, is not the harvesting of its rootstocks (or lignotubers), but rather habitat transformation and degradation. Historically, the loss of populations due to changes in land uses, and hence habitat transformation as a result of urban development and agriculture, has occurred in most of the sites where *P. sidoides* once occurred (e.g. in Gauteng Province as well as at many sites in the Free State).

However, unless it is sustainably managed within a landscape level approach, localized overharvesting has a detrimental effect on the species. In such local settings, the threat to the species has been fueled by a high and cumulative demand for plant raw material, coupled with a situation where the prices practiced at the landscape level have remained low for several years. Consequently, the value captured by harvesters have also remained low. It is assumed that the harvest is unsustainable because harvesters claim that plant resources are becoming increasingly rare across the landscape, requiring their harvesting efforts to be intensified.

In fact, within a fairly large landscape, which is the case of that of *P. sidoides* – resource rents tend to be low. The value chain in question will display dynamics that are typical of nature-based economies, within which economic actors seek to maximize their profits through scale and by increasing yields. From a conservation point of view, these dynamics result in threats to the resource stock, and ultimately, to the survival of the species.

The project will address these challenges by assisting DEA, DEDEAT and DESTEA (entities that constitute the *Pelargonium* Working Group) in implementing the *Pelargonium S.* Biodiversity Management Plan.

Above all, a much more effective and sustainable administration of the *Pelargonium* Working Group (PWG) with clear standards for the management of *Pelargonium* landscapes.

The updated BMP, will lead to the implementation of sustainable management practices for wild populations of *Pelargonium sidoides*. For the stated objectives of the BMP are refer to [further up](#).

**Further to the above, which constituted part of the response to the GEF Secretariat's comment on Output 2.1, a new Box was included in in the PRODOC with the following summary content and in view of strengthening the justification for the Output. It covers, covering three important aspects:**

<sup>38</sup>RSA Government Gazette, Vol. 553 Pretoria, 29 July 2011 No. 34487: Department of Environmental Affairs, 501 National Environmental Management: Biodiversity Act (10/2004): Draft Biodiversity Management Plan for *Pelargonium Sidoides*.

(1) Additional background on suppliers and buyers in the proposed ABS agreements on *Pelargonium sidoides*

(2) Tangible and measurable results on the ground

(3) How GEF support will help change current practices

*Refer to:*

**Box 12. (new) Additional background on Sustainable Production and Primary Handling of *Pelargonium sidoides*.**

In [Annex X-3, under Component 2, Output 2.1](#))

*[The implementation of the Pelargonium Biodiversity Management Plan (BMP) is supported in close collaboration between the Pelargonium Working Group, community businesses and CSO stakeholders].*

--oOo--

## **6) The Context of *Aloe ferox* harvesting**

*Aloe ferox* is the second most commercially utilized indigenous plant in South Africa (after Rooibos), with bitters and aloe gels extracted from the leaves of the plants and utilized in cosmetics, hygiene products, manufactured food products, and as complementary medicines.

*Aloe ferox* is a shallow rooted, long-lived succulent plant species that is characterised by its tree-like shape. The plant has typically a single stem which is clothed in a persistent skirt of dry leaves, and can reach heights greater than 2m. On the main stem of *A. ferox* are rosettes of succulent leaves which form the basis for a thriving *A. ferox* industry in South Africa. The species is indigenous to southern Africa, occurring in the Free State, KwaZulu-Natal, Eastern Cape and Western Cape Provinces of the country.

The *A. ferox* industry provides significant socio-economic benefits to South Africa, including benefits to poor individuals who derive an income from harvesting of the plants. The industry also supports a range of businesses in the country, producing *A. ferox* products for the local and international market. The bulk of commercially harvested *A. ferox* is however for the export market, with very little secondary or tertiary processing in South Africa.

**It is estimated that 95 % of *A. ferox* is wild-harvested from the Western and Eastern Cape.** The harvest regime in the Eastern and Western Cape differ significantly, in that the Western Cape plants are harvested on private lands, while the Eastern Cape plants are harvested on the communal lands with the agreement of the traditional leader (typically the Chief). The common method of harvesting *A. ferox* is manual leaf cutting. Eight to fifteen (or more) of the lower leaves of an adult *A. ferox* plants are harvested once a year. The leaves are cut with a sickle as close to the stem (3-4 cm) as possible.

**There are two primary means of processing the cut *A. ferox* leaves:**

- The first entails the 'draining' of the aloe exudates from the cut leaves by placing the cut leaves in a 'stack' around a plastic-lined hollow in the ground, with the cut end towards the centre of the circle. This allows the main extract from the 'tapping', the pale yellow 'bitter aloe' sap, to drain out of the leaf for collection and processing. Processing of the bitter aloe sap includes the boiling of the sap to reduce the moisture content to less than 6 %, to produce 'aloe bitters'. The aloe bitters are then traded in two forms: (i) a crystalline 'lump' concentrate (traded as aloe solid); and (ii) powdered bitters (traded as aloe powder), which is produced by grinding the crystalline aloe.
- The second entails washing and disinfecting the leaf. The bottom of the leaf is then cut off, and the leaves are left to "bleed" the aloin (this is the part of the plant known for its bitter taste and its laxative effect). After some time of leaking, the process continues by cutting off the prickly edges of the leaves and using machinery (e.g. an AGS machine) to pulp, and separate the gel from, the leaf. After the gel is removed from the plants it is filtered, homogenized, pasteurized and stabilized. Through these processes, the gel changes from a transparent colour



to a honey brown colour. The last step is then to concentrate the gel. The result is a stabilized Aloe gel which is ready for use or further processing like concentrating a liquid or making a powder.

*Aloe ferox* cultivation plantations - taking the form of crop-like plantations with *A. ferox* planted and grown in rows or in clumps - have recently been established in the Uniondale and Albertinia regions of the Western Cape. This makes it easier for the harvesters/tappers to harvest, and provides for better quality control. These commercial cultivation plantations are situated in. While trials for cultivation of the species in the Eastern Cape have been conducted in various areas, there are currently no cultivation plantations established in the province.

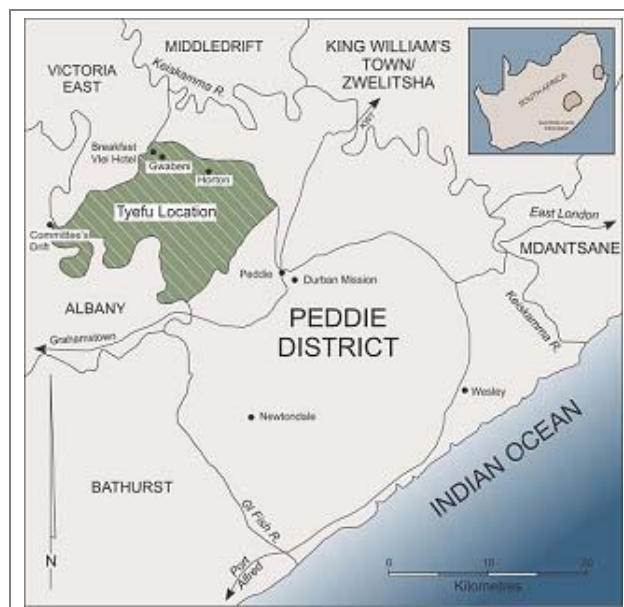
Traditional use of *A. ferox*, includes medicinal use by chewing the leaf to sooth stomach-ache. Leaves of the plant are also used to heal broken skin and wounds by applying the sap to the affected area. Knowledge of the traditional medicinal uses of *A. ferox* have been transferred and applied in the mainstream pharmaceutical and cosmetic industries, both local and internationally, and have been extensively researched. Although traditional exudate harvesting and preparation methods continue to be practised with few contemporary adjustments, the commercially processed *A. ferox* is now more commonly used in manufactured food products such as confectionary and fruit juice blends, as well in the pharmaceutical and cosmetic industries.

The profitability of the *A. ferox* industry has prompted increasing interest from government and development agencies seeking opportunities for local level enterprise development for poverty alleviation in rural areas.

**Sites.** Tyefu is communal land, situated within the municipal jurisdictional area of the Ngqushwa Local Municipality and Amathole District Municipality in the Eastern Cape (see Figure 17 below). It is bordered by the Great Fish River to the west and the Keiskamma River to the east. The Tyefu community comprises 10 villages that collectively fall under the land administration authority of the traditional leader (Chief Msutu) and Tyefu Traditional Council<sup>39</sup>.

At least 50 harvesters from the Tyefu community currently harvest leaves of the naturally abundant *A. ferox* from a communal area of approximately 50,000 ha. These harvesters typically operate as independent entrepreneurs, reportedly selling unprocessed aloe sap to local buyers for only half of the market value.

**Figure 17. Location of the Tyefu community**



<sup>39</sup> At present, the state nominally holds communal land in trust but the land rights still rest with households and communities. The function of the traditional leader in relation to land is to allocate it to households and act as an arbiter in land disputes.

This is the thumbnail [see [Annexure](#) for fully fledged figure]

**Challenges.** Key stakeholders (Tyefu Traditional Council, local harvesters, Tyefu Traditional Trust, DEA, EC DAFF, Ngqushwa LM and ASPIRE) identified the following challenges associated with *A. ferox* wild-harvesting in Tyefu:

- There is no collective capacity of harvesters and tappers to negotiate prices with the buyers of aloe sap;
- Some of the aloe terrain is very dangerous for harvesters due to steep slopes, and dense thickets make access to some aloe habitats difficult and time-consuming;
- There is no transport available to harvesters to access aloe plants located far from villages;
- There is no infrastructure available to hold and process the aloe sap collected by tappers;
- The harvesters and tappers have limited, or no, safety, harvesting, storage and communications equipment;
- There are limited skills in, and knowledge of, sustainable aloe harvesting practices (such as the SABS Aloe raw material standards - SANS 368:2008) amongst the harvesters and tappers;
- There is very poor management of the aloe harvesting permitting system, leading to unsustainable and uncontrolled harvesting practices;
- There is insufficient income generated from the wild harvesting of aloes to sustain harvester and tapper household needs;
- The quality of aloe sap does not always meet the industry standards and requirements, leading to lower prices and income to harvesters and tappers; and
- While there are opportunities to improve the income streams for the Tyefu community from aloe-derived products, these remain completely undeveloped due to a lack of capital investment and technical support.

**Picture 3. The *Aloe ferox* plant with initial bioprocessing – pictures taken during PPG site visit**





This is the thumbnail [see [Annexure](#) for fully fledged pictures]

## 7) The Context of Honeybush species transition to cultivation

**Honeybush** is the generic name for several species of the genus *Cyclopia*, which encompasses 20 species of flowering plants in the legume family, Fabaceae, subfamily Faboideae.

There are six species of *Cyclopia* that have commercial value. Three main species currently make up the commercial honeybush industry. These include *Cyclopia genistoides*, *Cyclopia subternata* and *Cyclopia intermedia* of which all have varied climatic and growth requirements (Hobson and Joubert 2011). These *Cyclopia* species are woody shrubs that grow approximately one meter tall. The leaves are needle like with small yellow flowers (van der Walt 2000). These species grow along the mountainous regions spreading from the Eastern Cape to Western Cape covering a sporadic distributional area of approximately 30 000 Ha.

Of all honeybush processed in 2011, 70% is harvested in the wild while 30% is cultivated (Hobson and Joubert 2011). In 2011 the 30% cultivated was done so by 10 commercial farmers and 2 community owned farms. The 70% wild harvested was done so by 150 wild harvesters. In 2016 an average of 90% was wild harvested (McGregor 2016) from approximately 100-150 harvesters. It must be noted that *C. genistoides* is no longer wild harvested (McGregor 2017). All wild harvested honeybush comes from within the 30 000Ha distributional range. In 2011, it was estimated that 245 tons and 105 tons were harvested by wild and commercially respectively (Hobson and Joubert 2011). In 2016 an estimated 732 tons was harvested, of which the bulk remained from wild harvested sources (McGregor 2016).

The species is listed as Least Concern (LC) on the Red Data Species List, although it is being seen to be declining in the wild. The Red List of South African Plants indicates the following conservation status of commercially valuable species of the genus *Cyclopia* spp:

- *C. intermedia*- Declining;
- *C. subternata*- Declining;
- *C. genistoides*- Near Threatened;
- *C. maculate*- Near Threatened;
- *C. plicata*- Endangered; and
- *C. sessiliflora*- Near Threatened.

The processing stages of the *Cyclopia* species include the following:

- Primary processing: (i) Harvesting; (ii) Cutting; (iii) Fermenting (at high temperatures); and (iv) Drying.
- Secondary processing: Transported to facility for further pasteurisation, improvement of quality and processing.

**Sites and Challenges.** There are currently (2016) six processing plants in operation (McGregor 2016). Honeybush Natural Products is the largest processing plant (90% wild harvest) and it is in the Cape region. The primary wet product is sold to factories at R10-R12 per wet kg (McGregor 2016). The honeybush market, although relatively new, has potential for growth. There is currently a growing demand for the products internationally (McGregor 2017). It has been predicted that the 'plant based water flavourant' market will double by 2020 (Arthur 2017).

Recent studies on the cultivation extent of *Cyclopia* species indicate that 16ha and 131ha are cultivated in the Eastern and Western Cape respectively (SAHTA 2016). This relatively low cultivation extent provides for a tremendous opportunity to focus on community development and access and benefit sharing whilst developing the industry in South Africa. Despite the opportunity, barriers to entry of the honeybush exist and include:

- **High costs of establishment.** A study done by Kaiser and Associates (in 2010) showed that the cost of establishing a hectare of honeybush ranges between R10 000 and R20 000 with yields varying between 3 and 15 tons per hectare. They noted that this was significantly higher than rooibos yields. A more recent study done by Bester (2016) showed that through domestication efforts on the various species by the ARC show yields of up to 10 tons/ha. McGregor (2016) however, showed that the yield of cultivated honeybush is extremely variable, depending on the intensity of cultivation and the local climate, posing possible risks to success. Furthermore, there are high costs involved in administrative fees. The formal assessment of a honeybush tea stand on a farm can cost up to R 15000 as a minimum. For many prospective honeybush farmers this is not financially feasible compared to the amount of tea they will farm and thus prevents their entry into the industry. Transport of the harvested tea by previously disadvantaged groups is also a major issue as they do not have transport. The hire of transport is a large proportion of potential income generated.
- **Lack of land ownership:** Opportunities in the sector is limited to the landowners, factory owners and various other stages further along in the value chain. To illustrate, the unprocessed tea is worth R 11/kg whereas processed bagged tea sells for up to R 300/kg. Furthermore, the wet harvested product is sold to factories at R10-R12 per wet kg (McGregor 2017). Much of this goes to the landowner; a smaller proportion to the harvest manager and the income potential for wild harvesters sits at only R1.50 to R3.50 (15%-30%) per kg. There is an opportunity here for community growth through firstly the harvesting but more importantly the ownership of areas where the species occur or are cultivated.
- **Accreditation barriers to harvesters:** Accreditation requirements for harvesters have created barriers in the sense that if a harvester is not accredited he/she will not be hired. Farmers employ harvesters who they know and trust to harvest sustainably and thus new growth of harvesters into the industry is limited.
- **Gender/youth concerns:** Firstly, harvesting is done predominantly by men. Secondly, younger individuals will not be sent to harvest tea by parents as in the long term it does not provide sufficient income to survive. Some youths are employed as harvesters.

## 8) The Flagship Context of Rooibos

Rooibos tea is made from the *Aspalathus* species, which are traded locally and internationally. The *A. linearis* shrub reaches up to 2 metres in height with needle-like leaves reaching 15-60mm in length with solitary or densely grouped yellow flowers at the tip of branches (Govender, 2007). This species is endemic to the winter rainfall fynbos region of southern South Africa.

Rooibos tea has become a popular herbal tea, locally and internationally. The anti-oxidant, anti-ageing and anti-eczema benefits of the tea have contributed to its growing reputation (DEA 2014). Rooibos tea is currently exported to more than 37 countries, with Germany, The Netherlands, UK, Japan, and the USA representing 86% of the export market (in 2010) (Street and Prinsloo, 2013). The Rooibos industry is valued at around R 500 million/ year, creating approximately 8 000 jobs for farm labourers alone (DAFF 2015). In 2014, 12,500 tons of Rooibos was produced in South Africa, of which 4 500- 5 500 tons were consumed in the country with the rest being exported (SARC Fact Sheet). Many employees at farm level earn a minimum wage of R2778.83 per month (or R128.26 per day) (Kaiser and Associates 2017).

*Aspalanthus linearis* is both farmed and harvested from the wild with less than 1% being wild harvested (Waarts and Kuit, 2008) and the majority being cultivated (Street and Prinsloo, 2013). In 2010, there were 350 to 550 rooibos farmers in South Africa, cultivating approximately 36 000 hectares of rooibos (Street and Prinsloo, 2013). The harvesting is done in an environmentally sound manner, only cutting the young branches. Young plants are topped to a height of 30cm after 8 months to stimulate branching. However, cutting of the crop only begins 3 years after planting. The *A. linearis* plant has a 5-year cycle, being harvested 3 - 4 times per cycle to yield 300 - 600 kg/ha wet mass (Kaiser Associates, 2010).

**The rooibos value chain** after production has four main processes, namely:

- First: changing the wet unfermented tea into red brown tea. The cut leaves are transported to a process yard where it is finely chopped and bruised to release the chemicals which characterise the colour and flavour of rooibos tea (Govender, 2007). Non-fermented tea is also available and is known as green rooibos, where more antioxidants are preserved. Processing of the harvested material, through fermenting and drying, results in a 3:1 loss of weight, with an average dry yield per hectare being about 300 kg.
- Second: pasteurisation, sieving, dust extraction at processing plant.
- Third: in-house packing and retail contract packing.
- Value adding: This is done through manufacturing and developing into related products (e.g. instant teas, nutraceutical extracts, ice teas, cosmetics).

Eight large processors dominate the secondary processing of rooibos responsible for an estimated 90% of the market (Kaizer Associates 2010). These include Rooibos Limited, Khoisan Tea, Coetzee & Coetzee, Cape Natural Tea Products (CNTP), King's Products, Red T Company, Big Five Rooibos Company, and Maskam Redbush.

The market leader in this value chain, Rooibos Ltd, is retaining the largest share of both the local and international markets (90% and 60% respectively). In 2010, it was estimated that approximately 12,000 tonnes of rooibos were produced from the Western Cape (Kaiser Associates, 2010). In 2006, an average of between 65% and 70% of annual rooibos production is exported to European countries (WESGRO 2006).

Rooibos has value-added properties including extracts, instant powders and flavourings, with extracts being intermediate products used in industrial food ingredients (e.g. flavourants); in cosmetics and natural health products. There are three different types of extracts that can be produced from rooibos (Kaiser Associates, 2010):

1. Spray-dried powder extract (beverages and functional foods);
2. Freeze-dried extract (cosmetics and supplements); and
3. Aroma extract (flavoured beverages).

The four manufacturing companies specialised in these products include Afriplex, Afrinaturals, Brenn-O-Kem and Rooibos Ltd (Kaiser Associates 2010). Afriplex is the largest manufacture of rooibos extract, producing 20 to 30 tonnes of extract per year. Afrinaturals and Brenn-O-Kem trade in smaller quantities of extracts, while Rooibos Ltd is the only company to have an extract facility dedicated to Rooibos extract (Kaiser Associates, 2010). Rooibos extracts were sold in 2010 for ZAR 400/kg – ZAR 600/kg. Contract manufacturers of rooibos products tend to be multi-level service providers providing services such as R&D, raw material sourcing, formulation, manufacturing and packaging for a range of brands (Kaiser Associates, 2010).

**Challenges.** The rooibos industry has received much controversy relating to equity and justice of the use of the plant with relation to the actual resource as well as traditional use and traditional knowledge holders. There have been accusations of the misappropriation and patenting of the genetic resource without consent. The San and Khoi communities claim to be the primary holders of Traditional Knowledge relating to rooibos (Wynberg 2016). The results of the commercialization of the species however, have failed to provide appropriate benefit sharing to the associated communities. Furthermore, regardless of their involvement in fair trade, small-scale rooibos enterprises remain on the sideline of the industry (Wynberg 2016).

The Bioprospecting Access and Benefit Sharing (BABS) regulations, as included in NEMBA, requires the Rooibos industry to enter ABS agreements with those parties who claim TK on the use of Rooibos. These agreements can include monetary and non-monetary benefits.

Presently, the primary TK holders are in negotiation with the South African Rooibos Council (SARC) to determine the amount of royalties to be paid.

## 9) The Project's Baseline Finance Assessment

The project's financial baseline can be summarized:

**Table 14. Summary Baseline Investment**

# + table notes	Baseline Investment (\$ Millions rounded off)	Duration	Comp 1 (\$M)	Comp 2 (\$M)	Comp 3 (\$M)	TOTAL (\$M)	Cofinancing from baseline
1	Department of Environmental Affairs (DEA)	3 years plus projected over the remainder period	\$36.30	\$87.00	\$21.80	\$145.00	30.39
2	South African National Biodiversity Institute (SANBI)	5 years	\$0	\$0	\$0.51	\$0.51	0.51
3	Department of Science and Technology (DST)	3 years	\$8.00	\$0.00	\$8.00	\$16.00	0.77
4	Council for Scientific and Industrial Research (CSIR)	4 years, projected	\$2.78	\$0.00	\$0.00	\$2.78	2.78
5	Agricultural Research Council (ARC)	5 years, estimated	\$15	\$0	\$0.00	\$15.00	1.42
6	Private Sector / Communities / Academia	5 Years	\$125.00	\$125.00	\$125.00	\$375.00	0
7	Bilateral donors	5 Years			\$5.00	\$5.00	0
8	Civil Society	5 Years		\$0.50		\$0.50	0
	<b>TOTAL</b>	<b>Overall, from 2017/8 till 2023</b>	<b>\$187.08</b>	<b>\$212.50</b>	<b>\$160.31</b>	<b>\$559.79</b>	<b>\$35.87</b>

<b>Notes on the Financial Baseline in the above table</b>	
<b>All lines</b>	Amounts were discounted for currency devaluation and considered the current rate of 13 ZAR to 1 USD.
1	<b>DEA's baseline finance</b> assessment was based on the most recent national expenditure estimates by Treasury. <sup>40</sup> The assessment considered the following as relevant baseline: DEA's own expenditure dedicated to 'Biodiversity and Conservation' more broadly and to the 'Bioprospecting economy and Sustainable Use Program' more specifically. The details of the assessment are captured in <b>Table 15. Financial Baseline Assessment for DEA relevant to the</b> for more details.
2	<b>DST's baseline finance</b> assessment combined rough amounts mentioned in DST's Bioeconomy / Biotechnology Policy, where investments of approx. \$1.5 -1.6 M per year were considered as a solid baseline investment in State-sponsored R&D that relates more closely to bioprospecting value-chains. Further to this, more precise information was also provided by DST in their letter of co-financing to the project dated August 2017. The letter mentions an amount of ZAR 10 million (\$769K equivalent). The co-financing figure, which is for the duration of the project refers to specific expenditure, identified in connection with the project consultations. It was said to represents both current expenditure (assessed at \$0.5M) and planned investments. The latter was considered as <u>leveraged co-financing</u> (\$214K), given DST's intention to focus on the following, as indicated in their letter of co-financing: <ul style="list-style-type: none"> <li>(a) Building and supporting appropriate indigenous knowledge networks in communities.</li> <li>(b) Enabling the discovery, cataloguing, capturing, validation and utilization of the national indigenous knowledge systems (IKS) heritage in an appropriate framework.</li> </ul>

<sup>40</sup> Estimates of National Expenditure 2016, Vote 27, National Treasury, Republic of South Africa, 24 February 2016

<b>Notes on the Financial Baseline in the above table</b>	
	(c) Initiating, enabling and maintaining a secure, accessible national repository for the management, dissemination, protection and promotion of IKS.
3	<b>CSIR's baseline finance</b> was derived from specific information provided in their letter of co-financing, which mentions an amount of ZAR 35.6 million (\$2.78M equivalent). The amount refers to recent investments and future expenditure. There is also a mention of access to infrastructures, research labs, research equipment, office space, telephones and other necessary support. It was assessed that 100% of CSIR's co-financing comes from baseline, given that future expenditure would have been planned anyway.
4	<b>ARC's baseline finance</b> is closely linked initiatives in experimental farming and rural extension as they relate to bioprospecting and biotrade. A more accurate calculus of this baseline for the duration of the project built on information provided by ARC in its letter of co-financing, which refers to recurrent expenditure (including time of staff to be involved in related projects and other expenses), along with planned investments, the costs of which are planned disbursed during the project implementation. Of this baseline, <b>\$1.4 million</b> contributes to the project's co-financing.
5	<b>Private Sector, Communities &amp; Academia:</b> It is difficult to assess the baseline for these other players with sufficient accuracy. Hence, an 'indirect and notional' method was devised. Of all three players mentioned, the private sector is considered the most important one from a financial point of view. According the NBES, the notional investment of the private sector in biotrade is as follows: The total revenue generated by the segment in 2013 was ZAR 580 million (approx. \$44M, at 13 ZAR to 1 USD; refer to Figure 3 for details). At a 6% annual growth rate under the NBES' BAU scenario, we reach a conservative rounded-off, discounted and deflated baseline investment of \$350-400M. For calculation purposes, a total of \$375M is considered as the baseline for Private Sector, Communities & Academia combined. Although large, the amount is very likely an understatement, because it investments in R&D are very likely of a much larger statute, but difficult to assess, given the secrecy involved in R&D and product development by private sector players.
6	<b>Bilateral donors.</b> Pool of bilateral agencies that contributed to the 2014 ABS Capacity Assessment. Computing as baseline all related projects and initiatives. Roughly assessed at \$5M for the duration of the project.
7	<b>Civil Society.</b> The financial value NGOs, CBOs and other initiatives was assessed at approx. \$0.5M per year, hence \$2.5M over 5 years.

**Table 15. Financial Baseline Assessment for DEA relevant to the Bioprospecting economy**

	<b>DEA's expenditure dedicated to Biodiversity and Conservation more broadly and to the Bioeconomy Program more specifically [1]</b>	<b>BASELINE (estimated, recent and current)</b>			<b>BASELINE (projected)</b>			
	<b>Relevance to the project</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>TOTAL</b>
	DEA's total expenditure and investments in ZAR million	6,430	6,661	6,757	6,081	4,865	3,405	34,199
	DEA's total expenditure and investments converted to USD million	495	512	520	468	374	262	2,631
<b>A</b>	<b>DEA's total expenditure and investments in USD million estimates</b> -- Applying a 5% relevance estimate to represent synergies, institutional development and implementation of supporting policies (in USD million)	25	26	26	23	19	13	<b>132</b>
	Specific expenditure dedicated to the Biodiversity Economy and Sustainable Use Program (in ZAR) [2]	67	20	21	19	17	15	159
<b>B</b>	<b>Specific expenditure dedicated to the Biodiversity Economy and Sustainable Use Program (in USD million)</b>	5.1	1.5	1.6	1.5	1.3	1.2	<b>12.2</b>
<b>C</b>	<b>DEA's pro-rata expenditure with administration in connection with the Biodiversity Economy and Sustainable Use Program</b>	0.5	0.2	0.2	0.1	0.1	0.1	<b>1.2</b>
<b>A+B+C</b>	<b>TOTAL BASELINE CONSIDERED in USD</b>	<b>31</b>	<b>28</b>	<b>28</b>	<b>25</b>	<b>20</b>	<b>14</b>	<b>145</b>

Source: Estimates of National Expenditure 2016, Vote 27, National Treasury, Republic of South Africa, 24 February 2016.

Notes:

[1] To simplify the analysis, financial year of 2016/2017 was referred to as "2017". The estimated, recent and current financial baselines were based on 2016 expenditure, while 2018 and 2019 were part of the medium-term expenditure framework (MTEF). Conversions applied were 13 ZAR to 1 USD.

[2] was 7%-10% of total budget between 2017 and 2019

## ANNEX X-3. Detailed description of project design: Outputs and Activities

**Project Objective:** To strengthen the value chains for products derived from genetic resources that contribute to the equitable sharing of benefits and the conservation of biodiversity, with a focus on bioprospecting of indigenous plant species.

### Component 1. Bioprospecting R&D

**Outcome 1.** *Research and development of products is in line with the definition of utilization of genetic resources of the Nagoya Protocol*

**Output 1.1) R&D barriers linked to clinical studies and registration of African Ginger (*Siphonochilus aethiopicus*) as a bioresource to treat inflammatory and allergic diseases are systematically overcome in an ABS-compliant manner.**

#### Background:

The strategic focus of the proposed project is to add value to the *S. aethiopicus* value chain, through technology development (clinical studies) and commercial cultivation, to demonstrate the implementation of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation of 2010 in South Africa.

The **key partners** are: Council for Scientific and Industrial Research (CSIR) and Agricultural Research Council (ARC) with support from DEA.

#### Core Activities:

GEF funding will be directed at supporting the implementation of the following:

#	Activities	Elaboration
1	Amendment of the existing CSIR-Traditional Healers Committee Benefit Sharing Agreement to include clauses in alignment with the South African Biodiversity Act	The purpose of this activity is to amend the existing benefit sharing agreement between CSIR and THC for effective equitable sharing of benefits arising from the utilisation of the THC' traditional knowledge and associated plant genetic resources through technology commercialisation, as part of the implementation of the South African legislation, National Environmental Management: Biodiversity Act 2004, Bioprospecting, Access and Benefit Sharing, 2008. The activity is expected to be completed through consultation meetings and workshops in the eight provinces of South Africa, except the Western Cape, with the current members of the THC.
2	Conduct clinical studies (clinical trials, adsorption/metabolism studies and observation studies)	As there is currently no clinical evidence of its safety and efficacy, the activity will validate the safety and efficacy of African ginger by conducting a Phase I and II Clinical study on a formulated ethanolic extract of the plant (quality control and chemical analysis completed). The clinical studies will be done in South Africa through a reputable Clinical Research Organisation. Clinical trials are expected to take approximately one year.
3	Registration as a complementary medicine	Once Activity 2 is completed, African ginger will be registered as a complimentary medicine with the Medicines Control Council of SA.
4	Market and value chain analysis for commercial development	

#	Activities	Elaboration
5	Identification of suitable sites for cultivation	Currently, a number of sites exists in Limpopo, KZN, Mpumalanga and North West, where African ginger is cultivated to varying degrees. The purpose of this activity will be to determine the feasibility of these sites in terms of potential for production by investigating soil capability and assessing the risks associated with the site.
6	Development (training, infrastructure, equipment, technical support, HR costs, marketing) of community-based agri-processing business/es to cultivate and harvest fresh rhizomes	The ARC and CSIR's Enterprise Creation for Development (ECD) unit will assist the selected site(s) from Activity 5 with the technical support in developing a community based agri-processing business to cultivate and harvest fresh rhizomes. Other co-financing sources will most likely need to be investigated i.e. AsgiSA; IDC; LRAD; IDC; DBSA; ABSA Agribusiness; and the Land Bank.

**Possible Output-level Risks or Issues to be watched and proposed Responses:**

- *Inconclusive or negative results of clinical trials:* The project will support re-testing or research into other parts of the plants and consider sustainable means of obtaining more biological material through increased cultivation with community involvement.
- *Insufficient biological material to satisfy a high demand:* The project will support re-testing or research into other parts of the plants and consider sustainable means of obtaining more biological material through increased cultivation with community involvement.
- *Permits for marketing are not obtained:* The project will support obtaining the necessary "market intelligence" to advance the positioning of products, product niches, including facilitation of Intellectual Property (IP), licensing and modification of product according to market preferences

--oOo--

**Output 1.2) Bioprospecting R&D in the Northern Cape is supported, boosting the local bioeconomy and establishing a strategically located 'Bioproducts Development Hub'.**

**Background:**

The proposed Northern Cape Bioprospecting RDI Hub (Research, Development and Innovation Hub for bioproducts) is envisaged to address the following challenges that the community projects face:

- Provide a centrally-located (Upington) and accessible centre of excellence that would support community projects in production of priority species and related bio-products,
- Develop a 3-year research, development and innovation plan for the Hub to implement,
- Provide a repository for genetic material for priority species in the Northern Cape,
- Propagate priority species and related seedlings for sale/supply for community project cultivation,
- Investigate appropriate cultivation practices that is in synergy with current wild-harvesting practices, and that conserve genetic resources and improve production – with the support of appropriate resource assessment initiatives,
- Provide know-how to communities in the form of cultivation training, harvesting plans, traceability systems, quality control, phyto-sanitary systems and other extension services where necessary,
- Provide agro-processing support services, especially with respect to product development and quality control,
- Supply material for clinical trials where required,



- Establish a commercial and marketing support service, that is aligned to the R&D mandate (e.g. establishment of a certification system).

**The Department of Rural Development and Land Reform had been implementing an Agri-Parks program across the Northern Cape.** The current facility in Upington, which is proposed to house the Hub, had been used to date to replicate such initiative. This is why the current hub has a predominantly production-focussed mandate. It was initially envisaged that this mandate would expand into a stronger commercial and marketing mandate, ideally forming the basis for a bio-prospecting cooperative. The advent of the GEF project has accelerated this process, but more importantly, it helped gear the development in another direction – namely of supporting the Hub not only to replicate the Agri-Parks initiative, but mostly to have a much stronger angle on bioprospecting and R&D.

Hence, **the strategy for this output** can be thus summarized:

**Departing from a baseline** where the current hub simply lacks the mandate, the equipment and the human resources to function as a hub that can produce results in the field of bioprospecting, the GEF investment is proposed made in a government-owned facility, with a view of changing this situation. With the project, a different type of entity will emerge, one that can be tagged as a **‘Research, Development and Innovation Hub in bioproducts’**.

**As a token of government commitment**, the ARC has availed more than \$1.4 million in co-financing to the project. Part of DEA’s co-financing, which is in excess of \$30 million, will also be dedicated to enhancing the Hub in its functions. It can be said that the project will help coalesce both GEF and government investments, enhancing the results expected.

**GEF project will help realize in the Northern Cape regarding R&D.** With GEF investment, the facility will become much more focused on R&D linked to plants’ genetic resources. It will prime innovation and service provision to a surrounding community of both users and providers of genetic resources and with. All of these elements will be boosted for focusing on R&D. It will represent a ‘qualitative leap forward’ for the current Upington facility, namely to be transformed into a new **‘Research, Development and Innovation (RDI) Hub for Bioproducts in the Northern Cape’**.

The **key partners** are: Department of Environmental Affairs (DEA), Department of Agriculture (Northern Cape)

#### **Core Activities:**

GEF funding will be directed at supporting the implementation of the following:

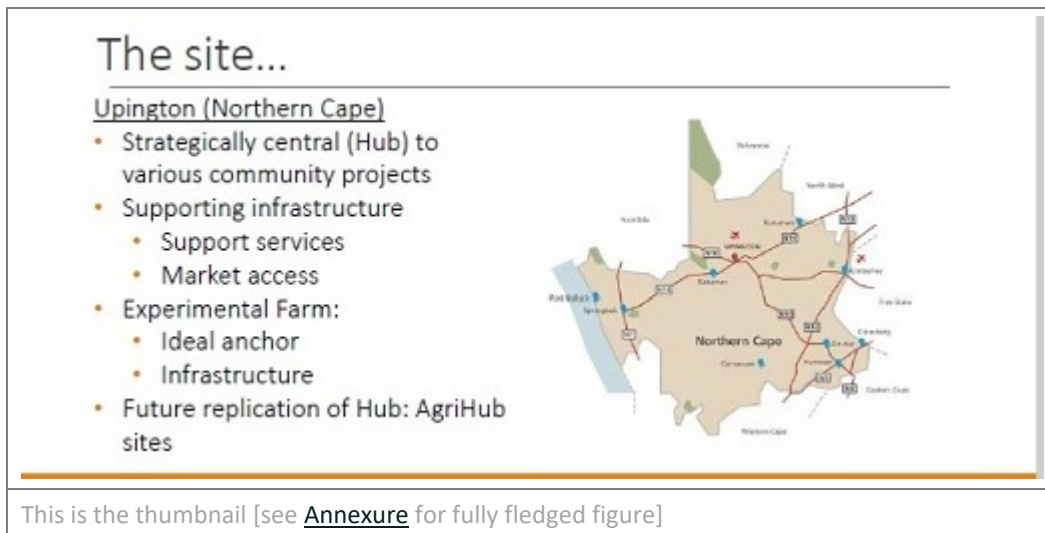
#	Activities	Elaboration
1	Obtain the requisite permits and authorizations for the establishment, of the Hub	This may include: (i) TOPS permit (if required); (ii) permits for collection of plants (iii) other.
2	Establish a Bioprospecting RDI Hub at Upington in the Northern Cape	The Hub will be located on the Eiland Experimental Farm of the Department of Agriculture, at Upington. It will be managed by the ARC and will take the form of a small commercial nursery (shadenet structure for mass propagation, mistbed, temperature-controlled tunnel for year-round propagation, hardening off facility), an accompanying field research laboratory and small office. The Hub will receive technical support from the ARC’s Roodeplaat facility.
3	Develop a 3-year research plan for a priority set of species including Devil’s Claw and at least one complimentary species that could be cultivated	The research plan should focus on cultivar, genotyping and chemotyping research; cultivation / wild-harvesting practices; micro-climate adaptability; crop risks; quality control across the value chain; and other relevant research objectives. This plan will be developed by the ARC, it will involve consultation with an appropriate industry platform, and will be overseen by the Scientific Committee of the overall project.

#	Activities	Elaboration
	in conjunction with Devil's Claw on community projects	Sustainability and ABS-compliance will be strong guiding principles that will help shape the topics
4	Implement the 3-year research plan	The implementation plan would schedule detail monthly research activities of the Hub's staf, but in addition it will actively seek collaboration opportunities with suitable academic institutions (e.g. serve as a basis for one or more post-graduate students) with a view to obtaining contributions-in-kind.
5	Develop best management practices (BMPs) for cultivation and harvesting planning (testing approaches, techniques and methodologies) for each species	The appropriate set on knowledge will be packaged (where such knowledge is already available) into a suitable format for empowering community projects. Where the knowledge is not available, research efforts will be done to generate and package such knowledge.
6	Develop best management practices (BMPs) for grading, traceability, quality control and phyto-sanitary systems for product application each species	As above.
7	Develop best management practices (BMPs) for agro-processing support and quality control for product application each species	As above.
8	Establish a simple marketing plan, limited to the establishment of a suitable website presence with a view to establish market linkages.	This is proposed to take form of an additional page on the existing ARC website, rather than a new "stand-alone" website.
9	Develop a production potential plan for the Northern Cape, with production indicators	To be done after identifying community projects, how many of them exist, distance, areas (hectares), irrigation, facilities, etc. Assessment of selected community project farms may be required before implementation.
10	Design a support service to community projects through which the various BMP's will be transferred at a regular basis.	
11	Monitor production	
12	Produce seedlings for sale/supply to community projects	A suitable commercial model needs to be investigated for genetic material supply.

**Possible Output-level Risks or Issues to be watched and proposed Responses:**

- *Insufficient harvesting of material to satisfy a high demand:* The implementation of the project will contribute to operationalizing of the necessary tools and systems, through e.g. providing specialized training.
- *Permits for operation are not obtained:* Apply due diligence according to procedures, carefully planning physical interventions.

**Figure 18. The (future) Northern Cape Hub: the site and its functions**



**Figure 19. The (future) Northern Cape Hub: current layout**



--oOo--

## Component 2: Value Chain Development

### Outcome 2. Cooperation models support the conservation of, and commercial trade in, indigenous bioproducts

**Output 2.1) The implementation of the Pelargonium Biodiversity Management Plan (BMP) is supported in close collaboration between the Pelargonium Working Group, community businesses and CSO stakeholders.**

#### Background:

The extractive use of the *Pelargonium sidoides* species required the development of a Biodiversity Management Plan (BMP). The aim of the BMP is to ensure the long-term survival of the species in the wild, and making sure that the livelihoods of stakeholders are respected. Recommendations have been made to ensure control of wild harvesting towards minimising impacts and making provision for restoration and avoiding long-term depredation of the associated landscapes. It is proposed that sustainable management practices will be developed and endorsed through the Pelargonium Working Group (PWG).

The six objectives of the BMP-S are:

1. Wild collection of *P. sidoides* is carried out in a manner that maintains survival of the species in the wild;
2. Wild collection of *P. sidoides* does not affect the environment, other wild species or neighbouring eco-systems;
3. Collection and management activities are carried out under legitimate tenure arrangements and comply with relevant laws, regulations and agreements,
4. Customary rights of local and indigenous communities to use and manage collection areas are recognised and respected,
5. Trade is conducted in an equitable manner resulting in the fair allocation of benefits to all resource stakeholders in accordance with Chapter 6 of NEMBA, which deals with Bio-prospecting, Access and Benefit Sharing and the associated Bio-prospecting, Access and Benefit Sharing Regulations, and,
6. Wild collection of *P. sidoides* is based upon adaptive, practical, participatory and transparent management practices.

The focus of the GEF-funded support to BMP will be to aid the DEA, DEDEAT and DESTEA (or the Pelargonium Working Group) in implementing the Pelargonium BMP-S. More specifically the funds will be used for:

- Capacity building of National and Provincial agencies;
- Updating the BMP
- Conducting of various scientific reports for supporting ecological and ABS outcomes;
- Training of local collectors; and
- Administration of the Pelargonium Working Group (PWG).

**Above all:** the GEF project will bring a much more effective and sustainable administration of the Pelargonium Working Group (PWG) with clear standards for the management of Pelargonium landscapes. (See the new Box below)

#### **Box 12. (new) Additional background on Sustainable Production and Primary Handling of Pelargonium sidoides.**

ADDITIONAL EXPLANATION IN CONNECTION WITH THE MARCH 2018 RE-SUBMISSION OF THE PRODOC	
The Output justification is strengthened by additional content covering tree points:	
(1) Additional background on suppliers and buyers in the proposed ABS agreements on <i>Pelargonium sidoides</i>	
(2) Tangible and measurable results on the ground	
(3) How GEF support will help change current practices	
(1) Additional background on suppliers and buyers in the proposed ABS agreements on <i>Pelargonium sidoides</i>	

According to 2011 Official Biodiversity Management Plan for *Pelargonium Sidoides*<sup>41</sup> wild harvesting appears to be limited to the Free State, Eastern Cape and Lesotho, a large part of its range is currently not affected by harvest. The majority of *P. sidoides* plants occur on private, communal or state land that falls outside of formal protected areas.

In order to understand the stakes for sustainability in the Pelargonium value chain, it is important to understand that the Pelargonium landscape is rather large -- it extends across an area of approximately 342,048 km<sup>2</sup> covering much of Gauteng, North West, Mpumalanga, Free State, Eastern and Western Cape Province — even though, in South Africa, active harvesting takes place mostly in Eastern Cape and Free State.

The core problem addressed by the project is that, for several years, the relationships between users and providers of the genetic resources within the Pelargonium landscape have not led to better harvesting practices that would both secure supplies and result in providers capturing a slightly better share of the total value across the value chain.

With market forces left 'unchecked' for years—that is, they were not moderated by regulation or by ABS-compliant biotrade—supply and demand for *P. sidoides* raw materials have simply responded to typical economic dynamics related to plant extractivism, more specifically (also discussed in Annex X-6):

- Low economic returns from wild harvesting of useful plants across landscapes functions in the same way as 'resource mining' -- similar to the dynamics in the non-renewable natural resource sectors
- Economic actors will tend to maximize the resource rents over time until the depletion of resource stocks, leading thereby to a decline in supplies, and ultimately also in stocks.
- In the decline phase, the supply curve becomes inelastic – i.e. it does not respond adequately to price and demand feedbacks.

These patterns have contributed to rather unequal terms of trade, and ultimately to unsustainable practices within the *Pelargonium sidoides* value chain.

We herein refer to scientific publications by Jaci van Niekerk and Rachel Wynberg, who researched extensively about the value chain for *Pelargonium sidoides* through the Environmental Evaluation Unit at the University of Cape Town – in particular the 'supply' aspect.

Based on their work, the supply chain, the players and the stakes are illustrated in the PRODOC: see Figure 16 (new) *Brief History and stark reality of the P. sidoides supply chain*. The researchers analyzed the value chain drew a few conclusions that are relevant to the Project – as follows:

**(i) A 'monopolistic' behavior by users of *P. sidoides* genetic resources.** This threatens in different ways the livelihood of harvesters (the suppliers) and creates disincentives to conservation at the landscape level, as well as to local value-addition. Harvesters have often low levels of education and are not well organized. The next link in the supply chain are small suppliers, who depend heavily on much larger buyers. The user's behavior is also hierarchical, with strong managerial control and vertical integration. Harvesters remain vulnerable and they are unable to negotiate better prices.

**(ii) A 'captive' value chain.** In order help harvesters break out the "trap" and become protagonists in the implementation of the BMP for the Pelargonium Landscape, it is not enough to enter into ABS deals with a single community, as it had been the case in the past. The resource is widespread and a more comprehensive solution, which may be termed 'sector-wide' benefit-sharing agreement should be considered.

<sup>41</sup>RSA Government Gazette, Vol. 553 Pretoria, 29 July 2011 No. 34487: Department of Environmental Affairs, 501 National Environmental Management: Biodiversity Act (10/2004): Draft Biodiversity Management Plan for *Pelargonium Sidoides*.

The proposed ABS agreement between users and providers of *P. sidoides* is expected to improve the terms of trade of suppliers and provide them with a stronger bargaining power and improved market access. BABS compliance will also need to come with the strengthening of sustainability in harvesting methods. So, the project will cater for that. However, Niekerk and Wynberg also mentioned other barriers that are part of the “poverty trap” in which several harvesters find themselves into, including the lack of infrastructure, as well as insecure land tenure systems, limited access to capital, credit and technology.

## (2) Tangible and measurable results on the ground and

- The PPG Team estimated and mapped the Pelargonium landscape (see [Plant Distribution Sheet](#) in covering the South African territory), 60% of which is within Eastern Cape Province and will have some form of improved management as a result of the project.
- The Pelargonium Working Group (PWG) will receive adequate support to aspects of sustainability and collaborative ways of working that are currently difficult for them.
- The BMP will have with clear standards for this management.

The above will be independently verified by the project’s evaluation exercise.

## (3) How GEF support will help change current practices

- E.g. the Management approach by collective parties within the landscapes will be duly scrutinized, in particular with respect to the conservation and sustainable use outcomes of their activities and the applicable impacts – whether positive or negative – and pertaining to land use and biodiversity primarily, but also with respect to a suite of socio-environmental standards. This applies in particular to e.g. local cooperatives that may access the GEF grant.
- Compliance will be subject to audit, either by DEA (in connection with enforcement efforts relating to BABS and BMP itself) or by a third Party.
- The initiative will pilot the certification scheme foreseen under Output 3.2.
- Stakeholders will receive expert advice, e.g. from SANBI on the certification.
- To the extent that the plant materials sold will be used as Herbal Medicinal Products (HMP), applicable Guidelines from the South African Medicines Control Council (MCCZA), as of 2016, will also come into play. Those are namely:
  - *Good Agricultural and Collection Practices (GACP)*
  - *Good Laboratory Practice (GLP)* – in the case of primary processing of the plant drug in situ; and
  - *Compliance with Good Manufacturing Practice (GMP).*

The **key partners** are: The Pelargonium Working Group (PWG), Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) and Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEAT)

### Core Activities:

GEF funding will be directed at supporting the implementation of selected activities of the Pelargonium Working Group (PWG) linked to the BMP, including inter alia the following:

#	Activities	Elaboration
1	Conduct global conservation assessment/non-detriment finding (NDF).	In producing the BMP, a global conservation assessment was conducted in 2010 (de Castro et al. 2010). Due to increased demand for <i>P. sidoides</i> , it is recommended that this assessment be updated to determine the current conservation status of the plant. The outputs of this study could be used to inform the NDF process to determine the level of trade. The NDF is a science-based risk assessment where the vulnerability of a species is considered in relation to how well it is managed. The Scientific Authority of South Africa uses the CITES NDF checklist to make non-detriment findings. Factors considered

#	Activities	Elaboration
		include the biological characteristics of the species and its national status (distribution, abundance, trends and threats), as well as the management, control and monitoring of harvest, protection of the species from harvest, and incentives and benefits arising from harvest. Trade can be allowed for species assessed to be at low risk, or moderate risk in some cases, whereas trade is not advisable for species at high risk.
2	Conduct ethno-botanical study	Ethnobotanical studies are carried out through household surveys and interviews with local traditional healers to secure information on local uses, cultural significance and the quantities of <i>Pelargonium</i> required for local use. These studies will focus more specifically on the study of the indigenous knowledge on how plants are perceived, used and managed, the plants of the region and their practical uses through the traditional knowledge of a local culture and people. Ethnobotanical studies provide an understanding of TK holders towards appropriate benefit sharing systems.
3	Conduct value chain & socio-economic analyses	Value chain and socio-economic analysis is carried out for material originating in South Africa annually and a price to be paid to harvesters set.
4	Review and update BMP (expires 2018)	There is a legislative requirement to update the BMP every 5 years. The current BMP was published in 2013.
5	Develop training material and train selected staff from DEA, Eastern Cape DEDEAT and Free State DESTEA in the implementation of the revised BMP	There is a requirement for training in the implementation of the revised BMP by officials from DEA, DEDEAT, DESTEA. This would be achieved through training workshops at a national and provincial level.
6	Provide identified TK holders with technical support to review and renegotiate ABS and supply agreements with industry	Activity 2 will determine the TK holders of <i>P. sidoides</i> , while the value chain analyses (Activity 3) will determine the size of the market of the species. This information will provide the context for negotiations between the identified TK holders and industry. ABS agreements can be then reviewed and negotiated.
7	Development of sustainable harvesting guidelines	Development of sustainable harvesting guidelines for <i>P. sidoides</i> similar to guidelines developed for <i>A. ferox</i> species (SABS Aloe raw material standards - SANS 368:2008.)
8	Training of local collectors to improve the sustainability of harvesting approaches	Local collectors are trained with the sustainable guidelines developed in Activity 7.
9	Facilitate improvement of the management of community-based trusts, and distribution of trust funds	If ABS agreements are reached, the mechanism for the management of community-based trusts needs to be determined.
10	Support administration of Pelargonium Working Group	The PWG is a forum for stakeholders involved in the <i>P. sidoides</i> trade chain including managers and implementers of the BMP-S e.g. DEA, DEDEAT, DESTEA, the South African National Biodiversity Institute (SANBI), Industry, the NGOs including TRAFFIC and Bio-watch. The PWG meets annually, and requires support for stakeholders to attend the meeting. Stakeholders that require support are communities that harvest <i>P. sidoides</i> and officials from DEA, DEDEAT, DESTEA.

**Output 2.2) Development of an *Aloe ferox* harvesting, processing and trading hub in the Eastern Cape for promoting sustainable and equitable benefit sharing across the value chain.**

**Background:**

*Aloe ferox* is the most commercially utilized indigenous plant in South Africa, with bitters and aloe gels extracted from the leaves of the plants and utilized in cosmetics, hygiene products, manufactured food products, and as complementary medicines.

The *A. ferox* industry provides significant socio-economic benefits to South Africa, including benefits to poor individuals who derive an income from harvesting of the plants (e.g. in Tyefu community). The industry also supports a range of businesses in the country, producing *A. ferox* products for the local and international market. The bulk of commercially harvested *A. ferox* is however for the export market, with very little secondary or tertiary processing in South Africa.

The GEF-funding will focus on supporting the Tyefu community – through the Tyefu Traditional Council and the Tyefu Traditional Trust (Reg. IT 163/2013) – to establish, develop and manage *A. ferox* crop plantations (see Figure 20 and Figure 21 further down) on communal land in Tyefu.

These *A. ferox* plantations will, in turn: (i) considerably ease the strenuous efforts of the – mostly female - harvesters and tappers; (ii) improve the income of these harvester and tappers, with little capital and maintenance cost to the communal land owners; (iii) reduce the harvesting pressure on the existing wild aloe populations; (iv) strengthen the quality controls of the aloe gel processing methods; and (v) open up further opportunities for the Tyefu community to commercially develop, market and sell value-adding aloe products.

Furthermore, the project will act as a hub within the Eastern Cape for the processing and the transfer of agricultural know how to surrounding communities.

The **key partners** are: Department of Environmental Affairs (DEA), Tyefu Traditional Leader (Chief Msutu), Tyefu Traditional Council (TTC), Tyefu Traditional Trust (TTT)

Other partners may include SANBI and DAFF (EC).

**Core Activities:**

GEF funding will be directed at supporting the implementation of the following:

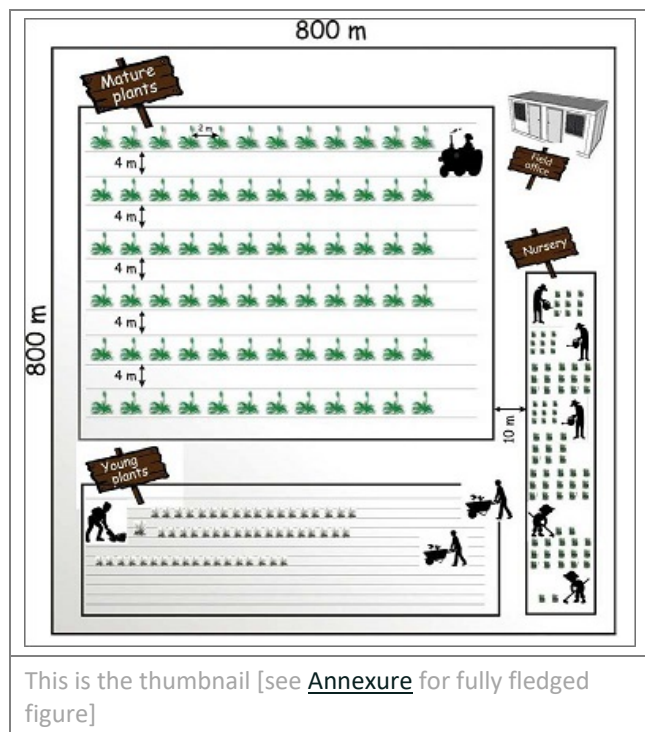
#	Activities	Elaboration
1	Incrementally strengthen the knowledge (through training and skills development) of, and acquire basic equipment (health and safety equipment) for, the existing local harvesters and tappers	This training will be initiated right from the project outset (i.e. while the harvesters and tappers continue to harvest aloes from the wild) and will be continued and sustained during the establishment phase and ongoing maintenance of the aloe plantation. It is envisaged that these harvesters and tappers will, once the plantation is established and functional, incrementally focus their harvesting and tapping efforts in the plantation under some form of contractual or employment agreement with the plantation management.
2	Identify and allocate 20-50 ha of suitable communal land for the establishment of (a) <i>Aloe ferox</i> plantation/s	This will include obtaining a community resolution in terms of the IPLRA regulations, and concluding a lease agreement.



#	Activities	Elaboration
3	Prepare costed plans for the detailed layout (including the associated infrastructure and services) of the/se plantation/s	This will include mapping the location, layout and costing of <i>inter alia</i> : (i) the boundary fencing; (ii) greenhouse tunnels; (iii) nurseries for different aged plants; (iv) plantation workshop; (v) processing plant; (vi) irrigation system/s; (vii) internal roads and tracks; and (viii) storage, waste management and parking facilities.
4	Negotiate and conclude a Memorandum of Agreement (including the benefit-sharing arrangements) between the DEA, Tyefu Traditional Council, Tyefu Traditional Trust (as the initial beneficiaries of the investment) and the individual harvesters and tappers which clearly defines the different roles and responsibilities, in the establishment and operationalisation of the aloe plantation/s and its associated infrastructure and equipment ('phase 1').	See also activity # 15 below.
5	Obtain the requisite permits and authorizations for the establishment, construction and management of the plantation (and its associated bulk infrastructure and services)	This may include: (i) RODs for EIAs; (ii) land use re-zoning (if required); (iii) TOPS permit (if required); (iv) permits for collection of adult <i>A. ferox</i> ; (v) business permits for plantation and facilities; and (vi) water use permits for irrigation.
6	Fence off the area allocated for the plantation/s, and prepare the land for propagation and cultivation of aloes	The land preparation may also include tillage, landscaping, composting, soil erosion measures, internal tracks/roads and signage.
7	Collect, transport and transplant adult <i>Aloe ferox</i> plants for re-planting in the designated areas of the plantation	Subject to any permitting requirements (see activity #5 above).
8	Establish (layout, soil preparation, composting, fencing and construction) the field nursery for the cultivation of <i>Aloe ferox</i> seedlings	This may include the construction of greenhouse tunnels for growing aloe plants from seeds (collected from the field).
9	Construct, install bulk services and equip a small field workshop - with the associated bulk services, storage space and amenities - for the <i>Aloe ferox</i> plantation management and maintenance staff	See a sample floor plan for the plantation workshop in Figure 22. The workshop may be constructed from prefabricated materials, if considered cost-effective.
10	Contract, train and equip (e.g. safety equipment, tools, tractor, flat bed truck, bakkie, etc.) local community members to administer, manage and maintain the <i>Aloe ferox</i> plantation	These contracted individuals will comprise the 'plantation management and maintenance team'. They will be directly responsible for the establishment, maintenance and ongoing development of the aloe plantation and associated plantation infrastructure (field workshop, fencing, irrigation, nursery, etc.) and equipment.
11	Construct, install bulk services and equip a small testing, processing and packaging plant for <i>Aloe ferox</i> products (adjacent to the plantation workshop).	Initially focusing the testing, processing and packaging facilities on the processing of aloe exudates into aloe powder and crystal bitters. The second phase of production (not for GEF-funding support) may later include the processing of aloe leaves for gel. See a sample floor plan for the testing, processing and packaging plant in Figure 23. The processing plant may be constructed from prefabricated materials, if considered cost-effective.

#	Activities	Elaboration
12	Contract, train and equip (e.g. safety equipment, laboratory equipment) staff (preferably from the immediate local area) to administer, manage and maintain the testing, processing and packaging plant.	These contracted individuals will comprise the 'processing plant team'. They will be directly responsible for the administration, management and development of the testing, processing and packaging activities in the processing plant.
13	Develop and market Tyefu-based aloe product branding	This may include: brand design; branding of facilities and products; development of a website; and aloe product certification.
14	Negotiate and conclude supply contract agreements with manufacturers and retail industries	Initially this will be focused on national manufacturers and retailers. The prospect of direct supply to secondary and tertiary international processors will however be investigated for the second phase of production (not GEF-funded).
15	Negotiate a partnership agreement between the Tyefu Traditional Trust and Tyefu Aloe (Pty) Ltd to administer, manage and maintain the aloe plantation and processing plant beyond the term of the GEF funded support.	It is envisaged that the Tyefu Traditional Trust may later - during the second phase of processing (i.e. beyond the term of GEF funding support) conclude a partnership agreement with the Tyefu Aloe (Pty) Ltd to administer, manage and further develop the plantation, and value-added aloe products, on its behalf. The Tyefu (Pty) Ltd is currently only a 'shell' company. Tyefu (Pty) Ltd is fully owned by the Tyefu community (through the Tyefu Traditional Council and Tyefu Traditional Trust), and any company profits will be distributed back to the community through the Tyefu Traditional Trust.
16	Facilitate the submission of funding applications for co-financing support to the Tyefu community for the establishment, management and expansion of the aloe plantation and processing plant	This facilitation support will continue throughout the course of the GEF project implementation phase. Grant and loan funding applications will be targeted at <i>inter alia</i> : Amathole Development Agency (ASPIRE); AsgiSA; IDC; LRAD; IDC; DBSA; ABSA Agribusiness; and the Land Bank.

**Figure 20. Indicative layout of the Aloe crop plantation**



**Figure 21. Example of Aloe crop plantation**



### Implementation Arrangements for Output 2.2

The Tyefu Traditional Trust will, as the legal entity representing the livelihood interests of the community, be the beneficiary of the project outputs.

A local management committee (with representation from the DEA, Tyefu Traditional Council, Tyefu Traditional Trust and local harvester/tappers) will be established to supervise and guide the activities under this Output.

DEA will, through the Project Management Unit (PMU), be directly responsible for coordinating the implementation of this Output. SANBI and DAFF EC will provide technical and professional advice and support to the PMU in the implementation of this Output.

The PMU will appoint a site-based Technical Coordinator (TC) to oversee the local implementation of all activities under this Output. DEA will facilitate the transfer of the plantation and aloe processing plant assets (the 'business') to the Tyefu Traditional Trust at the end of the GEF project implementation phase.

The Tyefu Traditional Trust will, in turn, enter into partnership agreements with commercial aloe manufacturers (and/or Tyefu Aloe Pty Ltd) to administer, manage and maintain the aloe plantation and processing plant beyond the term of the GEF funded support.

### Possible Output-level Risks or Issues to be watched and proposed Responses:

- *Insufficient harvesting of material to satisfy a high demand:* The implementation of the project will contribute to operationalizing of the necessary tools and systems, through e.g. providing specialized training.

- *Permits for operation are not obtained:* Apply due diligence according to procedures, carefully planning physical interventions.

Figure 22. Indicative floor plan of plantation workshop

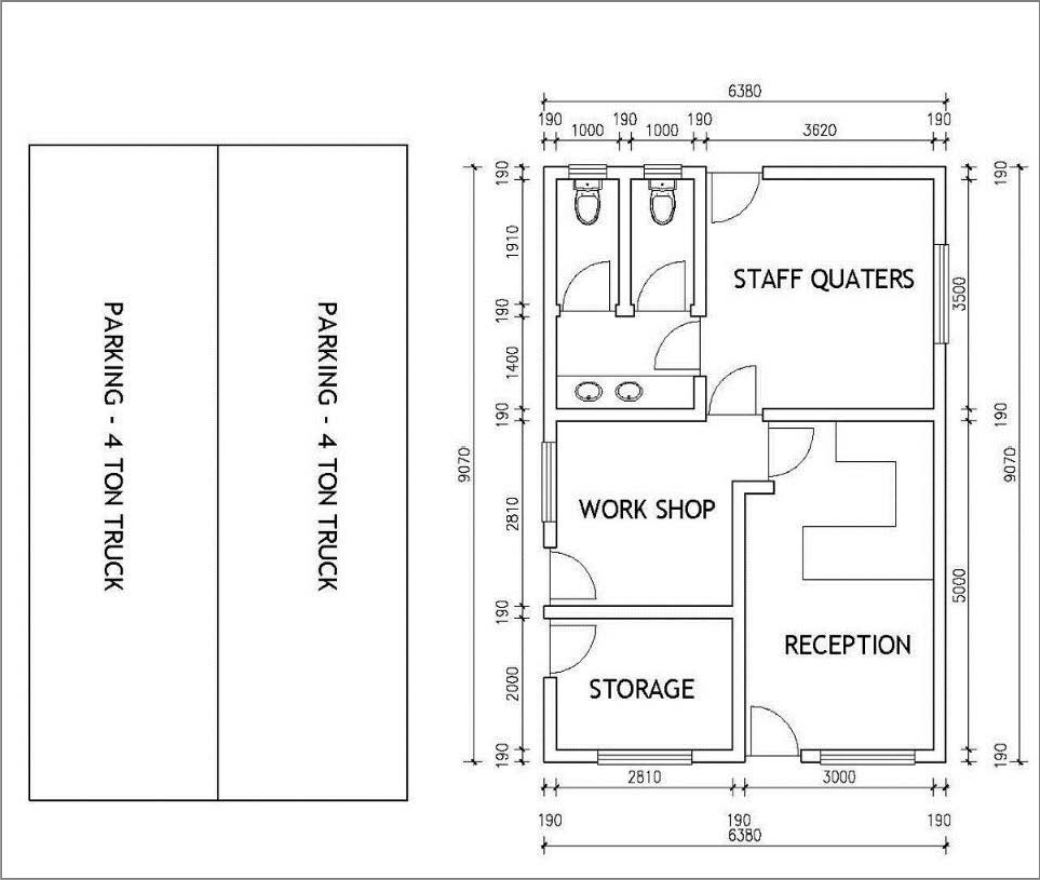
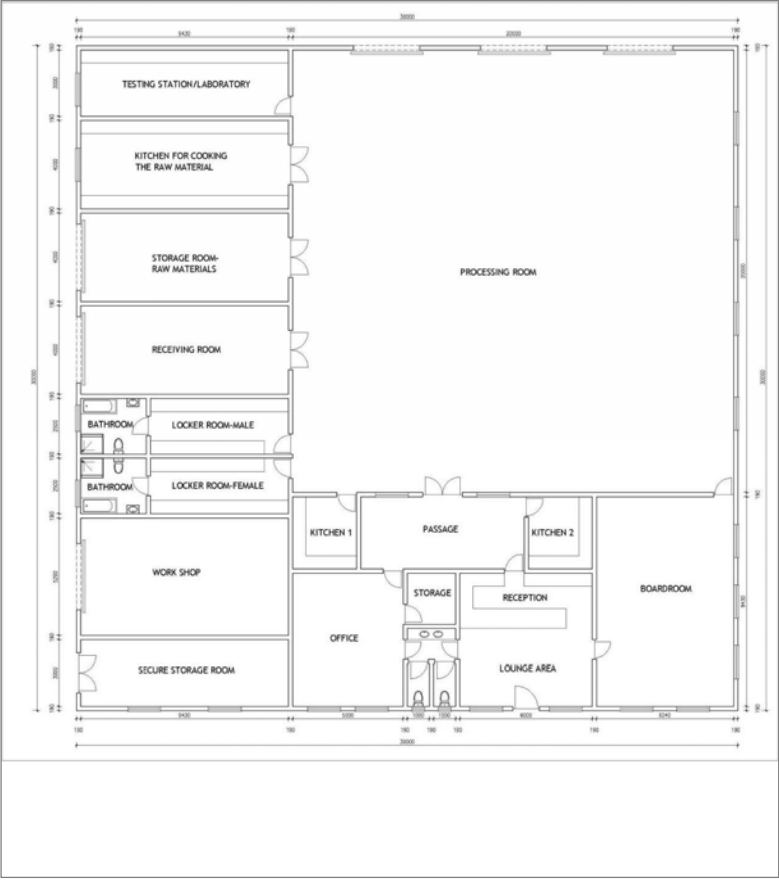


Figure 23. Indicative floor plan of testing, processing and packaging plant



--oOo--

**Output 2.3) Community-based enterprises in honeybush farming are supported, ensuring conservation and equitable benefit sharing outcomes across the Cyclopia spp. landscape in the Cape Region**

**Background:**

There are six species of the genus *Cyclopia* spp. that have commercial value. Three main species currently make up the commercial honeybush industry. Of all honeybush processed in 2011, 70% is harvested in the wild while 30% is cultivated.

The focus of the GEF funding will be to support emerging honeybush farmers in the Eastern and Western Cape through a grant system, which would be administered through a suitable grant-making mechanism to be selected during the procedural Local Project Appraisal Committee Meeting (LPAC), to be held once the PRODOC is CEO Endorsed by UNDP and DEA. The grant programme will focus primarily on previously disadvantaged farmers and more specifically on female farmers. The purpose of the grants would be to ensure the environmental sustainability by supporting farming and harvesting of honeybush.

South Africa's Bioprospecting, Access and Benefit Sharing regulations (BABS) regulates relationships between providers and users of genetic resources and caters for the adherence to the ABS permit's conditions. It ensures that these relationships are Nagoya Protocol compliant, whether it they are restricted to national stakeholders or international relations between Parties to the Protocol.

For the Output's beneficiaries, across the honeybush landscapes, a key condition for applying and receiving grants will be compliance with BABS regulations.

The **key partners** are: the Agricultural Research Council (ARC), Honeybush Community of Practice (HCoP), Department of Agriculture Forestry and Fisheries (DAFF), Department of Rural Development and Land Reform (DRDLR), Municipalities.

**Core Activities:**

GEF funding will be directed at supporting the implementation of the following:

#	Activities	Elaboration
1	Establish technical advisory group (TAG)	The purpose of the Technical Advisory Group (TAG) is to guide and manage the project over the the 5 year period. More specifically, the TAG will determine the baseline conditions in the selected study areas, the scope of the grants, the stakeholders to be targeted and adjudicate the grant applications received from the targeted stakeholders. The TAG will consist of of suitably qualified individuals from: DEA, ARC, DAFF, DRDLR, HCoP etc.
2	Conduct Scoping Baseline Determination Study	The purpose of this activity is to determine the baseline conditions of the selected study areas i.e. the Eastern and Western Cape where honeybush can be grown and therefore inform the scope of the grant. The study (ies) will provide clarity on the following: i) The area available for cultivation; ii) the land tenure arrangements; iii) analysis of targeted stakeholders; iv) land capability and v) environmental and social risks.
3	Management of the grant-making process using a	Once Activity 2 has been completed, the TAG can advertise the call for proposals for grants in the targeted areas to the targeted stakeholders. A suitable grant-making mechanism will be selected during the procedural Local Project Appraisal Committee Meeting (LPAC), to be held once the PRODOC is CEO Endorsed by UNDP

#	Activities	Elaboration
	suitable mechanism	and DEA. The selected entity that will manage the grant allocation process will do so in conjunction with the TAG. A typical grant lasts for 3 years and grant values range from \$20 000 - \$50 000.

### Implementation Arrangements for Output 2.3

DEA will engage a suitable grant-making mechanism, with the endorsement from the LPAC, through its coordination, to oversee the grant-making aspect of this Output. The details of the arrangement will be firmed up during project inception.

### Possible Output-level Risks or Issues to be watched and proposed Responses:

- *Gender exclusion is likely, even within activities designed to be pro-gender:* The project has a gender mainstreaming plan that will apply to this output to a large extent.
- *Insufficient harvesting of material to satisfy a high demand:* The implementation of the project will contribute to operationalizing of the necessary tools and systems, through e.g. providing specialized training.

--oOo--

## Output 2.4) The ABS implementation in Rooibos farming is strengthened ensuring, fairness, equity and sustainability in relevant relationships among TK holders and industry.

*\* Output renumbered from 2.6 to 2.4, given that two outputs were dropped so as to provide an adequate response to GEF comments in February 2018.]*

### Background:

*Aspalanthus linearis* is both farmed and harvested from the wild with less than 1% being wild harvested (Waarts and Kuit, 2008) and the majority being cultivated (Street and Prinsloo, 2013). In 2010, there were 350 to 550 rooibos farmers in South Africa, cultivating approximately 36 000 hectares of rooibos (Street and Prinsloo, 2013).

The GEF funds will be used for strengthening ABS agreements and mechanisms in the rooibos industry. More specifically, the funds will be used to develop and set-up a TK benefit sharing monetary mechanism as a model the for industry.

The key partners are: Other partners (Support), South African Rooibos Council (SARC), San & Khoi Traditional Council

### Core Activities:

GEF funding will be directed at supporting the implementation of the following:

#	Activities	Comments
1	Investigate and develop a suitable TK benefit sharing mechanism that effectively captures the resource rent resulting from the TK rights – such a benefit sharing mechanism needs to be effective, transparent, minimise commercial risks and maximise TK benefits, and would require financial and economic modelling and forecasting;	<p>Conduct research on (inter)national cases and best/worst practice on natural resource royalty systems and develop a suitable financial and economic model to serve as a basis for the TK benefit sharing mechanism.</p> <ul style="list-style-type: none"> <li>• Develop several financial/economic royalty models for the Rooibos industry; run scenarios based on past data and future forecasted data; measure benefits to TK holders and risk to private sector</li> <li>• Consult with key stakeholders involved with ABS worldwide (such as the UNCTAD BioTrade programme, UEBT, FairWild)</li> </ul>

#	Activities	Comments
		Foundation, TRAFFIC, The Convention's on Biological Diversity's Working Group on Access & Benefit Sharing, DEA, industry associations) <ul style="list-style-type: none"> <li>Identify best/worst practices and best-case scenario's from/with stakeholders; and consolidate consultation feedback on proposed royalty mechanism.</li> </ul>
2	Investigate and develop non-monetary TK benefit sharing mechanisms which may support rights-holding communities through contributions-in-kind and related mechanisms by the private sector	This may include for instance bursaries, training, outsourcing of business opportunities, sponsorships, donations, pre-competitive research, small business support.: <ul style="list-style-type: none"> <li>This requires expert consultations with both industry and TK rights holders.</li> </ul>
3	Develop and propose a suitable and simple governance and institutionalisation framework for implementing and monitoring the TK benefit sharing mechanism	The purpose of Activity 3 would be to design a suitable governance and institutionalisation structure that ensures royalties and non-monetary benefits are collected and distributed fairly.
4	Record the current negotiation processes of SARC as a case study with a view to the creation of a "blueprint" for other products and TK agreements	The purpose of Activity 4 would be to record the ongoing ABS agreement negotiations between the rooibos industry and the San & Khoi Traditional Council
5	Disseminating the case study outcomes as example to ABS stakeholders in SA and beyond.	Once Activity 4 has been completed, the results will be disseminated to the broader bioprospecting industry.

--oOo--

### **Component 3: ABS Capacity Building of key Stakeholders**

**Outcome 3. Bioprospecting and value addition knowledge transfer is enhanced for an equitable benefit sharing**

**Output 3.1) The National Recordal System for TK linked to bioprospecting is supported for ensuring ABS compliance in current and future agreements between indigenous and traditional knowledge holders and industry.**

#### **Background:**

The NRS, an initiative of the Department of Science and Technology, supports communities and indigenous knowledge holders to document oral indigenous knowledge of traditional medicine and indigenous food that are closely associated with biodiversity. Its main objective is to protect, promote, manage and develop indigenous knowledge in alignment with the Indigenous Knowledge Systems Bill 2016 (currently under Parliamentary process) which aims to protect the knowledge of indigenous communities from unauthorised use and misappropriation, promote public awareness and understanding of indigenous knowledge for the wider application thereof, and to create registers to catalogue, document and record indigenous knowledge held by communities.

The initiative also brings together databases and processes for research, development and innovation across many government priorities, whilst supporting the NEMBA Regulations, and Bioprospecting Access and Benefit Sharing (ABS) process of the Department of Environmental Affairs. Due to the close association of indigenous knowledge



with biodiversity, scientific authentication of the plants used by rural and local communities must to determine to ascertain legal certainty over the knowledge that is documented in the system. This can only be achieved by collecting samples of plant species, which will enable the South African Biodiversity Institute (SANBI) to correctly identify the plant species according to scientific taxonomies.

The NRS will provide a knowledge platform to be mined by the National System of Innovation for research and development across various fields. An integrated system and a one-stop-shop will bring together all indigenous knowledge assets in the country towards future investment and development of indigenous knowledge systems.

The National Recordal System (NRS) initiative is implemented through provincial IKS Documentation Centres (IKSDCs) which facilitate the documentation of indigenous knowledge at grassroots level. Implementation of the documentation operations functions through IKSDCs, which serves as provincial hubs facilitating the documentation of IK. Ten branches of the NRS have been established in the following provinces: KwaZulu-Natal (2 satellite offices), Limpopo, Free State, Eastern Cape, Western Cape, Northern Cape, North West, Mpumalanga and Gauteng.

Each IKSDC has an appointed Project manager and IKSDC Coordinator who implement the project at provincial and local level. The initiative facilitates a community and its indigenous knowledge holders to document oral indigenous knowledge on traditional medicine and indigenous food that are closely associated with biodiversity. IK recorders appointed on the project is typically persons from the community who have an understanding of the community protocols and have a basic understanding of using a computer. All IK recorders are trained in the documentation methodologies including how to utilise the equipment to upload documented information.

The **key partners** are: Department of science and Technology (DST), Department of Environmental Affairs (DEA)

#### **Core Activities:**

GEF funding will be directed at supporting the implementation of the following:

#	Activities	Elaboration
1	Conduct and develop Community Bioprotocol Documents through workshops with participating communities	The Bio-Cultural Protocol forms part of the National Recordal System (NRS) processes and aims to set out the customary values, rights and rules about bio-cultural heritage within a particular community. This is the 1 <sup>st</sup> port of entry into a community, who wish to participate in the initiative. Noting that 826 traditional communities and Leaders exists in the country, it is recommended that Community Bioprotocol documents/agreements be pitched at a district level to ensure that the leadership of the communities are aware of the initiative and be prepared to participate in the initiative.
2	Appoint IK recorders to document IK on top 25 species in 10 communities.	5 IK Recorders are appointed and inducted on the aim of the project and their respective roles that they play. These are people who have an understanding and background in indigenous knowledge systems, and knows the traditional protocols, and given language of an area/geographical space.
3	Procurement of: (1) recording equipment and devices to document IK; and (2) collecting equipment to collect plant species for positive scientific name variety identification.	Equipment is necessary to enable the documentation of IK. Equipment is procured once-off to enable IK recorders to implement the documentation process. (Notebooks, cameras, and species collection equipment, including obtaining provincial permits to collect plant species for SANBI identification is essential).
4	Conduct training sessions for IK recorders to understand the legal framework of the Access and	IK recorders are trained in the documentation methodologies including how to utilise the equipment to upload documented information.

#	Activities	Elaboration
	Benefit sharing and data collection process;  Conduct training sessions with IK recorders to understand and to implement plant species collection.	IK recorders are trained in the collection of plant species for SANBI to identify the scientific name to obtain legal certainty of the top 25 plant species.
5	Develop NIKMAS (ICT system of NRS) to align the one-stop-shop with DEA	To facilitate a smooth operational one-stop-shop, there is need to align the DEA permitting system with the electronic system on the NRS (NIKMAS). Development include electronic specification and implementation to upload documents to DEA (PIC, ABS, Community Resolution-s in the case where a community/-ies have decided to enter into agreement for bioprospecting/research) which would enable the decision-making process of DEA on issuance of permits for bioprospecting in line with NEMBA.

**Box 13. (new) Additional background on Bio- Cultural Protocols and the role of IK recorders**

ADDITIONAL EXPLANATION IN CONNECTION WITH THE MARCH 2018 RE-SUBMISSION OF THE PRODOC
<b>The Output justification is strengthened by additional content covering Activities 1 and 2:</b>
<b>Activity 1:</b> Bio-Cultural protocols are a mechanism that facilitates legitimate access to communities and puts in place community protocols for users to access the Genetic resource, knowledge and in some cases both.
<b>Activity 2:</b> The proposed 25 species is the species identified by the Lab participants during the DEA led initiative as the top species that are currently regarded as priority species for bioprospecting and for which the knowledge holders/ communities are not known and should be identified.
This is how the value chain will be strengthened.
<b>Access to the community:</b>
<ul style="list-style-type: none"> <li>- Bio Cultural Protocol as a gate keeper for access</li> <li>- Resources identification and documentation (This is the work of the recorders who need to adhere to the Bio Cultural Protocol prior to documenting) (NRS)</li> <li>- Adherence to legal prescripts e.g.: Non-Disclosure Agreements, Prior Informed Consent (PIC), Benefit Sharing Agreements (ABS), Material Transfer Agreements (MTA), Information Transfer Agreements, etc.</li> <li>- This is the first level of to access The Resource (Genetic, Knowledge and /or both)</li> </ul>
<b>See also:</b> Box 7. ABS Procedures, Checkpoints and Flowchart

**Possible Output-level Risks or Issues to be watched and proposed Responses:**

- *Systemic measures such as the recordal system and the certification scheme, may not be fully operationalized when needed (delays, lack of functionalities, etc.):* The implementation of the project will contribute to operationalizing of the necessary tools and systems, through e.g. providing specialized training and the prioritization of systemic measures as important foundational activities.

--oOo--

### **Output 3.2) A biotrade certification system for South Africa is developed in view of safeguarding biodiversity conservation within bioprospecting value chains**

#### **Background:**

##### **Overview**

The main aim of this output is to optimise global biodiversity benefits and environmental sustainability through the evaluation and improvement of biotrade certification schemes that provide a link between Access and Benefit Sharing (ABS) and biodiversity conservation in South Africa.

The third objective of the Convention on Biological Diversity (CBD) is the fair and equitable sharing of benefits arising from the utilisation of genetic resources. The Nagoya Protocol builds on the ABS provisions of the CBD and recognises that public awareness of the economic value of ecosystems and biodiversity, as well as the fair and equitable sharing of this economic value with the custodians of biodiversity, are key incentives for the conservation of biological diversity and the sustainable use of its components. Accordingly, under Article 22.5(h) of the NP, Parties may commit to enhance the contribution of ABS activities to the conservation of biological diversity and the sustainable use of its components. Certification schemes provide one option for enhancing the sustainable use of biodiversity and promoting the fair and equitable sharing of benefits.

Diverse certification schemes are already established to accommodate the wide range of natural products required by global production and supply chains, each with variable indicators that are used to determine organisational or product compliance with a set of standards. Two such international certification schemes are FairWild and The Union for Ethical BioTrade (UEBT), which are examples of the broader informal regulatory framework for biotrade in South Africa.

Principles that are commonly shared by certification schemes include: conservation of biodiversity, sustainable use of biodiversity, applying responsible resource management practices, preventing negative environmental impacts, fair and equitable sharing of benefits from the use of biodiversity, socioeconomic sustainability (productive, financial and market management), compliance with national and international regulations, respect for the rights of actors involved in biotrade activities, limiting participation of children, ensuring fair working conditions, clarity about land tenure, and use and access to natural resources and knowledge. The array of available certification schemes has come about partly because no two biotrade value chains are exactly the same and because the schemes differ in terms of objectives, partners involved, the scientific or technological sector they pertain to, and the ways in which biodiversity and its components are assessed. The certification schemes to which biotradors relate or subscribe differ in their target markets, which places certain of the above principles above others: with some markets the socioeconomic elements are emphasised before biodiversity and environmental conservation, and vice versa.

Given the diversity of certification schemes, the variety of biotrade products sourced in South Africa, and differences in the maturity of value chains, the critical questions that need to be addressed are (i) which certification schemes have been utilised for biotrade products in South Africa and what their effectiveness is; (ii) whether any of the available schemes deliver global biodiversity benefits when applied to biotrade value chains in South Africa; (iii) what the best indicators for assessing global biodiversity benefits and ethical sourcing that supports ABS are; (iv) which schemes can be best applied and under what conditions; and (v) what amendments to certification schemes would strengthen global biodiversity benefits and ABS when applied in South Africa. Associated with these questions is the need to evaluate how certification schemes can complement regulatory actions and support the South African National Focal Point in monitoring the implementation of the Nagoya Protocol.

This output will require a range of activities in order to understand the context for certification schemes in South Africa, the challenges to the resilience of target species, the specific issues that certification needs to address, and development of suitable indicators and models. As a result, there is an initial research component to understand the status of the target species and the impact of harvesting/ trade on wild populations and their associated ecosystems.

The initial phase will include field assessments of target species (e.g. wild ginger) and the application of tools for determining the vulnerability of species and systems to trade. In this context, SANBI has successfully amended and implemented CITES tools (Non detriment findings) and these tools provide a useful framework for identifying risks and vulnerabilities which would need to be considered by certification schemes.

This will be followed by an analysis of which certification schemes have been applied in South Africa, how effective they have been, and whether certification provides any incentive for biotrade commodities. Models for certification will then be developed that can be used as a basis to improve existing schemes or guide the development of a new scheme. The decision to improve or develop a new scheme will be guided by interactions with existing schemes.

#### Proposed Activities:

#	Activities	Comments	Cost
1	Undertake research and assessment	<p>This will be undertaken over a two-three year period, with a budget that would allow for in-country travel and associated expenses, and two international visits to engage with key (to be identified) biotrade certification schemes.</p> <p>This phase will include: field research on the status of key species linked to biotrade/ bioprospecting, especially those in this project for which data is limited (e.g. wild ginger); Non-detriment findings for target species will be undertaken as this tool identifies key risks to sustainable use (and potentially ecosystem resilience) and can assist in determining which risk factors need to be addressed through certification schemes.</p>	\$210 000
2	Analysis of certification schemes and their benefits	<p>To determine the past effectiveness of key biotrade certification schemes in supporting biodiversity conservation, it is necessary to ascertain where they have been applied, what direct or indirect benefits are measurable, and what monitoring data has been collected (quantity and quality, if any). This activity will be in relation to select South African biotrade commodities, with a suitable range of species, value chains and levels of trade (farmgate value &gt;US 5 million p.a. or &lt;US 5 million p.a.). The selection should include different value chains including species sourced predominantly or exclusively from the wild as well as ones sourced mostly from cultivated stocks. During this project phase one international visit to key certification bodies will be undertaken to establish working relationships and obtain data in support of the analysis. This phase will also seek to learn from other experiences with certification, e.g. with the development of Fairwild by TRAFFIC and the Rainforest Alliance. In-country visits will also be undertaken to engage with the ABS National Focal Point (NFP), industry and access providers in the course of the audit.</p>	\$80 000
3	Development of an ABS-aligned model that optimises biodiversity conservation benefits for	Based on the research and analysis, the relevant principles, performance indicators and weightings of selected schemes will be reviewed. Models of elements of certification schemes will be produced that align with the conservation element of ABS and the Nagoya Protocol. The	\$225 000

	select South African biotrade species	value-adding chain for the biotrade examples will be examined to determine whether it is possible to use certification procedures to increase species and ecosystem resilience -It is intended that models devised should optimise the sustainable utilisation of particular biotraded species and their environment in South Africa, or otherwise promote broader biodiversity conservation and/or ecosystem resilience. During this phase the ABS NFP will be engaged to establish whether certification schemes could assist in monitoring and reporting to the NFP on their conservation impacts, and the compliance of all parties with ABS legislation.	
4	Engagement with key biotrade certification schemes and the National Focal Point on ABS	The purpose of this phase is to determine whether it is possible to engage with existing certification bodies to align these schemes with South Africa's needs or whether it is necessary to develop a new scheme. During this project phase a further international visit to key certification bodies will be undertaken to provide feedback on the audit, and present proposals for revising their models (relevant principles, performance indicators and weightings) to align them better with the conservation imperative of the Nagoya Protocol, and to support the conservation work of the South African ABS NFP. This will be within the context of South Africa as a pioneering case study, which identifies how best the gap between CBD principles and biotrade businesses can be closed. The NFP will receive feedback on the likelihood of adaptations by certification schemes to advance conservation outcomes, and on improving their relevance with that office.	\$100 000
5	Establish a monitoring and evaluation programme for ABS and conservation outcomes	A monitoring and evaluation programme will be devised and established. This will allow for ongoing assessment of the usefulness and effectiveness of the biotrade certification schemes operating in South Africa, in respect of their contribution to biodiversity conservation/ ecosystem resilience. The running of this monitoring programme will be subject to the sourcing of further funding from an appropriate donor.	\$50 000

#### Additional Capacity Building Activities under Output 3.2 added in March 2018 - Summary

Considering comments received from the GEF Secretary, it has been decided to include the South African National Biodiversity Institute (SANBI) as a responsible party (RP) on two Outputs that were developed during the Project Preparation Grant (PPG) phase.

The two Outputs identified for SANBI involvement are:

Output	Description	Budget
Both under 3.2	Additional Activities under 3.2: Provision of ABS training and capacity building services for selected communities	Previous \$250 000
	A biotrade certification system for South Africa is developed in view of safeguarding biodiversity conservation within bioprospecting value chains	Added: \$315 000

<b>Total</b>	<b>\$565 000</b>
--------------	------------------

### **Added Activity: Provision of ABS Training and Capacity Building Services for Selected Communities**

#### **Background:**

The lack of support for communities when dealing with ABS agreements and negotiations is an issue which is prevalent worldwide. The purpose of this Output is for SANBI, with assistance from the ARC and the DEA, would be to develop a set of guidelines (a toolkit e.g.) that would inform communities on ABS issues as well as their rights as stipulated in the Nagoya Protocol. Furthermore, information on harvesting techniques, species conservation and sustainable cultivation practices will be developed. Communities will be selected for support in accordance with a needs assessment which will be conducted at the start of the project.

#### **Possible Output-level Risks or Issues to be watched and proposed Responses:**

*Systemic measures such as the recordal system and the certification scheme, may not be fully operationalized when needed (delays, lack of functionalities, etc.):* The implementation of the project will contribute to operationalizing of the necessary tools and systems, through e.g. providing specialized training and the prioritization of systemic measures as important foundational activities.

--oOo--

### **Component 4: Knowledge Management & M&E**

**Outcome 4. Lessons learned and the application of a participatory and gender sensitive M&E framework effectively contribute to institutional, community and corporate learning on ABS**

**Output 4.0) National and international stakeholders are encouraged to participate in the project M&E and will systemize lessons learned from its implementation.**

This component is a standard component and entails a specific knowledge management activity related to learning about best practices ABS and conservation related issues.

M&E activities will provide sufficient information for adaptive management and learning via active participation of key stakeholders in the project implementation.

Additionally output 4.0 formalises the implementation of the M&E schedule and framework set out in later sections in this project document fall under component 4.

The dissemination of project lessons along with the application of appropriate, participatory and gender sensitive M&E framework will contribute to institutional, community and corporate learning on ABS through the active participation of all stakeholder groups in project implementation.

A thorough description of M&E Activities is included in PRODOC Section VII ([Monitoring and Evaluation Plan](#)). A specific M&E budget is included in that section and it corresponds, for the ease of budgeting, to the budget allocated to Component 4's in the project's [TBW](#).

As for **Knowledge Management (KM)**, which both includes and is related to the project's **Theory of Change**, its specific plans pertaining to **Gender Mainstreaming** and **Stakeholder Engagement**, as well as to aspects of **Capacity**

**Building and Lessons Learning**, it is notable that activities are spread throughout the project document. Refer therefore to:

- [Sub-section The Project's Theory of Change \(ToC\)](#), under PRODOC Section III;
- [Annex X-5](#) for details on Knowledge Management & Stakeholder Involvement Plan;
- [Annex X-7.2](#) for the Gender Mainstreaming Plan;
- [Component 3](#) for specific capacity building as systemic measures.

Capacity building is otherwise 'weaved' into several other activities under Components [1](#), [2](#) and [3](#). Descriptions are within [this Annex](#) and further up.

Core activities pertaining to KM and M&E are as follow:

Core M&E and KM Activities*	Sub-activities	Budget charged to Components:
Inception	Recruit and equip the PMU members of PMU team	PMC
	Orient PMU members (project upstart)	
	National Inception workshop	4
Regular M&E and KM	Review of logical framework and indicators (+ development of specific TORs under pilots, review of budget allocations, detailed work-planning etc.)	4
	Generation of missing baseline data for indicators (includes inter alia the engagement of ad hoc M&E consultancy in year 1 for setting up the M&E framework and collecting data for the project's pilots)	3
	Development of a detailed gender mainstreaming strategy for ABS pilots	3
	Measurement of indicators (incl. Local workshop for applying the GEF Tracking Tool)	4
	Monitoring and follow-up of gender mainstreaming effectiveness	
	Internal review (Annual Project Board Meetings) and organization of indicator data	
	Mid-term review	
	Final evaluation	
	Project Audits	
Closure	Negotiation of details of exit/sustainability strategy	3
	Review/feedback workshop	4
	Administrative closure	PCM

--oOo--

## ANNEX X-4. Stakeholders consulted during the PPG

Stakeholder/Organization	Institution (Govern/NGO/Community)	Gender
Natalie Feltman /DEA	Department of Environmental Affairs (DEA)	f
Preshanthie Naicker/DEA	Department of Environmental Affairs (DEA)	f
Lactitia Tshitwamulomoni/DEA	Department of Environmental Affairs (DEA)	f
Phindile Langazane/DEA	Department of Environmental Affairs (DEA)	f
Prince Ramafalo/DEA	Department of Environmental Affairs (DEA)	m
Dikeledi Maluleke/DEA	Department of Environmental Affairs (DEA)	m
Madelaine Parsons/DEA EPIP	DEA, Environmental Protection and Infrastructure Programme (EPIP)	f
Natalie Uys/DENC	Department of Environmental, Northern Cape (DENC)	f
Natasha Le Brotón/DEA EPIP	DEA, Environmental Protection and Infrastructure Programme (EPIP)	f
Errol Moeng/LEDET	Limpopo: Economic Development, Environment and Tourism (LEDET)	m
Hintsa Araya/ARC	Agricultural Research Commission (ARC)	m
Meshack Mofokeng/ARC	Agricultural Research Commission (ARC)	f
Stephen Amoo/ARC	Agricultural Research Commission (ARC)	m
Willem Jansen Van Rensburg/ARC	Agricultural Research Commission (ARC)	m
Neil Crouch /SANBI	South African National Biodiversity Institute (SANBI)	m
Dashnie Naidoo/CSIR	Council of Scientific & Industrial Research (CSIR)	f
Gerda Fouche/CSIR	Council of Scientific & Industrial Research (CSIR)	f
Izande Kellerman /CSIR	Council of Scientific & Industrial Research (CSIR)	m
Sechaba Bareetseng /CSIR	Council of Scientific & Industrial Research (CSIR)	m
Ishmael Makwaeba/ SANPARKS	South African National Parks (SANPARKS)	m
Ciovald Mabebe/ DTI	SA Essential Oils Business Incubator (SEOBI)	m
Denise Oliver/ SEOBI	SA Essential Oils Business Incubator (SEOBI)	f
Abigail Siziba/ SABS and ATMIDA	African Traditional Medicines Association (ATMIDA)	f
Nceba Gqaleni/ ATMIDA	African Traditional Medicine Industry Development Association (ATMIDA)	f
Nomsa Sibeko /ATMIDA	African Traditional Medicine Industry Development Association (ATMIDA)	f
Tess Rayner/ NGO TRAFFIC	TRAFFIC - South Africa	f
Anele Moyo/ GEF SGP	GEF Small Grants Programme (SGP)	f
Ceryl Lombard/ Consultant	Independent (former CEO of Phyto Trade)	m
Albert Ackhurst/ Provincial Government	Western Cape Government	m
Andile Grootboom/DST	DST bioeconomy	m
Andre Schlemmer/ DESTEA	Free State: Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA)	m
Buntu Mzamo /DESTEA	Eastern Cape: Department of Economic Development, Environment and Tourism (DEDEAT)	m
Carol Van Wyk/DST	Department of Science and Technology (DST)	f



Stakeholder/Organization	Institution (Govern/NGO/Community)	Gender
Cecil Le Fluor (CSO / interest group)	National Khoi-San Council	m
Chief Msutu (CSO / interest group)	Tyefu Traditional Trust	m
Deshni Pillay/ SANBI	South African National Biodiversity Institute (SANBI)	f
Domitilla Claudia Raimondo/SANBI	South African National Biodiversity Institute (SANBI)	f
Gerrie Ferreira/ DEDEAT	Eastern Cape: Department of Economic Development, Environment and Tourism (DEDEAT)	m
Humbu Mafumo/DEA	Department of Environmental Affairs	f
Ian du Plooy/ARC	Agricultural Research Commission (ARC)	m
Janice Golding/UNDP	UNDP Country Office	f
John Donaldson/SANBI	South African National Biodiversity Institute (SANBI)	m
Kgaugelo Mahlaela/ SABS and also + (CSO / interest group)	African Traditional Medicines Association	m
Kristal Maze/SANBI	South African National Biodiversity Institute (SANBI)	f
Lehman Lindeque/UNDP	UNDP Land Degradation Project	m
Max Madlingozi/ TTC - (CSO / interest group)	Tyefu Traditional Council (TTC)	m
Michele Pfab/SANBI	South African National Biodiversity Institute (SANBI)	f
Noluthando Bam/ DEDEAT	Eastern Cape: Department of Economic Development, Environment and Tourism (DEDEAT)	f
Shumi Rodolo/DST	Department of Science and Technology (DST)	f
Sinah Mosehla/DTI	Department Trade and Industry (DTI)	f
Thabo Gwiji/ DEDEAT	Eastern Cape: Department of Economic Development, Environment and Tourism (DEDEAT)	m
Tom Suchanandan	Department of Science and Technology (DST)	m
Tony de Castro/ Ecological consultancy firm (Private Sector)	De Castro & Brits	m
South African Rooibos Council (SARC)	Industry association	NA
San & Khoi Traditional Council	Traditional knowledge holder association	NA

## ANNEX X-5. Knowledge Management & Stakeholder Involvement Plan

### 1) Stakeholder Engagement Strategy and Approach

The Stakeholder involvement included consultations, information dissemination and related activities that took place during the PPG Phase in South Africa. The PPG team established and maintained close contact with stakeholders in the bioprospecting industry in South Africa, at the national, provincial and local community levels. The affected national and local government institutions were identified and directly involved in the PPG phase as well as the main development partners, implementing agencies, governance bodies and value chain actors. There were several engagements with the stakeholders to interrogate the different aspects of the project design.

Those engagements included:

- Discussions with multilateral agencies like the UNDP and the IUCN, national public institutions like SANBI, DEA and DST, ARC, CSIR and TRAFFIC and other bioprospecting value chain actors to solicit information on the current project baseline, consult, on proposed project interventions and confirm the political, administrative, operational and financial commitment of project partners.
- A series of consultative field visits and meetings with relevant and responsible institutions in the project target areas of the Eastern Cape, the Northern Cape, Gauteng and the north-West provinces, was carried out by the PPG team. It enabled its members to gain understanding of the local context in which the project will be implemented, the physical scale of the project, the governance processes, some of the local challenges faced by the various actors, and to consultatively identify prospective solutions to the challenges related with strengthening the value chains in the bioprospecting sector in South Africa.
- Carrying out project workshops - the PPG inception workshop was held to introduce the project and establish relationship with the stakeholders. Another workshop was held with stakeholders to ensure their participation in the formulation and development of the project indicators. A validation workshop was held to present to all stakeholders the detailed project outputs, activities, the budget and implementation arrangements.
- The PPG team also engaged in an iterative process of disseminating and presenting the project document to the individual stakeholders to enable them to review and comment on the draft documents.

The approach to stakeholder involvement and participation during project implementation was based on the principles outlined in the in the table below:

Principle	Stakeholder Participation will
Value adding	Be an essential means of adding value to the project
Inclusivity	Include all relevant stakeholders
Accessibility and access	Be accessible and promote access to the process
Transparency	Be based on information transparency and fair access to it
Fairness	Ensure that all stakeholders are treated in a fair and unbiased way
Accountability	Be based on a commitment to accountability by all stakeholders
Constructiveness	Seek to manage potential conflicts and promote the public interest
Redressing	Seek to redress inequality and injustice
Capacitating	Seek to develop the capacity of all stakeholders
Needs-basing	Be based on the needs of all stakeholders
Flexibility	Be flexibly designed and implemented
Rationality and coordination	Be rationally coordinated and not be improvised
Excellence	Be subject to ongoing reflection and improvement

## **2) Stakeholder Involvement Plan**

The design of this Project incorporates several features and activities to ensure ongoing and effective stakeholder participation. The project implementation mechanisms in place will facilitate involvement and active participation of different elements:

- (i) **Project inception workshop** to enable stakeholder awareness of the beginning of the project implementation. This event will take the form of a multi stakeholder workshop. The workshop will provide an opportunity for all stakeholders to get acquainted with the most updated information on the project and workplan. It will also establish a basis for further consultation as the project implementation commences. The inception workshop will address many key issues including assisting all implementation partners to fully understand and take ownership of the project, detail roles support services and complimentary responsibilities of the diverse stakeholders. The inception workshop will capacitate all partners identified with the plan for implementation of the project outputs and activities and discuss the roles, functions and responsibilities with the project structure, including reporting and communication lines and conflict resolution mechanisms. The inception workshop will also be a forum to review the project budget, finalise the first annual workplan as well as review and agree on the indicators, targets and their means of verification, recheck assumptions and risks, and to provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements.
- (ii) **Establishment of a Project Management Team** to oversee stakeholder engagement processes during the project.
- (iii) **Project communications** -- to facilitate ongoing awareness of project. The project will develop, implement and maintain a communications strategy to ensure that all stakeholders are informed on an ongoing basis about: the project's objectives, the projects activities, overall project progress, and the opportunities for involvement in various aspects of the project implementation. This strategy will ensure the use of communication techniques and approaches that are appropriate to the local contexts such as appropriate language and other skills that enhance communication effectiveness. The project will develop and maintain a web-based platform for sharing and disseminating information on strengthening bioprospecting value chains across the project planning domain
- (iv) **Stakeholder consultations and participation in project implementation.** A comprehensive stakeholder consultations and participation process will be developed and implemented for all project outputs/activities, building on the process already started during the PPG stage (refer to [Annex X-4](#) for more information on the Stakeholders consulted during the PPG). A participatory approach will be adopted to facilitate the continued involvement of local stakeholders including the women and youth (refer to Annex X-7 for the . Wherever possible, opportunities will be created to train and employ residents from villages proximate to sites targeted for project intervention.
- (v) **Formal structures to facilitate stakeholder involvement** in project activities. The project will also actively seek to establish formalized structures to ensure the ongoing participation of local and institutional stakeholders in project activities.
- (vi) **Capacity building:** All project activities are strategically focused on building the capacity at the systemic, institutional and individual level -- to ensure sustainability of initial project investments. The project will, wherever possible, use the services and facilities of existing local training and skills development institutions.

## **3) Coordination with other related initiatives**

Detailed coordination with other ongoing initiatives and amongst project partners has been built into the project design. See, for example, the section on [Results and Partnerships](#).

## ANNEX X-6. The dynamics of resource overexploitation in bioprospecting value chain

South Africa's floral diversity is under threat in various parts of the country due to a variety of causes. Within the bioprospecting value-chains based on indigenous plants, the most prevalent threat to biodiversity is linked to overharvesting (i.e. when specific species are harvested beyond their natural regeneration rate), but also due to extant factors vis-à-vis the bioprospecting segment (namely, habitat shrinking, degradation and even climate change).

Increased demand for bioprospecting products, fuelled by R&D and innovation, is a double-edged sword (Figure 7). It can certainly contribute to improving livelihoods, sustainable development and economic growth. New discoveries based on genetic resources can potentially improve the well-being of humanity at large. Yet, driven by market forces, bioprospecting economic actors within value chains will tend to explore targeted species in the wild beyond their regeneration capacity. At the level of landscapes, and depending on specific conditions that are contextual to each value-chain, individual species can be pushed into the extinction pathway. Overexploitation also leads to the degradation of species' valuable gene pool and ultimately undermines the biotrade activity that it supports.

Additionally, South Africa is an ethnically diverse country and it is also home to 'indigenous and local communities', including the Khoi-San who identify themselves as one of the First Nations Indigenous groups. Indigenous and local communities are recognized as being bearers of TK on genetic resources and can potentially make claims to discoveries regarding the use of genetic resources indigenous to South Africa – as they have done in the past.

Although the South Africa has made impressive progress towards ethnic inclusiveness – and although the country has a well-developed legal and policy framework for both ABS and biodiversity management – this has not immediately translated into compliance with ABS laws or sustainability across the different bioprospecting value chains.

Some of the root causes (or drivers) behind the degradation of biodiversity linked to bioprospecting value chains include: (1) Sub-optimal investments in sustainable and ABS-compliant R&D; (2) Value chains have a narrow focus on profit, often overlooking conservation concerns and the role of TK; and (3) Limited national capacity and inadequate institutional arrangements for ABS and conservation, which translates into incipient experience with ABS-compliance and sustainability.

Bioprospecting resources are indeed renewable. However, the dynamics observed in certain value chains resemble those of non-renewable resources, which are characterized by a situation of "resource mining" and possibly 'market failure'. Similar to dynamics are also observed the fishing industry or 'plant extrativism' in the Amazon.

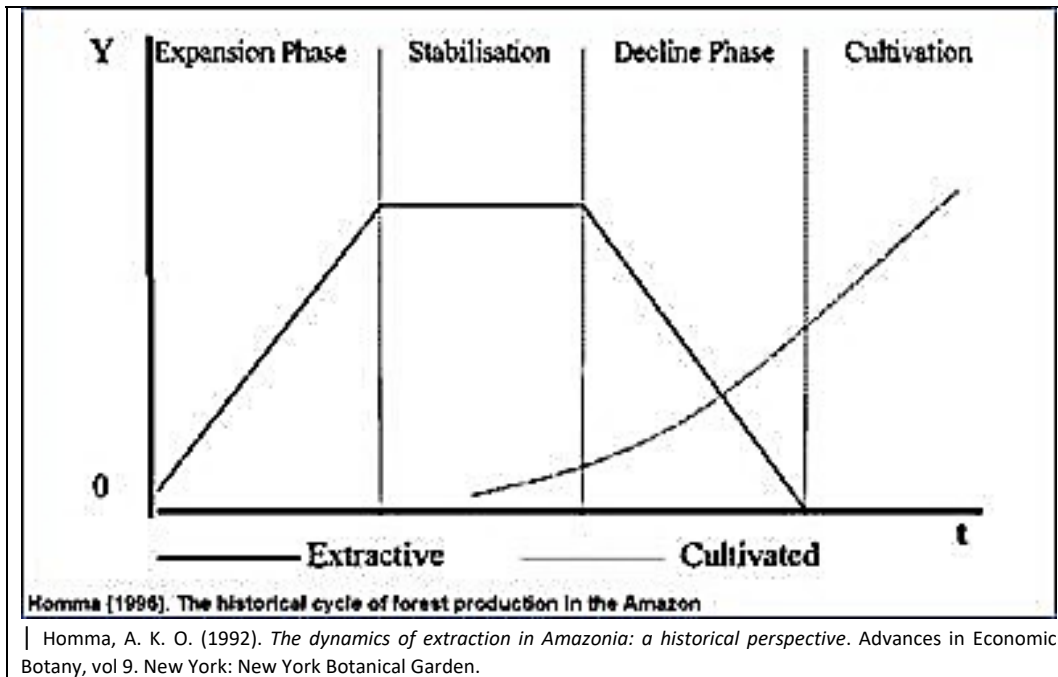
In this light, natural resource industries exhibit similarities across the world, the bioprospecting included. These have been well studied by e.g. Homma<sup>42</sup>, FAO and other researchers<sup>43</sup>. (see Figure 24, Figure 25 and Box 14 further down).

---

<sup>42</sup> Homma, Alfredo K. O. 1996. Utilization of Forest Products for Amazonian Development: Potential and Limitations". In: Lieberei, R., Reisdorff, C & Machado, A. D. Interdisciplinary Research on the Conservation and Sustainable Use of the Amazonian Rain Forest and its Information Requirements. Report on the Workshop held in Brasilia, Brazil, November 20-22, 1995. Hamburg, Germany

<sup>43</sup> See e.g.: Schippmann et al. (2003). *Impact of cultivation and gathering of medicinal plants on biodiversity: global trends and issues*. FAO Document Repository - Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries, Case Study No. 7 (<http://www.fao.org/docrep/ARTICLE/WFC/XII/0758-A1.HTM>, retrieved on 10 May 2017.)

Figure 24. The Original Homma Model



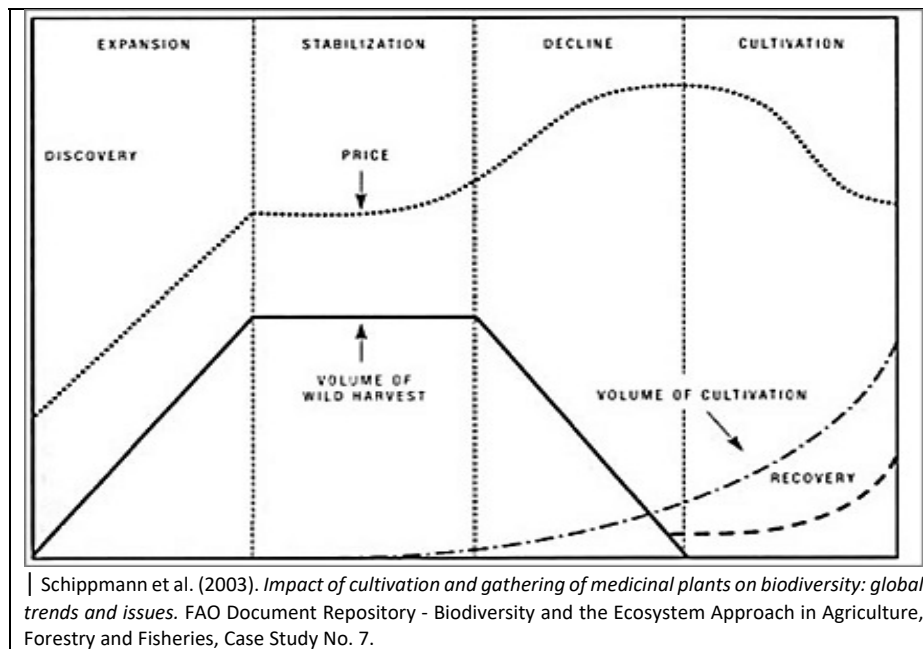
With reference to core predictions from the 'Homma Model' and its application to the project's context the following points are relevant for the core problem to be addressed:

- Given the **prevalent low resource rents** that are typical in **nature-based economies**, economic actors will seek to maximize their profits through scale and by increasing yields.
- Initially, **wild harvest and natural production exceed market demand**, pushing prices down.
- At some stage, harvesting reaches a maximum yield and becomes thereby **overharvesting**. Normally, prices would reflect resource scarcity and be pushed up.
- However, for wild harvested products, the point of maximum yield is a function of the dynamic relationship between **natural growth and production rates of the targeted species** and the amount of **effort** invested by the harvesters. This relationship is also affected by **market prices** and demand for specific products – which is in turn also very dynamic.
- Furthermore, at the point of maximum yield, the issue of **substitutability** arises.
- When the economic rents at maximum yield are lower than what may be gained from using substitute products, market prices will usually adjust accordingly and harvesting effort would similarly reduce.

Rooibos is a case where there is no substitute and as a result, producers have devised innovative methods of cultivation, branding and other value chain interventions to maximize yield. However, issue is that not always will there be substitutes for wild harvested products and not all species can be as easily cultivated. In Table 13 in [Annex X-2](#), an overview of the level of threat that affects the most commonly sought species in bioprospecting value chains is provided.

Empirical evidence reported by the FAO suggests, that after harvesting reaches maximum yield, and although cultivation yields increases simultaneously, wild harvesting continues.

**Figure 25. A Variation of the Homma Model (FAO Case Study)**



Quote from Schippmann et al. (2003):

*“Transition phases from wild harvesting to cultivation: after wild resources decline due to over-harvesting, raw material prices increase and cultivation becomes economically feasible; more resilient species can recover (after Homma, 1992 and Cunningham, 2001).”*

Several priority species used in bioprospecting value chains face challenges linked to either wild harvesting or with the transition to cultivation. In addition, there is room for optimizing the role of traditional knowledge in developing value chains for according a more equitable the share of benefits derived from value chain development to traditional knowledge holders.

In recent years, new market niches have also emerged, with a (certified) requirements for “sustainable:” or “green” of “organic markets”. Yet, this is likely only part of the solution for avoiding the perils of ‘resource mining’ and of a more equitable sharing of benefits.

A summary of key concepts discussed and their resonance within the Homma Model on ‘plant extractivism’ -- or ‘wild harvesting’, as more commonly termed in South Africa – is summarized in Box 14 below.

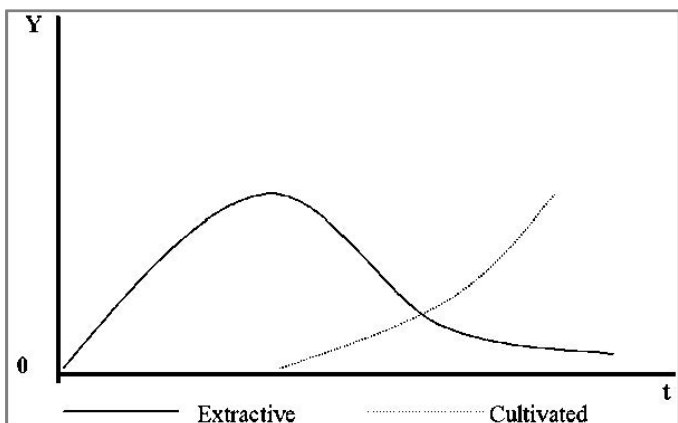
**Box 14. Base NRM theories underpinning the Homma model, implications and considerations**

BASE THEORIES, IMPLICATIONS & CONSIDERATIONS	
<p><b>THEORY OF NON-RENEWABLE RESOURCES</b></p> <p>Attempts to predict the fate of forest resources exploited through extractivism in the Amazon by treating these resources as finite*</p>	<ul style="list-style-type: none"> <li>• Low economic returns from wild harvesting of useful plants across landscapes functions in the same way as ‘<b>resource mining</b>’ -- similar to the dynamics in the non-renewable natural resource sectors.</li> <li>• Economic actors will tend to <b>maximize the resource rents over time until the depletion of resource stocks</b>, leading thereby to a decline in supplies, and ultimately also in stocks.</li> <li>• In the decline phase, <b>the supply curve becomes inelastic</b> – it does not respond adequately to price and demand feedbacks.</li> </ul>
<p><b>THEORY OF AGRICULTURE MODERNIZATION</b></p> <p>Induced by technology innovation in the pursuit of higher land rents</p>	<ul style="list-style-type: none"> <li>• Agricultural modernization processes foresee <b>increasing returns and productivity in increasingly intensified agricultural systems</b> -- predicting the rise of <b>cultivation in lieu of wild harvesting</b>.</li> </ul>

RELATION BETWEEN NATIVE PRODUCTION AND CULTIVATION PRODUCTION
<p>Quoting the abstract of a late publication with highlights:</p> <p>“The growing market for forest products has led to the domestication of plants and the discovery of synthetic substitutes. Other variables such as population growth, the change in relative prices, low productivity of land and labor of the extractive activity conflict with the increase in wage levels affecting sustainability in the medium and long term. The creation of <b>green markets and certification</b> can extend the life of the extractive economy, but eventually it will have difficulties in maintaining itself in the long term, with market growth. The insistence on maintaining the extractivism leads to losses for producers and consumers.”</p> <p><small>Source for the quote: Alfredo Kingo Oyama Homma (2012): <i>Extrativismo vegetal ou plantio: qual a opção para a Amazônia?</i>, Estud. av. vol.26 no.74 São Paulo <a href="#">[Link]</a></small></p>

<p><small>Source for the figure: FAO Document Repository - Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries, Case Study No. 7.</small></p>	
--	--

<p><b>CORE CONCLUSIONS, AREAS OF CONCERN AND</b></p>	<p><b>In the medium and long term, a pathway to sustainability should emphasize the importance of research policies aimed at plant domestication to simultaneously meet market growth and biodiversity conservation objectives.</b></p>
--	---

<p><b>RECOMMENDATIONS</b> concerning the economics of wild- harvesting / plant extrativism</p>	<p><b>“Plant extractivism” (or wild harvesting) constitutes a very fragile economic basis, subject to the interference of:</b></p> <ul style="list-style-type: none"> <li>• <b>Plant domestication</b> processes (transition from wild harvesting to cultivation);</li> <li>• The discovery of synthetic substitutes;</li> <li>• Competition with other economic alternatives;</li> <li>• Conditions of market growth and competitive uses of the same species</li> <li>• The exhaustion of the extractive resource;</li> <li>• The interrelationship with other sectors of the economy ... and several other variables.</li> </ul>
--	---



## **ANNEX X-7. Gender Mainstreaming**

### ***1) Gender Considerations***

At the practical level, the term “gender” is used widely in the literature to refer to men and women. In South Africa, the term is largely considered synonymous with “women,” and gender-oriented work is almost exclusively concerned with resolving historical, social and economic processes that undermine the equality of women and men. The Constitution of the Republic of South Africa Act 108 of 1996 promotes the values of human dignity, human rights, equality and condemns discrimination against anyone on any grounds including sex and gender. Gender equality is largely perceived as a process of being just and fair to women and recognized as a prerequisite for the country’s economic growth and stability.

The gender analysis conducted during Project Preparation Phase revealed the following issues regarding gender in South Africa:

1. South African poor live predominantly in rural areas where women, youth and elderly people constitute the majority. In rural areas of South Africa, women’s central role in food provisioning has been rendered “invisible” by failure to acknowledge the work they do on farms and in rural communities in all possible aspects: social, economic, legal, etc.
2. Current legislation has already removed all legal obstacles that previously discriminated South African women from socio-economically (regarding, among others, inheritance and mortgage rights). Also, the South African Constitution, Chapter 6 of the National Development Plan and Outcome 7 of the Medium Term Strategic Framework (MTSF) provide for inclusive and equitable access to productive resources and is a source of clear and practical guidelines for prioritizing the inclusion of women and youth.
3. However, a patriarchal model of culture and historical legacy of women marginalization persists in the country, particularly in rural areas, where unequal rights to land have put women on an unprivileged position and aggravated the source of poverty and subjectivity. Labour migration of men and high AIDS mortality have increased the incidence of female-headed households, led with inadequate knowledge, skill set and control over productive assets. Moreover, the majority of harvesting and conservation activities take place on land controlled by predominantly male, white commercial farmers or male traditional authorities that leads to limited women’s control and access to the resources. Female gatherers lack specific skills and are excluded from value adding activities, taking place higher up the value chain and significantly increasing the value of the product and returns to investment (like e.g. processing and packaging).
4. Although women in the rural communities hold the traditional knowledge about species and their use, the dominance of males in the institutional and decision-making structures renders women and their knowledge invisible in the knowledge generation, management and decision-making processes.
5. Women and the youth are underrepresented among the economically active group of the society, yet they are responsible for household, food security and care of the children and elderly family members. Compared to men, women are more reliant and directly dependent on natural resources for their livelihoods.
6. The bioprospecting sector value chains in South Africa exhibit distinct gender patterns, with women over-represented in labor-intensive and poorly remunerated activities (such as gathering and nursing of the species) and men dominating the trading and other superior value chain activities which are more profitable. Unemployment and lack of economic opportunities contribute to high rural-urban migration rate, unsustainable harvesting and commercialization of biodiversity species.
7. Equal access to education is guaranteed in South Africa but the rate of women’s enrolment in post-secondary and higher education courses is lower than men’s. Also, there are concerns about the prevalence of high school drop-out rates among the younger women.

8. In the areas, where permits are used to negotiate and secure harvesters' access to the species, technical processes and significant expenses involved in securing a permit lead to marginalization of poor women and small-scale farmers operating in the industry. Also, the licencing regimes that are used to control some of the collection and harvesting are used as tools for women discrimination (e.g. patriarchal traditional authorities allocate licences to male heads of households only).
9. Some of the harvested species grow in difficult terrain and their collection involves gatherers walking long distances to perform harvesting. The distance and terrain pose challenges for women who have to also bear the domestic responsibilities in the patriarchal societies. Women usually do the harvesting, while men are responsible for the transporting of the harvested resource. Such arrangements undermine women's control and decision making over their labour and the proceeds thereof. Moreover, the markets, where the harvesters dispose the harvested resources, are located far away from the sources of the species, incurring high transport costs for the poor and mostly female harvesters. This undermines their benefit from the work.
10. Lack of sufficient financial resources among rural women to make long-term investments in species farming. For example, it takes approximately 4 years for an *A. ferox* seedling to be ready for harvesting.
11. The information regarding the stock of the resources, the location, the diversity of actors and their various roles, etc. is unavailable to women and youth, who work as harvesters. Their contribution is being ignored and therefore, policies to govern the resource do not recognize the contribution made by these vulnerable groups
12. Although various and diverse governance mechanisms exist in the bioprospecting industry, they are not well coordinated. As a result, it is not possible to evaluate and monitor progress on gender, generational or any other variable in the bioprospecting sector.

**Table 16. (updated) Gender Mainstreaming Scoring Matrix behind Indicator #4 in the Results Framework**

<b>Level of mainstreaming of gender considerations in project monitoring: measured through the state of advancement in gender disaggregated data collection and analysis in ABS pilots</b>		<i>1.1 African Ginger product registration</i>	<i>1.2 N Cape R&amp;D hub</i>	<i>2.1 Pelargonium</i>	<i>2.2 Aloe ferox</i>	<i>2.3 Honeybush</i>	<i>2.4 Rooibos ABS deal</i>	<i>ALL PILOTS</i>
a)	<i>Percentage of proceeds from access and benefit-sharing agreements given to/received by women</i>	1	1	0	1	2	1	6
b)	<i>Number of women/number of men in decision-making positions related to biodiversity conservation and management</i>	1	1	1	1	2	1	7
c)	<i>Percentage of female farmers and male farmers who have access to high-quality, locally adapted planting material</i>	0	2	0	1	2	1	6
d)	<i>Number of households headed by men, headed by women, benefiting from intellectual property rights</i>	1	0	1	0	2	1	5
e)	<i>Number and percentage of men and women, by social group, consulted about project plans and frequency</i>	2	2	2	2	2	2	12
f)	<i>Women and men's time dedicated to sustainable management of natural resources.</i>	0	1	1	1	2	1	6
	<b>SUM</b>	<b>5</b>	<b>7</b>	<b>5</b>	<b>6</b>	<b>12</b>	<b>7</b>	<b>42</b>

**Notes:** Max Scores per pilot = 18; Max score for all 6 pilots = 108.

**Scoring guidance for pilots**

- 0 Not feasible to consider this gender mainstreaming indicator for the value chain** - hence, gender not mainstreamed in bioprospecting value chains.
- 1 Feasible to consider this gender mainstreaming indicator for the value chain, but no data collected at the baseline** - hence, first steps towards gender mainstreaming in bioprospecting value chains undertaken.
- 2 Data collected at the baseline** - hence, gender mainstreaming in bioprospecting value chains is being implemented from the onset.

**3 Data collected throughout the project, generating gender sensitive analysis** - hence, a gender responsive monitoring framework in bioprospecting value chains has been established.

## 2) Gender Mainstreaming Action Plan

**Table 17. Gender Mainstreaming Considerations and Action Plan**

Outcome & Output	Considerations	Action plan
<b>Outcome 1</b> <b>Research and development of products in line with the definition of utilization of genetic resources of the Nagoya Protocol</b>		
Output 1.1 R&D barriers linked to clinical studies and registration of African Ginger ( <i>Siphonochilus aethiopicus</i> ) as a bioresource to treat inflammatory and allergic diseases are systematically overcome in an ABS-compliant manner.	Output 1.1 will facilitate the validation and contribute to the preservation of indigenous knowledge of using plants for medicinal purposes, which is a domain of women in South Africa, through clinical testing. Women will also benefit from the community-level training, as well as from revision of the existing ABS agreements with the (CSIR) Scientific community to make it more ABS compliant and inclusive.	<ul style="list-style-type: none"> <li>• The establishment of a baseline.</li> <li>• Gender biased selection of capacity building participants.</li> <li>• Targeting women for recruitment of trainers.</li> <li>• Targeting women for the packaging and dissemination of project information.</li> <li>• Widening the consultation forum to include women and the traditional leaders in the community.</li> <li>• Ensuring that women are represented in the distribution of the benefits that will flow from the clinical trials.</li> </ul>
Output 1.2 Bioprospecting R&D in the Northern Cape is supported, boosting the local bioeconomy and establishing a strategically located 'Bioproducts Development Hub'.	Output 1.2 will increase women's access to technology and participation in generating of the scientific information. Women will benefit from the knowledge generated by the scientific hub. They will also secure employment opportunities in the nursery, securing livelihoods from the seedlings cultivation at the hub. Therefore, the community will be able to secure income and increase access to the market through the linkages to demand for product by consumers and those involved in clinical trials. They will also benefit from knowledge disbursed by the extension officer.	<ul style="list-style-type: none"> <li>• Baseline to establish the number of men and women farmers in the project catchment.</li> <li>• Deliberate targeting women in the recruitment of hub employees.</li> <li>• Targeting female applicants to participate in the scientific clinical trials.</li> <li>• Inclusion of women in decision making structures.</li> <li>• Inclusion of women in the targets for projects consultation and information dissemination</li> </ul>
<b>Outcome 2</b> <b>Cooperation models support the conservation of, and commercial trade in, indigenous bioproducts</b>		
Output 2.1 The implementation of the Pelargonium Biodiversity Management Plan (BMP) is	Output 2.1 will contribute to generating benefits for women through capacity building to increase the participation of women in the Pelargonium value chain and representation in decision making structures. The	<ul style="list-style-type: none"> <li>• Establish the baseline to inform monitoring and evaluation of the project.</li> <li>• Ensure parity in the representation of men and women in the project implementation structures.</li> </ul>

Outcome & Output	Considerations	Action plan
supported in close collaboration between the Pelargonium Working Group, community businesses and CSO stakeholders.	output will help improving the visibility, participation and representation of women and their roles in the species' cultivation and in the value chain by ensuring that women are represented in the selection of the staff for capacity building in the Eastern Cape. Women in the communities will benefit from the improved management of community based trusts and distribution of funds in line with the Nagoya Protocol.	<ul style="list-style-type: none"> <li>• Develop and implement a gender mainstreaming strategy for the Pelargonium working group.</li> <li>• Ensure women are represented in the ABS consultations and sharing agreements.</li> <li>• Target women for employment and distribution of cultivated species.</li> </ul>
Output 2.2 Development of an <i>Aloe ferox</i> harvesting, processing and trading hub in the Eastern Cape for the promotion of sustainable and equitable benefit sharing across the value chain.	Output 2.2 will generate employment for women as aloe harvesters, nursery worker's, aloe processors, packers in the plantation and factory operations. This will allow women to save their time and gain professional skills and knowledge through training regarding sustainable aloe cultivation and health and safety practices. Women will benefit from increased income and diversified opportunities for income generation, as well as from the increased access to land as a result of the formal agreement between the project and the traditional authority. Women will also benefit from the contract agreements that will be concluded with manufacturers and consumers of the product.	<ul style="list-style-type: none"> <li>• Conduct the baseline.</li> <li>• Target women for recruitment as harvesters and factory workers.</li> <li>• Target women and men for training in the sustainable harvesting of <i>Aloe ferox</i>.</li> <li>• Ensure women participate in the project consultations and community discussions about the distribution of benefits from the intervention.</li> <li>• Ensure equal representation of men and women in any instructions, structures and processes established to facilitate the project</li> </ul>
Output 2.3 Community-based enterprises in honeybush farming are supported, ensuring conservation and equitable benefit sharing outcomes across the <i>Cyclopia</i> spp. landscape in the Cape Region	Output 2.3 will increase women's land tenure security through the formalization of land control. The women will also benefit from capital input which will enable them to start their business. They will also benefit from increased output income and market access. They will gain skills through training interventions. They will benefit from support of a suitable grant-making mechanism to be selected during the procedural Local Project Appraisal Committee Meeting (LPAC), to be held once the PRODOC is CEO Endorsed by UNDP and DEA.	<ul style="list-style-type: none"> <li>• Establish a baseline for Output monitoring and evaluation.</li> <li>• Develop a Gender mainstreaming strategy for the project.</li> <li>• Target women in the selection of beneficiaries for the land.</li> <li>• Investigate and set up mechanisms to ensure tenure security for women in the targeted land.</li> <li>• Set up gender sensitive terms for disbursing capital to the selected women beneficiaries.</li> <li>• Ensure that the grant-making mechanism uses Gender sensitive processes in all the project deliberations.</li> <li>• Ensure women and men are equally represented in the project management structures and processes</li> </ul>
Output 2.4 The ABS implementation in Rooibos farming is	Output 2.4 activities will lead to benefitting women through the development of better governed ABS mechanisms. Women will be recognized as indigenous	<ul style="list-style-type: none"> <li>• Design and carry out a baseline for monitoring and evaluation.</li> </ul>

Outcome & Output	Considerations	Action plan
strengthened ensuring, fairness, equity and sustainability in relevant relationships among TK holders and industry.	knowledge holders. Women will also benefit from the bursaries, training, outsourcing of business and business support opportunities that will arise from the project. Women will benefit from the increased number of opportunities to be represented and to participate in the governance and institutionalization framework for implementing and monitoring the TK benefit sharing mechanism, that will be developed.	<ul style="list-style-type: none"> <li>• Gender mainstreaming strategy and gender mainstreaming of the Rooibos Governing Entities.</li> <li>• Target women in the recruitment of beneficiaries for training, IKS recording, outsourcing and business opportunities.</li> <li>• Develop mechanisms to ensure gender sensitivity in the TK benefit sharing mechanism.</li> <li>• Ensure equal representation of men and women in the mechanisms and processes set up to inform and engage the communities on the project.</li> </ul>
<b><i>Outcome 3 Bioprospecting and value addition knowledge transfer is enhanced for an equitable benefit sharing</i></b>		
Output 3 .1 The National Recordal System for TK linked to bioprospecting is supported for ensuring ABS compliance in current and future agreements between indigenous and traditional knowledge holders and industry.	Output 3 .1 will enable women to benefit from their recognition as traditional knowledge holders. Their information will be recorded and recognized which will improve their capacity to benefit from ABS. Women will be employed to document and research on traditional knowledge holders. Women will benefit from increased access to information that will be generated by the output's activities.	<ul style="list-style-type: none"> <li>• Design instruments and conduct a baseline study for monitoring and evaluation.</li> <li>• Develop and implement a gender mainstreaming strategy for the Department of Science and Technology Staff participation in the NRS.</li> <li>• Design mechanisms to ensure the targeting of men and women equally as IK holders.</li> <li>• Recruit men and women and train them as recorders.</li> <li>• Package the recorded information in such a way to ensure that women and men have equal access to the project outputs.</li> <li>• Put in place mechanisms to ensure equal representation of men and women in projects processes, consultation and governance mechanisms.</li> </ul>
Output 3.2. A biotrade certification system for South Africa is developed in view of safeguarding biodiversity conservation within bioprospecting value chains.	Women will generally benefit from a protected and sustainable environment. They will also benefit from the recognition of their role in safeguarding the biodiversity and from the species conservation. They will benefit through recruitment for training and employment as certifiers.	<ul style="list-style-type: none"> <li>• Design and conduct a baseline to be used for Output monitoring.</li> <li>• Develop and implement a gender mainstreaming strategy for the certifying authority.</li> <li>• Ensure that gender mainstreaming is part of the criteria for fulfilling the certification conditions.</li> <li>• Incentivise women and men to work through the TORs.</li> <li>• Develop gender markers to be included in the tests and indicators.</li> </ul>

## ANNEX X-8. Bibliography

#	Year	Author	Title
1	2008	Government of the Republic of South Africa	A National Framework for Sustainable Development in South Africa, Department of Environmental Affairs Republic of South Africa (DEA) and Department of Tourism of the Republic of South Africa (DT)
2	2007	Johnson et al.	Johnson Q., Syce J., Nell H., Rudeen K., Folk W. R. A randomized, double-blind, placebo-controlled trial of <i>Lessertia frutescens</i> in healthy adults
3	2004	Ojewole, J. A.	Analgesic anti-inflammatory and hypoglycemic effects of <i>Sutherlandia frutescens</i> R. BR. (variety <i>Incana</i> E. MEY.) Fabaceae shoot aqueous extract, In: Methods and Findings in Experimental and Clinical Pharmacology no. 26
4	2015	Government of the Republic of South Africa	Bioprospecting, Access and Benefit Sharing (BABS) Amendment Regulations, In: National Environmental Management Laws Amendment Act 25 of 2014 (NEMLA).
5	2013	Street R.A. and Prinsloo G.	Commercially important medicinal plants of South Africa: A review, In: Journal of Chemistry, 2013. (Access: Article ID 205048 <a href="http://dx.doi.org/10.1155/2013/205048">http://dx.doi.org/10.1155/2013/205048</a> , 21 May 2017)
6	2003	Food and Agriculture Organisation of the United Nations (FAO)	FAO Document Repository - Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries, Case Study No. 7, ( <a href="http://www.fao.org/docrep/ARTICLE/WFC/XII/0758-A1.HTM">http://www.fao.org/docrep/ARTICLE/WFC/XII/0758-A1.HTM</a> , retrieved on 10 May 2017.)
7	2003	Schippmann et al.	Impact of cultivation and gathering of medicinal plants on biodiversity: global trends and issues, In: FAO Document Repository - Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries, Case Study No. ( <a href="http://www.fao.org/docrep/ARTICLE/WFC/XII/0758-A1.HTM">http://www.fao.org/docrep/ARTICLE/WFC/XII/0758-A1.HTM</a> , retrieved on 10 May 2017.)
8	2013	Government of the Republic of South Africa	Department of Science and Technology (DST) of South Africa Republic - Initiative for the “Bio-Economy Strategy
9	2017(a)	McGregor 2017a	McGregor, G.K. (2017). Guidelines for the sustainable harvesting of wild honeybush. Department of Environmental Affairs and Development Planning, Cape Town. <a href="http://www.gouritz.com/file/repository/EADP696_Guidelines_for_the_sustainable_harvesting_of_wild_honeybush_June2107.pdf">http://www.gouritz.com/file/repository/EADP696_Guidelines_for_the_sustainable_harvesting_of_wild_honeybush_June2107.pdf</a>
10	2017(b)	McGregor 2017b	McGregor, G.K. (2017). An overview of the honeybush industry. Department of Environmental Affairs and Development Planning, Cape Town.
11	2009	Government of the Republic of South Africa	Medium-Term Strategic Framework (MTSF, 2009-14 and 2014-19), Access date: 1 Feb 2017, <a href="http://www.gov.za/sites/www.gov.za/files/MTSF_2014-2019.pdf">http://www.gov.za/sites/www.gov.za/files/MTSF_2014-2019.pdf</a>
12	2014	Department of Environmental Affairs (DEA) of South Africa Republic - Govender, 2007	Traditional Knowledge Associated with Rooibos and honey bush Species in South Africa
13	2015	Department of Environmental Affairs (DEA) of South Africa Republic	National Biodiversity Economy Strategy (NBES) for the Department of Environmental Affairs, Republic of South Africa, In: Government Gazette, 9 October 2015.
14	2012	National Planning Commission	National Development Plan 2030 Our Future-make it work.
15	Apr-14	the ABS Capacity Development Initiative the Government of South Africa	National Study on ABS Implementation in South Africa.
16	2006	Wesgrow	Natural Products Sector Brief. Wesgrow, Western Cape
18	2011	Harvey, A. L.; Young, L. C.; Viljoen, A. M.; Gericke, N. P.	Pharmacological Actions of the South African Medicinal and Functional Food Plant <i>Sceletium tortuosum</i> and its Principal Alkaloids, In: Journal of Ethnopharmacology no. 137
19	2017	Prime Africa	PPG Report (2017) Plant Distribution Sheet by Prime Africa - A sheet prepared for the needs of this PRODOC
20	2005	Kelly et al.	Recent trends in use of herbal and other natural products, In: Archives in Internal Medicine no. 165
21	2006	Republic of South Africa	Indigenous Knowledge Systems Policy - Document submitted by South Africa to Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore. Geneva, April 24 to 28, 2006.

#	Year	Author	Title
22	2016	Rooibos Council	Rooibos Industry Fact Sheet 2016, access date: 2 May 2017, <a href="http://sarooibos.co.za/wp/wp-content/uploads/2016/10/20160930-SARC-Fact-Sheet-final.pdf">http://sarooibos.co.za/wp/wp-content/uploads/2016/10/20160930-SARC-Fact-Sheet-final.pdf</a>
22	2010	Royal Society, quoted from in Wikipedia	Royal Society's list of countries by research and development spending on Wikipedia, access on 2 July 2017, <a href="https://en.wikipedia.org/wiki/List_of_countries_by_research_and_development_spending">https://en.wikipedia.org/wiki/List_of_countries_by_research_and_development_spending</a>
23	2012	Department of Environmental Affairs (DEA) of South Africa Republic	South Africa's Bioprospecting, Access and Benefit-Sharing Regulatory Framework
24	2012	Department of Environmental Affairs Republic of South Africa	South Africa's Bioprospecting, Access and Benefit-Sharing Regulatory Framework
25	2004	Government of Republic of South Africa	South Africa's Indigenous Knowledge Policy (IKS)
26	2015	Department of Environmental Affairs (DEA) of South Africa Republic	The scope and extent of the utilization of indigenous biological resources by bioprospecting industries in South Africa
27	2013	Van Niekerk J., Wynberg R.	The trade in Pelargonium sidoides: Rural livelihood relief or bounty for the 'bio-buccaneers'? Presentation for HSRC PRETORIA 25 Feb 2013
28	2014	Department of Environmental Affairs (DEA) of South Africa Republic	Traditional Knowledge Associated with Rooibos and Honey bush Species in South Africa
29	1996	Homma, Alfredo K. O	Utilization of Forest Products for Amazonian Development: Potential and Limitations, In: Lieberei, R., Reisdorff, C & Machado, A. D., Interdisciplinary Research on the Conservation and Sustainable Use of the Amazonian Rain Forest and its Information Requirements. Report on the Workshop held in Brasilia, Brazil, November 1995. Hamburg, Germany
30	2008	Beckett K., Lombard C., Millennium Challenge Corporation.	Value Chain Specialist Component (CRIAA SA-DC / PhytoTrade Africa) of the Indigenous Natural Products: Producer and Processor Organisations Sub-Activity
31	Copyright 2017	n/a	Webpage of International Work Group for Indigenous Affairs, Access date: 22 May 2017, <a href="http://www.iwgia.org/regions/africa/south-africa">http://www.iwgia.org/regions/africa/south-africa</a>
32	2008	Brendler R., Van Wyk P.	Government Gazette - Staatskoerant REPUBLIC OF SOUTH AFRICA No. 34487 Vol. 553 Pretoria, 29 July, containing National Environmental Management: Biodiversity Act (10/2004): Draft Biodiversity Management Plan for Pelargonium Sidoides 2011
33	2017	Melin et al.	Melin, A., O. M. Grace. G.D. Duckworth, J. S. Donaldson, and E. J. Milner-Gulland 2017. Social and Ecological Characteristics of an Expanding Natural Resource Industry: Aloe Harvesting in South Africa
34	2002	Raimondo et al.	Raimondo, D., Vlok, J.H., Van Wyk, B.-E., Van Jaarsveld, E.J. & Victor, J.E. 2012. Aloe ferox Mill. National Assessment: Red List of South African Plants version 2017.1. Accessed on 2017/09/19.
35	2016	Republic of South Africa	The Medicines Control Council of South Africa: Registration of Medicines, Guidelines (CMs DS Safety & Efficacy), Complementary Medicines - Discipline-Specific Safety and Efficacy, version 3, June 2016 (7.01_CMs_SE_DS_Jun16_v3.doc). Accessed on 14 Feb 2018. <a href="#">[Link]</a>
36	2011	Republic of South Africa	RSA Government Gazette, Vol. 553 Pretoria, 29 July 2011 No. 34487: Department of Environmental Affairs, 501 National Environmental Management: Biodiversity Act (10/2004): Draft Biodiversity Management Plan for Pelargonium Sidoides