Environmental and Social Impact Assessment

PIMS 5686 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, South Africa

Draft for comment 12 Dec 2024

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1 Executive summary

To be updated

2 South Africa's applicable legal and institutional framework

2.1 Policies, national laws and regulations

This ESIA itakes into account the following national legal and institutional framework for the project:

- **Constitution of the Republic of South Africa**: The supreme law of South Africa that outlines fundamental rights, responsibilities, and principles of governance, including environmental protection and human dignity.
- **National Climate Change Adaptation Strategy of South Africa**: A framework for adapting to the impacts of climate change to build resilience and ensure sustainable development.
- **National Environmental Management Act, No 14 of 2009**: Provides the framework for cooperative environmental governance and sustainable resource management in South Africa.
- **National Environmental Management: Biodiversity Act, No 10 of 2004**: Regulates the management and conservation of South Africa's biodiversity and ensures the sustainable use of biological resources.
- **National Environmental Management: Protected Areas Act, No 181 of 2004**: Establishes the legal framework for the declaration, management, and protection of protected areas in South Africa.
- **National Environmental Management: Waste Act, No 32 of 2009**: Governs waste management to protect health and the environment by reducing, reusing, and recycling waste.
- **National Water Act, No 36 of 1998**: Ensures the sustainable use, conservation, and equitable distribution of South Africa's water resources.
- **Basic Conditions of Employment Act, No 11 of 2002**: Sets out the minimum employment conditions, such as working hours and leave entitlements, to protect workers' rights.
- **Traditional Health Practitioners Act**: Regulates traditional health practices and practitioners to ensure safety, quality, and recognition of traditional healing in South Africa.
- **Hazardous Substances Act, 15 of 1973**: Controls the handling, use, and disposal of hazardous substances to protect public health and safety.
- **Occupational Health and Safety Act, No 85 of 1993**: Mandates employers to provide a safe working environment to prevent workplace injuries and illnesses.
- **Occupational Injuries and Diseases Act, No 61 of 1997**: Provides compensation for employees who suffer work-related injuries or diseases.
- **The Protection, Promotion, Development and Management of Indigenous Knowledge Act No 6 of 2019**: Protects and promotes indigenous knowledge and regulates benefit-sharing from its use.
- **Patent Amendment Act**: Amends South Africa's patent laws to enhance protection and regulation of intellectual property rights.

- **Climate Change Bill of 2018**: A proposed legal framework to manage greenhouse gas emissions and promote climate-resilient development.
- **Indigenous Knowledge Systems Policy (2004)**: Establishes guidelines for recognizing, protecting, and promoting indigenous knowledge and integrating it into national development.
- **Regulations on Bioprospecting, Access and Benefit Sharing (BABS Regulations)**: Regulates access to biological resources and ensures equitable benefit-sharing from bioprospecting activities.
- **Threatened or Protected Species Regulations, 2007 (No. R. 152 of 2007)**: Controls the management, hunting, and trade of threatened or protected species to ensure their conservation.
- **White Paper on Conservation & Sustainable Use of South Africa's Biodiversity of 2023**: Sets out policies to ensure biodiversity conservation and the sustainable use of biological resources in the face of environmental challenges.

2.2 Applicable international treaties and agreements

South Africa is party to a range of International Conventions, which guide its obligations in regard to both fair and equitable Access and Benefit Sharing (ABS) and environmental and social protection. South Africa is also committed to several international conventions, which protect the environment and human rights.

- **2010 Nagoya Protocol, ratified 2013**: A supplementary agreement to the Convention on Biological Diversity that ensures fair and equitable sharing of benefits arising from the use of genetic resources.
- **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), ratified 1975**: Regulates international trade in wildlife to ensure that it does not threaten the survival of species in the wild.
- **1992 Convention on Biological Diversity, ratified in 1995**: A global agreement promoting the conservation of biodiversity, sustainable use of biological resources, and fair benefit-sharing from genetic resources.
- **1971 Convention on Wetlands of International Importance (Ramsar), ratified in 1975**: Provides a framework for the conservation and sustainable use of wetlands to protect biodiversity and ecosystem services.
- **1992 United Nations Framework Convention on Climate Change, ratified 1997**: Establishes an international framework for addressing climate change by stabilizing greenhouse gas emissions and supporting adaptation and mitigation efforts.

2.3 Institutional capabilities

The Department of Forestry, Fisheries and the Environment (DFFE) in South Africa holds the primary mandate for implementing the Nagoya Protocol on Access and Benefit Sharing (ABS). This mandate involves overseeing the fair and equitable sharing of benefits arising from the use of the country's genetic resources and associated traditional knowledge, in line with the principles of the National Environmental Management: Biodiversity Act (NEMBA) and the associated Bioprospecting, Access and Benefit-Sharing (BABS) Regulations.

The DFFE regulates access permits for bioprospecting and commercial exploitation, ensures compliance with ABS agreements, and fosters partnerships between researchers, industry stakeholders, and indigenous or local communities. The department also has the capacity to monitor and enforce these regulations, facilitate benefit-sharing agreements, and ensure that South Africa's biodiversity is utilized in a way that supports conservation and sustainable development, while protecting the rights and interests of traditional knowledge holders. Through these functions, the DFFE upholds South Africa's obligations under the Nagoya Protocol, promoting equity, transparency, and sustainable use of biological resources.

2.4 Applicable requirements under UNDP's SES

The environmental and social implications of the project were assessed by applying the UNDP's Social and Environmental Screening Procedure (SESP). The screening assessed the project activities against the UNDP Social and Environmental Standards:

- **Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management**
  Ensures projects conserve biodiversity, protect ecosystems, and promote the sustainable management of natural resources.
- **Standard 2: Climate Change Mitigation and Adaptation**
  Requires projects to consider and mitigate greenhouse gas emissions and enhance climate resilience.
- **Standard 3: Community Health, Safety, and Security**
  Aims to safeguard community well-being by preventing risks to health, safety, and security associated with project activities.
- **Standard 4: Cultural Heritage**
  Protects cultural heritage and ensures its preservation and proper management in the context of development projects.
- **Standard 5: Displacement and Resettlement**
  Ensures that any physical or economic displacement is minimized and that affected people are provided with adequate compensation and support.
- **Standard 6: Indigenous Peoples**
  Protects the rights of Indigenous Peoples, ensuring their full participation, consent, and benefit-sharing in development projects.
- **Standard 7: Labour and Working Conditions**
  Promotes fair labor practices, safe working conditions, and the protection of workers' rights.
- **Standard 8: Pollution Prevention and Resource Efficiency**
  Encourages minimising pollution, managing hazardous substances, and promoting resource efficiency in project activities.

This screening was initially conducted as part of the project preparation and was updated in December 2024 based on the initial SESP and the revision of activities approved by the Project Steering Committee in November 2024. The screening procedure identified 13 different risks (2 high, 4 substantial, 4 moderate and 3 low). The overall project risk was categorised as High.

3 Project description

3.1 Objectives and outputs

The objective of the UNDP GEF 6 project 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 project objective has been proposed to be achieved via three technical project Outcomes (Components 1, 2 and 3) and one dissemination of project lessons outcome (Component 4).

- Component 1: Research and development 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 will focus on the Northern Cape Province, where an innovation and business support hub will be established. The component 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 on focus will include *Pelargonium sidoides*, *Aloe ferox*, Honeybush (including at least three *Cyclopia* spp. used in the industry) and Rooibos (*Aspalathus linearis*).
- Component 3: Bioprospecting and value addition knowledge transfer is enhanced for an equitable benefit sharing 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.
- 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 GEF projects.

The Project had an initial duration is 5 years (2020-2024) and was granted an 18-month extension as of October 2024.

Project Component	Project Outputs	Activities
Component 1: Research and development (R&D) of products in line with the definition of utilisation of genetic	**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.	▪ Align ABS agreement developed from consultation with communities identified in Limpopo, Mpumalanga and KwaZulu-Natal provinces. ▪ Develop a value proposition dossier on African ginger for licensing with an enterprise. ▪ Licensee notifies SAHPRA about intention to commercialise African Ginger without medicinal claims

resources of the Nagoya Protocol		
	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'.	▪ Obtain the requisite permits and authorizations for the establishment, of the Hub ▪ 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 ▪ Implement the 3-year research plan ▪ Develop best management practices (BMPs) for cultivation and harvesting planning (testing approaches, techniques and methodologies) for 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. ▪ 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. ▪ Monitor production ▪ Produce seedlings for sale/supply to community projects
Component 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.	▪ Appoint Output Manager ▪ Conduct global conservation assessment/NDF ▪ Conduct ethnobotanical study ▪ Conduct value chain analysis & socio-economic analyses ▪ Review and update BMP (expires 2018) ▪ Training of selected staff from DEA, Eastern Cape DEDEAT and Free State DESTEA in implementing the BMP ▪ Support TK holders to review and renegotiate ABS agreements and supply agreements ▪ Development of sustainable harvesting guidelines ▪ Training of local collectors to improve the sustainability of harvesting approaches ▪ Facilitate improvement of the management of community-based Trusts, and distribution of trust funds ▪ Provide financial support to M.Sc. Students ▪ Support administration of Pelargonium Working Group
	Output 2.2 Development of an *Aloe ferox* harvesting, processing and trading hub in the Eastern Cape for promoting sustainable and equitable	▪ Appoint Output Manager ▪ Independent community facilitator ▪ Aloe Business Advisor ▪ Community training- Project management Business Management Sustainable Harvesting

	benefit sharing across the value chain is supported.	▪ Horticultural planning for wild harvesting ▪ EIA consulting firm for the establishment of 1 hectare Aloe and free-standing processing plant ▪ Pre-fabricated modular office and workshop for the plantation (including bulk services and office equipment/ furniture) ▪ Wild harvesting management staff ▪ Procurement scope to be applied for wild harvesting, in relation to harvesting staff, equipment's and implements ▪ Procurement scope to be applied for wild harvesting, in relation to consumables for harvesting staff and management ▪ Pre-fabricated modular testing, processing and packaging facility (including bulk services and facility equipment/ furniture) ▪ Testing, processing and packaging staff ▪ Procurement (or rental, as required) of processing plant staff equipment ▪ Procurement of consumables for processing staff and management ▪ Marketing company
	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.	▪ Establishment of a Fund Technical Advisory Group ▪ Conduct a baseline study for the Honeybush Sector ▪ Develop the Fund Guidelines; ▪ Implement the Fund Guidelines ▪ Measure Impact of the Fund
	Output 2.4 The ABS implementation in Rooibos farming is strengthened, ensuring fairness, equity and sustainability in relevant relationships among TK holders and industry.	▪ 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; ▪ 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 institutionalisation 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 ▪ Disseminating the case study outcomes as example to ABS stakeholders in SA and beyond.
Component 3:	**Output 3.1** The Registration System for TK linked to	▪ Bio-cultural Community Protocol Workshops and documentation concluded (10 in total, 2

Bioprospecting and value addition knowledge transfer is enhanced for equitable benefit sharing	bioprospecting is supported for ensuring ABS compliance in current and future agreements between indigenous and traditional knowledge holders and industry.	workshops/annum)- Workshops in Mpumalanga Province ▪ SANBI training of IK recorders to collect plant specimens – Focus on plants in Mpumalanga Province ▪ Cost of Recording Equipment (notebook, Camera, camera accessories, laptop bag) per IK recorder Training sessions on Documentation Methodology p/a ▪ Cost for IK Recorder (5 IK Recorders in total) ▪ Online IKS registration system developed for inclusion into NIKMAS to support ABS Compliance
	Output 3.2 A biotrade certification system for South Africa is developed with a view to safeguarding biodiversity conservation within bioprospecting value chains.	▪ Letters of commitment ▪ Final Test Case Implementation plan ▪ Test case risk assessments and action plans ▪ Test case action plan implementation progress report ▪ Test Case Report ▪ Final National Biotrade Charter ▪ Final Biotrade Charter Operational Manual
Component 4: Knowledge Management and M&E.	**Output 4.0** National and international stakeholders supported to participate in the M&E and to systematise lessons learned from its implementation.	▪ National and international stakeholders supported to participate in the M&E and to systematize lessons learned from its implementation.

3.2 Scope of ESIA

The goal of the Environmental and Social Impact Assessment (ESIA) is to look at the contribution of the project to the development of value chains for products derived from genetic resources through an environmental and social lens, in order to minimise adverse impacts and maximise development impacts in the long and short terms. The report then identifies the positive and negative impacts of project activities, focusing on unintended negative impacts, which should be mitigated to enhance the positive impacts of the sector. The ESIA delineates the impacts according to the UNDP social and environmental standards, gives an indication of the relative significance of impacts and then outlines a series of mitigation measures to attenuate the effects of these impacts. Mitigation measures will be further informed by the Environmental and Social Management Framework (ESMF) of which results herein will contribute towards development of the comprehensive Environmental and Social Management Plan (ESMP). Specifically, the objectives of the ESIA are to:

1. Strengthen the social and environmental outcomes of the project
2. Validate risks identified through the SESP
3. Identify the adverse social and environmental impacts
4. Propose a ESMF to minimise, mitigate, and manage adverse impacts where avoidance is not possible
5. Strengthen UNDP and partner capacities for managing social and environmental risks at the project level through the presentation of results
6. Ensure full and effective stakeholder engagement through extensive consultation

Based on the SESP, the ESIA is being conducted for the following outputs:

- **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.
- **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 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 2.2** 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.
- **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.
- **Output 2.4** The ABS implementation in Rooibos farming is strengthened, ensuring fairness, equity and sustainability in relevant relationships among TK holders and industry.

4 Environmental & social impact assessment per output

1.1. 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.

4.1.1 Output activities

Output 1.1 aims to overcome R&D barriers linked to clinical studies and registration of African Ginger (Siphonochilus aethiopicus) as a bioresource to treat inflammatory and allergic diseases in an ABS-compliant manner. The output aims to achieve this through achieving three activities:

- Align ABS agreement developed from consultation with communities identified in Limpopo, Mpumalanga and KwaZulu-Natal provinces.
- Develop a value proposition dossier on African ginger for licensing with an enterprise.
- Licensee notifies SAHPRA about intention to commercialise African Ginger without medicinal claims

4.1.2 Baseline

- **Project area**

The output directly addresses the barriers to the development of the AG value chain in an ABS compliant manner. The output therefore influences the socio-regulatory landscape rather than a physical one. As such, there is not a direct geographic footprint or area of influence but rather key communities within which TK Holders will be directly influenced. This output will be implemented in three provinces. Although specific villages and communities have been selected for project implementation, due to their environmental context, this ESIA will look at the regional context.

African ginger (Siphonochilus aethiopicus) is currently listed as Critically Endangered on the SANBI Red List of South African Plants. The species has experienced a dramatic decline in its wild populations due to overharvesting for medicinal purposes. It is now extinct in KwaZulu-Natal and has declining populations sporadically scattered in Limpopo and Mpumalanga. Its broad habitat requirements suggest that it was more widely distributed across a broad swathe of the tropical parts of eastern Limpopo, Mpumalanga and KwaZulu-Natal prior to intense harvesting. The distribution of these communities and TK holders can be seen in Figure below.

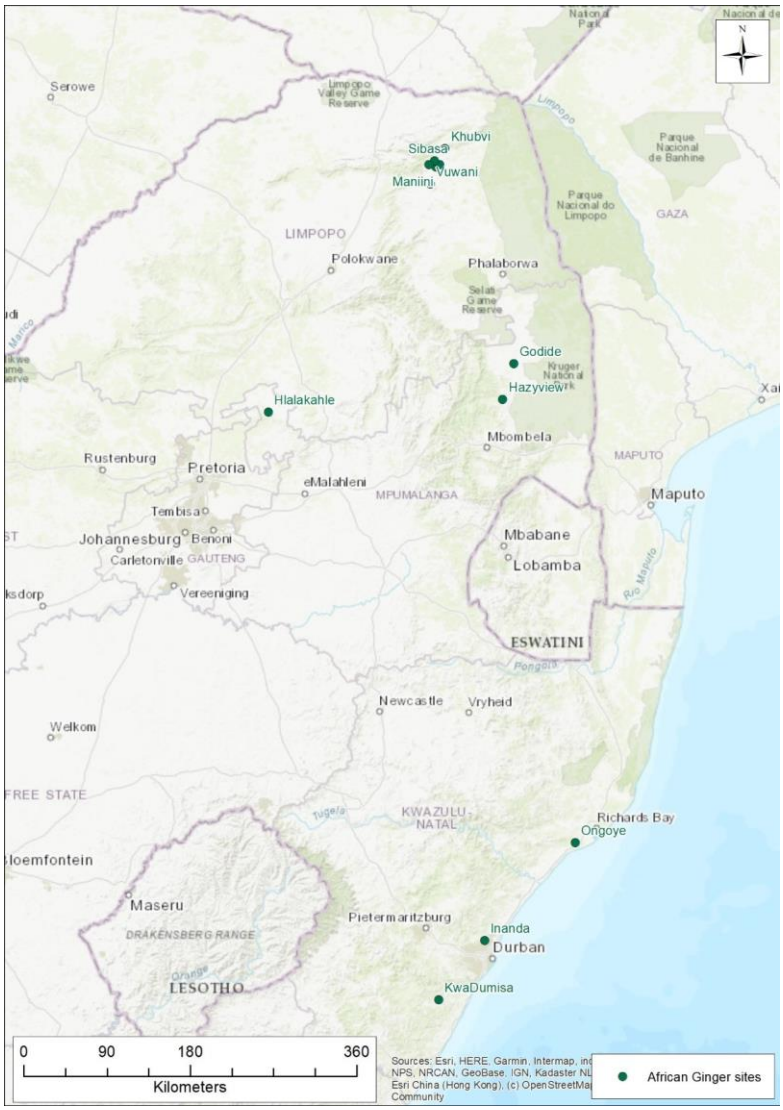


Figure . General location of Output 1.1 sites across the three provinces

- Limpopo

This province is on the northern tip of South Africa, bordering Botswana, Zimbabwe and Mozambique. The province is made up of three former homelands of Lebowa, Gazankulu and Venda, and part of the former Transvaal province. The population of Limpopo consists of several ethnic groups distinguished by culture, language, and race. 97.3% of the population is Black, 2.4% is White, 0.2% is Coloured, and 0.1% is Indian/Asian. The dominant ethnic groups are Pedi, the Tsonga and the Venda. Traditional leaders still form a strong backbone of the province's political landscape. The villages that have been identified to be IK holders for this project are Vuwani, Tshitomboni, Khubvi, Lufule, and Maniini.

The main economic activities in the province are agriculture, mining and tourism. The province boasts the Waterberg UNESCO Biosphere whose dominant ecosystem is dry deciduous forest and bushveld. Within the Waterberg there are archaeological finds dating to the Stone Age, and nearby are early evolutionary finds related to the origin of humans. Limpopo is well known for its tourism as there are many protected areas in the province, the most famous one being the Kruger National Park, which it shares with the neighbouring Mpumalanga Province. There are many habitat types that are classified as Poorly Protected, many listed birds and plant species in the province (endemic, threatened, rare, etc.), one of which is African ginger (*Siphonochilus aethiopicus*).

- Mpumalanga

The Mpumalanga Province shares borders with Limpopo, KwaZulu Natal, Gauteng, Mozambique and Eswatini. Mpumalanga means "East" or "Place where the Sun Rises", signifying the geographical location of this province in South Africa. It is formed of "Bantustan" areas that existed before the 1994 independence, KaNgwane, KwaNdebele and parts of Lebowa and Gazankulu. In terms of population size, the province ranks sixth of the nine provinces of the country. SiSwati, isiZulu and Xitsonga are the dominant languages. 95.3% of the population is Black, 3.6% is White, 0.6% is Coloured, and 0.5% is Indian/Asian. The sites that have been identified for this project are Hazyview, Godide, and Hlalakahle.

Its main economic activities are agriculture, mining and tourism. The Drakensberg escarpment divides Mpumalanga into a westerly half consisting mainly of high-altitude grassland called the Highveld and an eastern half situated in low-altitude subtropical Lowveld/Bushveld, mostly savanna habitat. This topographical diversity has led to high biodiversity and unique ecological infrastructure. Mpumalanga is a warm summer-rainfall province, containing three of South Africa's nine biomes: grassland (highveld and escarpment hills), savanna (escarpment foothills and lowveld) and forest (south and east facing escarpment valleys).

- KwaZulu Natal

This province is located along the eastern coast on the Indian Ocean. It shares borders with three other provinces and the countries of Mozambique, Eswatini and Lesotho. This province was formed in 1994 by combining the KwaZulu Bantustan with Natal. It is mainly "Zulu land" and is one of the South African provinces that have deep traditional roots. Its dominant language is isiZulu (80%), with English (14.4%), isiXhosa (3.1%) and Afrikaans (1.0%) also being spoken. The population is 84.8% Black, 9.3% Indian, 4.1% White, and 1.5% Coloured. Traditional leadership is the backbone of governance in rural areas, with the Zulu monarch being the main icon for this form of governance. The sites that have been identified for this project in the province are Ongoye, Inanda, KwaDumisa and Umbambasa.
Its economy is the second largest after Gauteng's, with agriculture, manufacturing and tourism being the main economic drivers.

Two areas in KwaZulu-Natal have been declared UNESCO World Heritage Sites: the iSimangaliso Wetland Park and the uKhahlamba Drakensberg Park. These areas are extremely scenic as well as important for biodiversity conservation.

- Socio-economic conditions

In all three provinces, there is widespread chronic poverty and since 1994 the government has been trying to promote poverty alleviation through job creation to help these impoverished communities. These problems are worse in rural areas, where most people are dependent on subsistence agriculture and social grants. There are very few employment opportunities, which has resulted in people migrating to urban areas. Even subsistence farming is no longer productive due to climatic changes, soil depletion, and other social problems. Although there are some

opportunities to develop tourism, most are focused on private lands. Even the large and famous government protected areas have not resulted in significant flows of tangible benefits to surrounding communities. This ABS project is therefore seen as a potential vehicle that can contribute to community beneficiation, helping to alleviate poverty and unemployment in key areas.

Table: Population statistics of the study provinces as per Census 2022

	Limpopo	Mpumalanga	KwaZulu Natal
Total population	6 572 721	4 039 939	12 423 907
Young children (0-14 years)	31,60%	28,40%	27,20%
Working age population (15-64 years)	61,40%	66,40%	66,40%
Elderly (65+ years)	6,90%	5,20%	6,40%
Dependency ratio	62,7	50,6	50,5
Sex ratio	89,2	92,4	91
No schooling (20+ years)	14,10%	11,70%	8,30%
Higher education (20+ years)	9,90%	7,30%	10,40%
Number of households	1 811 565	1 421 721	2 853 741
Average household size	3,6	3,6	4,4
Formal dwellings	94,70%	92,20%	86,80%
Flush toilets connected to sewerage	35,20%	54,90%	58,90%
Weekly refuse disposal service	32,00%	51,10%	57,70%
Access to piped water in the dwelling	31,40%	47,00%	51,80%
Electricity for lighting	95,50%	93,70%	96,70%

Project beneficiaries can be divided into two categories , the Traditional Healers' Committee (THC) and its constituents and other Traditional Knowledge (TK) holders as represented by relevant communities within Mpumalanga, Limpopo and Kwa-Zulu Natal.

- The THC and constituents: The THC is a network of Traditional Health Practitioners (THPs) across the various provinces of South Africa, except the Western Cape. The THC interacted with the CSIR and agreed on the following:
    - The THC should disclose the confidential information regarding the traditional knowledge on the uses of the plant species to treat human diseases and provide the CSIR the authority to investigate the traditional uses of the plant species
    - The THC signed Memorandum of Agreement (MoA) with CSIR to set out the terms and conditions for the Research and Development of the project, the intellectual property and benefit sharing arrangements
    - The Benefit Sharing Agreement obligated the CSIR to share in royalties generated from the commercialisation of technologies and products developed from the African ginger with the THC.

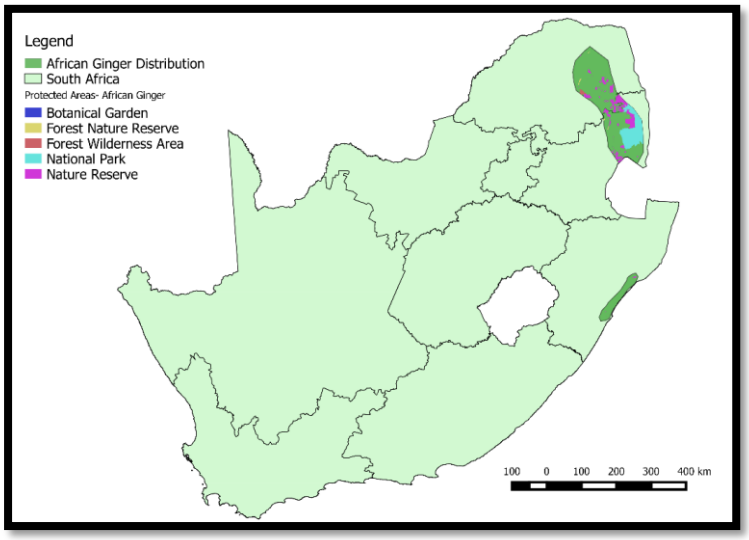
- Communities and TK holders: The CSIR, the Implementing Agent of this output undertook a desktop assessment to identify appropriate TK holders at a community level. The CSIR

identified that in Limpopo the African ginger is predominately used by local communities of the Vuwani, Tshitomboni, Khubvi, Lufule, Sibasa, Maniini and Mulenzhe villages to treat respiratory infections, stomach pains and malaria. In Mpumalanga the CSIR found that the African Ginger occurs within the communities of Godide and Hlalakahle villages. In KwaZulu Natal, they found that the plant occurred at Ngoye, Inanda, Dumisa and Umbambasa (Port Shepstone area).

- **Biophysical context**

African ginger is found in low-lying areas (<1,500 m) that have a frost-free tropical to subtropical climate, with the following generalised annual and monthly rainfall and temperature patterns. Most of the annual rainfall (ranging between 600-900 mm per year) occurs in summer, with January and February often being the wettest months. The Rainfall Concentration Index is high, indicating that most of the rainfall is concentrated in a few months. Rainfall is scarce during winter, with occasional light showers associated with frontal conditions. The region experiences prolonged dry spells, especially from May to August, which can impact agricultural activities.

The geological and edaphic environment varies considerably across the historic range of African Ginger, suggesting that it is not restricted to any one geology or soil type. The national distributional area represents approximately 35 000 km2 in eastern Limpopo and Mpumalanga and coastal Kwa-Zulu Natal. Nursery studies suggest it prefers well-drained sandy loam or loamy soils with high organic matter and a slightly acidic to neutral pH (5.5–7.0). Local populations of African Ginger are generally found in open woodlands and savanna ecosystems in shaded or semi-shaded environments under canopy trees or shrubs or among dense grasslands. It seems to prefer areas with good water retention during the rainy season but not prone to waterlogging, and seasonal drying of soils may be beneficial for its dormancy period.



Distributional range of Siphonochilus aethiopicus

4.1.3 Social and Environmental impacts

Risk	Description	UNDP SES	Activity introducing risk	Scope	Rating
Risk 1- Inequitable impacts on marginalized groups, including women.	**Event:** The ABS for African Ginger may result in inequitable or discriminatory impacts on marginalized people in communities, including women, youth and the most impoverished. **Cause:** Insufficient consideration of social dynamics and gender roles in access and processing of African Ginger in the alignment of ABS in the Limpopo, Mpumalanga and KwaZulu-Natal provinces. **Impact:** Youth, women and 's groups impoverished or illiterate people's no or limited access to African Ginger licensing benefits.	**Principle Leave No One Behind** P.5, P.7,P.8,P.10 and P.11	Activity 1 on alignment of ABS agreement	All targeted areas	Moderate I = 3 L = 3
Risk 2- Risk of inadequate stakeholder engagement	**Event:** The consultations on ABS for African Ginger do not engage all relevant stakeholder groups who are impacted by the ABS and licensing. **Cause:** Insufficient mapping and outreach to stakeholders in the Limpopo, Mpumalanga and KwaZulu-Natal provinces on ABS for African ginger. **Impact:** All stakeholders, including youth, women and 's groups impoverished or	**Principle Leave No One Behind** P.2 and P.13	Activity 1 on alignment of ABS agreement Activity 2: Develop a value proposition dossier on African ginger for licensing with an enterprise.	All targeted areas	High I = 4 L = 5

	illiterate people's, views are not reflected in the ABS resulting in limited access to African Ginger benefits.				
Risk 3- Concerns or grievances raised by stakeholders not being properly addressed	**Event:** Stakeholders participating in the alignment of the ABS for African Ginger and licensing process face challenges in effectively claiming rights, raising concerns, or filing grievances. **Cause:** Participants or recipients may face barriers and limiting factors including: • Lack of awareness of processes to raise a grievance • Logistical challenges. • Language, cultural, and literacy differences. • Limited access to or familiarity with necessary technology. **Impacts:** • Erosion of trust and collaboration. • Generation/exacerbation of conflict	Accountability Principle: P.14, P.15	Activity 1 on alignment of ABS agreement Activity 2: Develop a value proposition dossier on African ginger for licensing with an enterprise.	All targeted areas	High I = 5 L = 5
Risk 4 – Non-compliance with environmental regulations and potential international conflict over unverified African Ginger' origins	**Event:** Non-compliance with environmental regulations and potential international conflict over unverified African Ginger's origins **Cause:** Lack of due diligence on environmental regulations for wild harvesting and cultivation of African Ginger as well as of	**Standard 1. Biodiversity conservation and sustainable NRM S**1.13			Moderate I = 3 L = 3

	its origins prior to establishing dossier for licensing **Impacts:** • Legal risks, including fines and project delays. • Reputational damage and loss of trust with entreprise for licensing • Potential international trade disputes.				
Risk 5 - Mishandling of cultural heritage due to commercial cultivation	**Event:** Undermining traditional knowledge of use and processing of African Ginger by traditional healers **Cause: Lack of protocol for recording and using traditional knowledge for revising ABS on African Ginger during consultations with communities in** the Limpopo, Mpumalanga and KwaZulu-Natal **Impacts:** • Reducing access to African Ginger for traditional healers due to over commercialization under licensing scheme. • Unfair access to benefits for traditional healers under ABS following appropriation of traditional knowledge by entreprises	**Standard 4: Cultural Heritage,** 4.5			Moderate I = 3 L = 3

4.2 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'.

4.2.1 Output activities

Various community businesses, NGO and private sector bioprospecting activities are already operating in the Province in production organisation modes that can be generally characterised 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).

Because of an ageing population with an escalating number of cases of arthritis, the demand for **Devil's claw** (*Harpagophytum spp*) has increased dramatically over the years. Devil's claw has been found to be effective in the treatment of degenerative rheumatoid arthritis, osteoarthritis, tendonitis, kidney inflammation, and heart disease. Most of the world's supply comes from Namibia, with lesser amounts from South Africa and Botswana. In 2002, the peak year of export, 1,018 tonnes of dried tubers were exported from southern Africa, representing the harvest of millions of plants. Devil's claw is harvested from the wild with the risk of over exploitation by collection combined with damage to habitat due to careless digging work. Harvest has improved income levels in marginalised communities, but it has also raised questions of sustainability. Replacing wild collection with cultivation has generated a debate on the positive and negative effects on harvester income and rural farmers. Successful cultivation efforts have involved micropropagation techniques and growing the plant without water or fertilizers. The governments of the main range states are working with local communities to develop policies and regulations to protect the species and to determine a sustainable harvest (Stewart & Cole, 2005, Schneider et al., 2006). *Harpagophytum procumbens* has been a proclaimed protected species in South Africa since 1975 and a permitting system was put in place for wild harvesting and cultivation. A number of private initiatives in Namibia and South Africa is successfully propagating the plant on a limited commercial scale and a permit system is in the process of being implemented in the Northern Cape and North West Province (Powell, 2001).

Cancer Bush (*Lessertia frutescens*) is a perennial shrub native to South Africa and grows in the Western, Eastern, and Northern Cape provinces and some areas of KwaZulu-Natal. It has been used for centuries by indigenous communities, such as the KhoiSan and Zulu tribes, who recognised its remarkable medicinal properties. The plant is mostly wild harvested but a few small commercial plantings of Sutherlandia are found in the Western cape and Mpumalanga provinces. The original inhabitants of the Cape, the Khoi San and Nama people, used decoctions made from *Lessertia* to wash wounds and to bring down fevers, and is still one of the most commonly used medicinal plants in the Western Cape. Discussions on bio-prospecting and intellectual property rights concerning use of *Lessertia* include benefit sharing, bio-prospecting, and intellectual property rights (Aboyade et al., 2014) since 2014.

Kougoed/kanna (*Sceletium tortuosum* has been used by South African pastoralists and hunter-gatherers as a mood-altering substance from prehistoric times. The first known written account of the plant's use was in **1662** by Jan van Riebeeck. It is slowly declining in population numbers due to harvesting for medicinal use (Manganyi, et al., 2021). Sceletium's rarity and vulnerability to over-harvesting has led to the clear requirement that it be widely cultivated in order protect existing wild stocks. In 2008, the South African San Council signed a benefit sharing agreement, covering

traditional knowledge of the *Sceletium* plant. The agreement protected active components of the plant that are currently marketed by HG&H Pharmaceuticals in South Africa, the USA, Canada, Brazil, Malaysia, and Japan. In the agreement, 5% of all sales of the extract are paid into a trust fund for the San peoples, with a further 1% paid for the use of a San logo on the product. The proceeds are shared equally with two communities in Namaqualand, who provided a major lead to the commercial developer. Standardized botanical extracts of the plant are now used in a product called Zembrin® to counter anxiety, stress, and depression (Shroeder et al. 2020).

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 manner, 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.

Output 1.2 involves supporting the Bioprospecting R&D in the Northern Cape, boosting the local Bioprospecting economy and establishing a strategically located 'Bioproducts Development Hub' through the following:

- Obtain the requisite permits and authorisations for the establishment, of the Hub.
- 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.
- Implement the 3-year research plan.
- Develop best management practices (BMPs) for cultivation and harvesting planning (testing approaches, techniques and methodologies) for each species.
- Develop best management practices (BMPs) for agro-processing support and quality control for product application for each species.
- Establish a simple marketing plan, limited to the establishment of a suitable website presence with a view to establish market linkages.
- 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.
- Monitor production.
- Produce seedlings for sale/supply to community projects,

4.2.2 Baseline

- **Project area**

The project sites selected for the research and cultivation of Devil's Claw, cancerbush, and kanna/kougoed in the Northern Cape are the following:

- **Upington**, where Die Eiland Research Farm is located, serves as the administrative seat of the DKLM. Human settlement in Upington started with the Korana Hottentots who settled at the ford in the Great River called Gariep. The Korana had been ousted by white settlers from their ancestral lands in the south and moved north and sought refuge on the banks of what is now referred to as the Orange (Gariep) River. The population of about 75,000 (StatsSA, 2011) is about 63% Coloured who speak Afrikaans. Upington normally receives about 94mm of rain per year, with most rainfall occurring during autumn. The average daily maximum temperatures ranges from 19.8°C in June to 33°C in January.
- **Klein Mier** and **Askham** fall in the Dawid Kruiper Local Municipality (DKLM), named after Khomani San leader Dawid Kruiper, in the ZF Mgcawu District Municipality (ZFMDM). Access to area is via the R380, which links Upington in the south east to the Namibian

border to the north-west. The topography of the majority of the Mier area consists of undulating parallel red dunes, hence the Red Dune Tourist Route, a group of guest houses, farms and game reserves in the remote most northerly area of the Northern Cape. Haksteen Pan lies close to the Mier communities and hosts the annual global Bloodhound land speed record event. The majority of the residents is the Khomani San and speaks Afrikaans. The area is extremely dry and receives little annual rainfall of about 83mm per year, with most rainfall occurring during summer. The average daily maximum temperatures ranges from 20°C in July to 33°C in January.

- Kuruman was established in 1887. Its name is derived from Khoikhoi word that means 'where wild tobacco stands'. The Ga-Segonyana Local Municipality is a sphere of local government in the John Taolo Gaetsewe District Municipality of the Northern Cape. Segonyana is the Setswana name of a spring, commonly known as Eye of Kuruman. Kuruman has been named the "Oasis of the Kalahari" with a mineral spring (The Eye), delivering some 20 million litres a day. It is situated on the N14 main route between Gauteng and Namibia/Cape Town via Upington Segonyana IDP, 2023). The Black African, Coloured, and Indian/Asian population groups increased from 1996 to 2022, whilst the White population showed a marginal decrease over the same period. There is a greater proportional increase observed for the Black Africans, followed by Coloureds. The language mostly spoken by households in Ga-Segonyana municipality is Setswana, (spoken by 86.9%) followed by Afrikaans (spoken by 9.3%). The rural villages to the north-west of Kuruman are administered through a traditional authority system with two Traditional leaders (Ga-Segonyana IDP, 2023). The Kuruman River originates east of Kuruman where it receives water from several springs - the Great Koning Eye, Little Koning Eye and the Kuruman Eye. Both the Kuruman River and its major tributary the Ga-Mogara River are usually dry, flowing only for short periods following sufficient rainfall. Kuruman normally receives about 266mm of rain per year, with most rainfall occuring mainly during summer. The average midday temperatures range from 17.5°C in June to 32.6°C in January.
- Springbok is located in Namaqualand, falls in the Nama Khoi Local Municipality (NKLM), and had an estimated population of 12,790 in 2011 (StatSA, 2011). Springbok is a major commercial and administrative centre for copper mining operations in the region. Springbok is the Afrikaans translation of the original Khoikhoi word for the animal. The town was originally founded in 1862 as a copper mining area. Springbok is located on the N7 that connects the Cape with Namibia, and at the western end of the N14 that connects with Upington and Pretoria. Coloured people make up 79.9% of its residents with Afrikaans being the most widely spoken language. This arid area is home to seasonal vegetation, such as the Namaqua daisies, and drought resistant succulents, such as the kokerboom. The area is famous for the incredible transformation that occurs every spring when the near-lifeless scrubland explodes into colour from thousands of flowers brought to life by winter rains. Springbok normally receives about 106mm of rain per year during winter. The average daily maximum temperatures ranges from 16.5°C in July to 28.3°C in February. The municipal water supply for the town of Springbok is 11,000 to 12,000 gallons per day obtained from a number of boreholes into the groundwater.

- Socio-economic conditions

The Northern Cape Province has the third highest per capita income of all nine Provinces. The employment rate for the Municipality is relatively high, with as much as 75% of people of working age who are actively seeking employment being able to secure a job. However, the majority of the employed population is found in elementary occupations, which require little or no skills. This is also reflected in the low education levels of the local population, with as much as 12% of the population aged 20 years and older having no form of education. This, to some extent, constrains the development potential of the Municipality in the development of more advanced industries.

The level of employment and type of occupations taken up by the population of the Municipality directly affects their income levels (Dawid Kruiper IDP, 2018). The income distribution is extremely skewed, with a high percentage of the population living in extreme poverty. Economic development in the Northern Cape is hampered by the vastness of the area and the remoteness of its communities in rural areas. Development is also hampered by the low education and skills levels in the province. Unemployment in the Northern Cape presents a major challenge. The economy is centred on the trade and retail sector due to its strong tourism sector, leaving the local economy fairly vulnerable for any significant changes in this industry. The manufacturing sector of the economy is not performing well, however, given the good agricultural base, opportunities for the expansion of the manufacturing industry exists through agro-processing and other activities (Dawid Kruiper IDP, 2018). Agricultural prospects in this area are limited, by far insufficient to sustain the whole community.

The majority of the population (90.3%) is Coloured/San, followed by Whites (4.4%), Blacks (4%) and Asian/Indian (0.6%). Afrikaans is the main language spoken in the area (92.8%) followed by Setswana (0.8%), and English (0.2%). On average, the population consists of 49.9% of male population and 51.1 % of female population (David Kruiper IDP, 2018).

It is estimated that 1,500 Khomani San people live in the Northern Cape with the majority residing in the Mier Local Municipality. The Askham community developed around the school that was built in 1931, and the Dutch Reformed Church that serves the whole Kalahari. Mier, which includes Klein Mier and Askham, is semi-desert and the area has limited natural resources. Primary productivity is extremely low and large areas are required for economically viable stock farming. Members of the !Khomani San produce and sell authentic San weapons like bow and arrow, and curios like beads made from the shell of ostrich eggs, or bags made out of animal skins. The San also practice tracking, telling old stories and traditional hunting on one of their farms that they won in a land claim in 1999.

The Mier Area, consisting of Groot Mier, Klein Mier, Loubos, Rietfontein, Philandersbron, Andriesvale and Askham, is predominantly extensive stock and game farming area. The Mier municipality owns 30,000 ha of game farms. These and other privately owned game farms offer hunting opportunities and provide facilities for biltong making. Mier also has a 4x4 route that stretches from Rietfontein to Pulai. Sheep farming is the most important with cattle, donkeys, mules, goats and game as secondary farming activities in the area. The remoteness of the area, a lack of electricity and a limited water supply (both quantitatively and qualitatively) limits business opportunities. The Mier area, as part of the larger Kalahari semi-desert, could be classified as a water-poor area. Water provision for agriculture as well as for household purposes, take place through boreholes. The Kalahari East water supply scheme provides water to the Mier Area from Upington. In large parts of the Mier Area no water is available. Some farmers have to pump water for stock through pipelines or transport it per road and over long distances on a daily basis. The scarcity of underground water causes farms to be economically under-utilised and technically not well planned. Farms in Mier Area cannot be economically utilised, and subsequently a roof is placed on the income potential of the total agricultural industry in Mier (Dawid Kruiper IDP, 2018). The delivery of water from boreholes to the agricultural industry is mostly not enough and the quality of the borehole water is poor and unserviceable. The towns do not have sufficient and effective sewerage systems. Sanitation in the Mier towns consists mainly of bucket systems, VIP systems, and unimproved pit latrines, while urban areas are mainly serviced with flush systems (Dawid Kruiper IDP, 2018).

Upington area is very arid but the soil is fertile and crops such as fruit are grown in irrigated fields. The area is best known for its export-quality grapes, raisins and wines, which are cultivated on the rich flood plains of the Orange River. The main land uses in the area are linked to grape farming and agriculture along the Gariep River (Orange River) and livestock farming away from the river. A number of solar energy projects have been proposed and are in the area and the Upington solar plant, which is the first photovoltaic solar plant in South Africa, was installed in 2016 and is able to generate more than 20 GWh per year. Various areas around Upington are classified as nature conservation areas. Spitskop Nature Reserve, 13 km north of Upington, is approximately 6 000 hectares and supports gemsbok, zebra, springbok, ostrich, eland, blue wildebeest, as well as smaller game. Four libraries serve the community in Upington, the mission station established in 1871 houses the Kalahari Orange Museum, which has a donkey statue to recognise the contribution the animal made to the development of the region during the pioneering days of the 19th century. Water for agriculture and domestic use is abstracted from the Orange River.

Kuruman is central to economic activity in the Ga-Segonyana Local Municipal area and pivotal to the greater region's mining industry. Although there is little or no mining activity in the boundaries of the Ga-Segonyana municipal area itself, manganese, iron ore, tiger's eye and blue asbestos deposits are being mined in neighbouring municipal areas. The thriving economy in Kuruman and its surrounding villages has made it the commercial, institutional and residential centre for the area (Segonyana IDP, 2023). Smaller business sectors are also to be found in the tribal areas, such as Maruping and Batlharos. A smaller section of businesses at homes are also to be found throughout the municipal area with more and more tuck shops, offices and residents working from home can be found. The agriculture and transport and communication sectors employ the most people. The government sector, and the community and social services' sectors are also important contributors. However, poverty in the area is attributable to two factors, namely the high unemployment rate and the fact that it is predominantly elementary occupations that creates the available jobs. Ga-Segonyana Local Municipality is renowned for its natural resources that gives it a competitive and comparative advantage in water, mining, tourism and agriculture. The Kuruman River passes the surrounding farms; thus providing a secure source of water for domestic, agricultural and livestock farming. The mining activity has been responsible for the recent boom in economic growth. Apart from mining, agriculture (cattle and game) supports the town's economy. Added to this is tourism, particularly business tourism attracted by the mining boom. The tourism industry can therefore be expected to continue to grow bolstered by hunting and eco-tourism. The Kuruman area is experiencing a growth in game-related tourism with a particular emphasis on hunting. Ga-Segonyana Municipality has a large rural community (80% of the population) with an extensive farming community that is located to the south of Kuruman and a tribal area that is located to the north of Kuruman (Segonyane IDP, 2023). Most of the communities within GLM receive water for free. Of all households, only 6.6% have access to piped water either in their dwelling or in the yard. As per the 2011 Census, 71.7% sourced water from a water services provider (municipality or other), 15.6% used borehole water and 5.8% received water via a water truck. The majority of the population uses pit toilets (40.3% with ventilation and 36.7% without ventilation), 10.3% of the population have no access to toilet facilities, and 6% are connected to a sewerage system (DMR, 2012). Excessive consumption of alcohol and alcohol-related crimes, as well as alcohol dependency within the communities are a major challenge in the area (Mpani, 2015). Kuruman has the highest population of residents who have completed matric and have higher qualifications, with just over a third of its adult population possessing a matric certificate (Stats SA, 2017). The education levels are therefore moderate but have great room for improvement.

Springbok is a major commercial and administrative centre for copper mining operations in the region. The mining sector is the primary contributor to job creation and economic growth together with the tourism sector (Nama Khoi Annual Report, 2024) and the government sector (Savannah Environmental, 2023). However, unemployment, especially of the youth, is a challenge faced by the area. The municipal water supply for the town of Springbok is 11,000 to 12,000 gallons per day obtained from a number of boreholes into the groundwater. The Goegap Reserve is approximately 15,000 hectares in size and lies 15km to the southeast of Springbok. It consists of granite koppies and sandy plains.
Upington and Springbok areas fall within the Renewable Energy Development Zones, promulgated in the DFFE in 2018. Renewable energy provides the much-needed diversification of South Africa's electricity generation, it is however recognised that renewable energy facilities can have negative impacts on biodiversity (DFFE, 2019).

- **Biophysical context**

The project area around Klein Mier is relatively close to the Kgalakgadi Transfrontier Park, the world's largest conservation area. These selected areas are overlaid on the map of the geographical distribution of Harpagophytum procumbens (Devil's Claw) in the figure below.

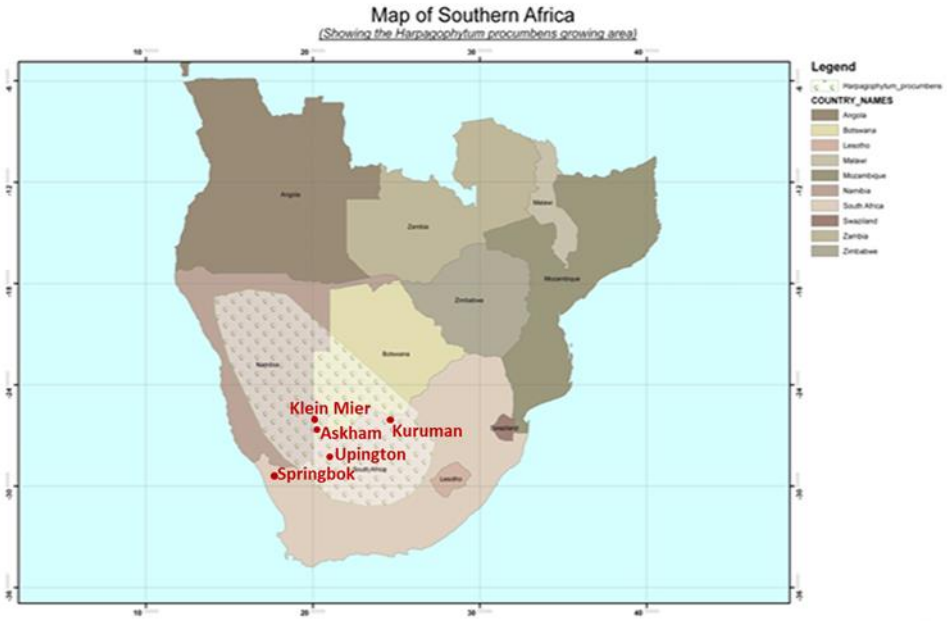


Figure 3-2: Project areas overlaid on the geographical distribution of *Harpagophytum procumbens* (Devil's Claw) in Southern Africa (Adapted from: Mowa & Maas, 2013)

Devil's Claw is widely distributed in Africa and can be found in Angola, Botswana, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe. Within South Africa this species occurs in the Northern Cape, North West, Free State, and Limpopo Provinces and the largest populations are found in the communally owned areas of the North West Province and the north eastern parts of the Northern Cape. A very widespread and abundant species, with an extent of occurrence (EOO) of over 400 000 km^2. Commercial harvesting for the international medicinal trade is currently affecting only a small proportion of the total South African population (<2%). Plants recover from harvesting and this pioneer species thrives in overgrazed and disturbed areas. The population is therefore stable and under no threat. It is therefore assessed as Least Concern (Raimondo et al., 2012). The Devil's Claw plant is a perennial herb, sprouting annually from a tuberous primary tuber from which the secondary tubers are formed. The secondary tubers are harvested for medicinal purposes as they contain active ingredients with analgesic and anti-inflammatory properties.

Devil's Claw has significant medicinal properties and currently a substantial trade in dried plant tubers takes place. The indigenous San and Khoi peoples of southern Africa have used Devil's Claw tubers for medicinal purposes for centuries (Fell, 2002, Gxaba, & Manganyi, 2022).
The selected project areas for kanna/kougoed are overlaid on the map of the geographical distribution *Sceletium tortuosum* in the figure below.

Figure 3-3: Project areas overlaid on the geographical distribution of *Sceletium tortuosum (kanna or kougoed) in South Africa. (Source: https://sceletium.com/sceletium-botany/.)*

Kanna or kougoed is a succulent, flowering plant, indigenous to South Africa. This species occurs in the Northern, Western and Eastern Cape provinces of South Africa, where it is stretches from Namaqualand to Montagu and Aberdeen. This species is widespread and occurs commonly in many parts of its range, however the population is suspected to be in declining at a slow rate due to harvesting for medicinal use (Raimondo et al., 2023). The plant is traditionally known for its ability to elevate mood, reduce stress, tension, anti-anxiety and its tranquilising properties. It is also used for illnesses such as abdominal pains, toothache, and some people chew, smoke, or use it as tea or snuff mostly for pressure. The antidepressant and anxiolytic clinical effects of *S. tortuosum* have been found both in case reports and double-blind studies. Anecdotal records reveal that the Khoikhoi and San people have used this plant since ancient times as an essential part of the indigenous culture and materia mediac. Hunter gatherers and pastoralists used *S. tortuosum* for the endurance of hunting attacks and management of stress that comes with living in dry and challenging environments of Bushman land, Namaqualand, and the Karoo (Manganya et al., 2021).

The selected project areas for cancerbush are overlaid on the map of the geographical distribution *Lessertia frutescens* in the figure below.

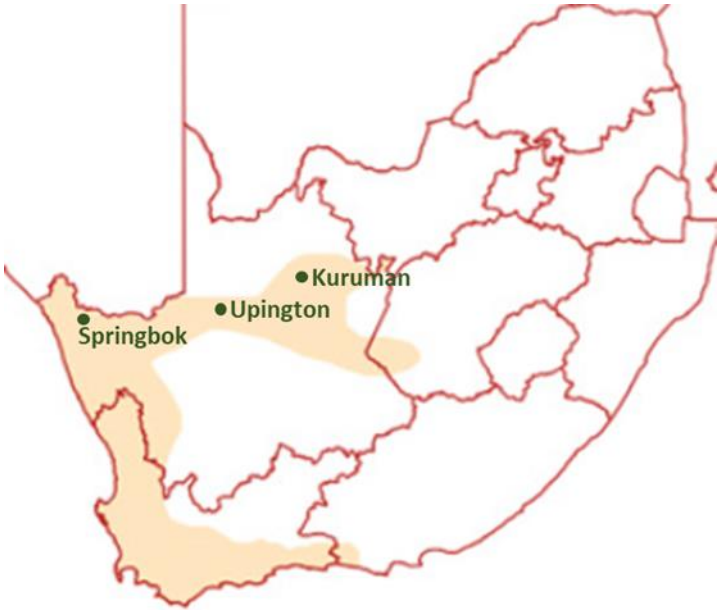


Figure 3-4: Project areas overlaid on the geographical distribution of *Lessertia frutescens* (Cancerbush) in South Africa (Adapted from: Mncwangia et al., 2023)

The cancerbush occurs naturally throughout the dry parts of southern Africa — in Western Cape and up the west coast as far north as Namibia and into Botswana, and in the western Karoo to Eastern Cape. It is also found in KwaZulu-Natal and Mpumalanga. It has long been known, used and respected as a medicinal plant in southern Africa. The original inhabitants of the Cape, the Khoi San and Nama people, used it mainly as a decoction for the washing of wounds and took it internally to bring down fevers. The early colonists regarded it as giving successful results in the treatment of chicken pox, stomach problems, and in the treatment of internal cancers. It is also known to have been used in the treatment of eye infections, the eyes being bathed with a decoction of the plant. It continues to be used to this day as a remedy for the above-mentioned ailments. It is still used as a wash for wounds, to bring down fevers, to treat chicken pox, for internal cancers, and farm workers in the Cape still use it to treat eye troubles. It is also used to treat colds, 'flu, asthma, TB, bronchitis, rheumatism, rheumatoid arthritis and osteo-arthritis, liver problems, haemorrhoids, piles, bladder, uterus & 'women's' complaints, diarrhoea & dysentery, stomach ailments, heartburn, peptic ulcers, backache, diabetes, varicose veins and inflammation. It is also used in the treatment of mental and emotional stress, including irritability, anxiety and depression and is used as a gentle tranquillizer. It is said to be a useful bitter tonic and that a little taken before meals will aid digestion and improve the appetite. It is considered to be a good general medicine. There is yet no scientific support for the numerous claims and anecdotes that this plant can cure cancer, but there is preliminary clinical evidence that it has a direct anti-cancer effect in some cancers and that it acts as an immune stimulant.

4.2.3 Social and Environmental impacts

Risk	Description	UNDP SES	Activity introducing risk	Scope	Rating
Risk 1- Inequitable impacts on marginalized groups, including women.	**Event:** The support service to community projects through the Hub for cultivation, harvesting and processing of Devil's claw will be transferred may result in inequitable or discriminatory impacts on San's peoples, youth, and women and other vulnerable groups. **Cause:** Insufficient consideration of social dynamics and gender roles in the for cultivation, harvesting and processing of Devil's claw, leading to limitations on San's people, women, and other vulnerable groups' ability to access support services. **Impact:** San's peoples, youth, and women and other vulnerable groups.may face increased inequality in access to benefits under	**Principle Leave No One Behind** P.5, P.7,P.8,P.10 and P.11	• Design a support service to community projects through which the various BMP's will be transferred at a regular basis. • Produce seedlings for sale/supply to community projects	All targeted areas	Moderate I = 3 L = 3
Risk 2- Risk of inadequate engagement with communities benefitting from the Hub	**Event:** Inadequate engagement of communities on project decisions that affect them. **Cause:** insufficiently and potentially inappropriately conduction of consultations to determine activities in the support service provided by the Hub to community projects based on best practice management for	**Principle Leave No One Behind** P.2 and P.13	• Design a support service to community projects through which the various BMP's will be transferred at a regular basis. • Produce seedlings for	All targeted areas	High I = 4 L = 5

	Devil's claw cultivation, processing and marketing as well as access to seedlings. **Impacts:** • Erosion of trust among community enterprises. • Reduced number of community project supported. • Discrimination in access to support services and seedlings for groups identified.		sale/supply to community projects		
Risk 3- Concerns or grievances raised by participants recipients in the call for proposal not being properly addressed	**Event:** Stakeholders, both communities and Hub staff, face challenges in effectively claiming rights, raising concerns, or filing grievances. **Cause:** Stakeholders may face barriers and limiting factors including: • Lack of awareness of processes to raise a grievance • Logistical challenges. • Language, cultural, and literacy differences. • Limited access to or familiarity with necessary technology. **Impacts:** • Erosion of trust and collaboration. • Generation/exacerbation of conflict • Breach of law not reported.	Accountability Principle: P.14, P.15	All activities	All targeted areas	High I = 5 L = 5

Risk 4 – Non-compliance with environmental regulations and potential international conflict over unverified Devil's claw origins	**Event:** Non-compliance with environmental regulations and potential international conflict over unverified Devil's claw origins **Cause:** Cultivation and propagation of Devil's Claw without prior environmental authorizations **Impacts:** • Legal risks, including fines and project delays. • Reputational damage and loss of trust among stakeholders.	**Standard 1. Biodiversity conservation and sustainable NRM** S1.13	• Obtain the requisite permits and authorisations for the establishment, of the Hub • 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 • Implement the 3-year research plan		Moderate I = 3 L = 3
Risk 5 - Mishandling of cultural heritage due to commercial cultivation	**Event:** Undermining traditional knowledge of Devil's claw, including San's people traditional knowledge	**Standard 4: Cultural Heritage,** 4.5	• Develop best management practices (BMPs) for cultivation and harvesting planning		Moderate I = 3 L = 3

	Cause: Lack of protocol for how traditional knowledge is used for **research and commercial development of Devil's Claw**. **Impacts:** • Conflicts over use of devil's claws for community projects. • Ecosystem disruption following propagation.		(testing approaches, techniques and methodologies) for each species • Develop best management practices (BMPs) for agro-processing support and quality control for product application each species		
Risk 6 –San peoples may be negatively impacted by the implementation of activities, including Free Prior Informed Consent (FPIC) not properly obtained	**Event:** Use of traditional knowledgeof Devil's claws do not take into account potential negative impacts on San peoples **Cause:** Failure to conduct consultations in alignment with Free, Prior, and Informed Consent (FPIC) protocols on activities affecting the rights, lands, resources, and cultural practices of San in the Norther Cape Hub. **Impacts:** • Disruption to San's lands, access to resources, and cultural practices. • Potential conflicts and reduced trust in project activities.	**Standard 6: Indigenous Peoples** 6.1, 6.2, 6.3, 6.4, 6.5 and 6.7	• Develop best management practices (BMPs) for cultivation and harvesting planning (testing approaches, techniques and methodologies) for each species • Develop best management		Substantial I = 4 L = 4

			practices (BMPs) for agro-processing support and quality control for product application each species		
Risk 7 – Potential non respect of labour and working conditions	**Event:** Non-compliance with fair working conditions and occupational health and safety standards for staff involved in cultivation of Devil's Claw at the facility . **Cause:** The Hub involved in the cultivation of Devil's Claw does not have the systems in place to ensure compliance with labor law for its employees. **Impacts:** • Breaches of labor laws and regulations. • Increased risk of workplace accidents, harassment, and unsafe working conditions. • Inequitable or unlawful pay practices, leading to staff dissatisfaction and potential legal challenges.	**Standard 7: Labour and working conditions** P.7.1, 7.2, 7.3, 7.4, 7.5, 7.6	• Obtain the requisite permits and authorisations for the establishment, of the Hub • 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		Substantial I = 4 L = 3

			• Implement the 3-year research plan		
Risk 13 – Potential pollution of ecosystems and energy consumption for cultivation of Devil's Claw.	**Event:** Potential environmental harm associated with cultivation of Devil's Claw. **Cause: Potential** application of pesticides, generation of waste, and excessive resource consumption in during cultivation of Devil's Claw in the Northern Cape hub. **Impacts:** • Pollution of soil, water, and air, leading to environmental degradation.	**Standard 8: Pollution Prevention and Resource Efficiency** P8.1, 8.2, 8.5 and 8.6	• Obtain the requisite permits and authorisations for the establishment, of the Hub • 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 • Implement the 3-year research plan		Moderate I = 3 L = 4

4.3 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.

4.3.1 Output activities

Output 2.1 aims to support the implementation of the Pelargonium Biodiversity Management Plan (BMP) in close collaboration between the Pelargonium Working Group, community businesses and CSO stakeholders.

The BMP will be reviewed through the development of relevant input documentation. Input documentation to be developed includes the following:

1. A Non-Detriment Finding (NDF) which assesses the sustainability of harvesting of the species in the wild. This includes a global conservation assessment. This output requires extensive consultation and workshopping with key technical experts and knowledge holders.
2. A Resource Assessment (RA) which assesses the extent of wild populations. This will be conducted through procurement of Capensis Botanical Services
3. An ethnobotanical study. This study will outline linkages that local communities have with the species. This will be developed by a PhD student enrolled at University of Cape Town focussing on South African and Lesotho communities.
4. A socio-economic analysis. This will be developed by a PhD student enrolled at University of Cape Town focussing on South African and Lesotho communities.
5. A value chain analysis, both local and international, to be conducted by Traffic Europe.

These documents will form key inputs into the review of the BMP. The BMP review will be undertaken in close association with the Pelargonium Working Group (PWG).

The output will involve the development of sustainable harvesting guidelines for P. sidoides of which will be used to train local harvesters. The development of this document will require inputs from numerous technical and local knowledge holders.

The outcome will strengthen local ABS compliance through support to local communities and trusts in negotiations and management of benefits accrued and benefit sharing arrangements. This support will be provided through a partnership with the BABS unit at DFFE to undertake the following key activities:

1. Through an expert consultant appointed by TRAFFIC, support Traditional Knowledge holders to review and renegotiate ABS agreements and supply agreements by developing a Pelargonium sidoides Access and Benefit Sharing guideline focusing on the following key areas:
    a. A review of ABS for P.sidoides in relation to current legislation and gender.
    b. Identify gaps and challenges of the P.sidoides ABS system.
    c. Identify areas where more support/research is needed when negotiating agreements.

d. The DFFE BABS unit will assist in the creation of this guideline by providing information and data and will monitor the progress of this output.

2. TRAFFIC and DFFE will support industry to carry out Harvester Guideline training for *P. sidoides*, factoring in supply chain agreements and market trends. Through this training, harvesters will be empowered imparting knowledge about the interface between conservation and business and how the supply chain of *P. sidoides* is managed

4.3.2 Baseline

- Project area

This province was formed in 1994 by combining two Bantustans (Transkei and Ciskei) with the Cape Province. It is mainly "Xhosa land" with diverse Xhosa culture whose tribes include AmaMpondo, AbaThembu, AmaMpondomise, AmaHlubi, AmaBhaca, AmaXesibe, and AmaBomvana. The population of the province is 85.7% Black, 7.6% Coloured, 5.6% White and 0.5% Indian. IsiXhosa is the dominant language (81.8%) followed by Afrikaans (9.6%) and then English (4.8%). The Eastern Cape is considered to be one of the poorest provinces in the country with agriculture being the main economic driver.

In the Eastern Cape Output 2.1 of the project is being implemented in the selected communities of Hanover, Mlungisi, Cathcart, Sawutana, Tshazibane, and Mbiza. The following biophysical and socio-economic context descriptions apply to the regions around these sites, as the focal plant is not restricted to the community, and indeed is probably locally extinct close to the settlements.

- Socio-economic conditions

- Biophysical context

Pelargonium sidoides is a habitat generalist and occurs in a low grasslands and shrublands with a seasonally dry tropical climate with moderate temperatures that range between lows of 10-15°C highs of 17-22°C. The plant prefers full sun, but in very hot areas, it may require partial shade to prevent stress. It prefers well-draining shale- or basalt-derived soils. This species is found across a wide range of altitude, from near sea level to 2,300 meters in Lesotho. Pelargonium sidoides uses dormancy to withstand the dry, cold winter season.

4.3.3 Social and Environmental impacts

Risk	Description	UNDP SES	Activity introducing risk	Scope	Rating
Risk 1- Inequitable impacts on marginalized groups, including women.	**Event:** The support service to community projects through which the various best management practices (BMPs) for cultivation, harvesting and processing of pergalonium will be transferred may result in inequitable or discriminatory impacts on San's peoples, black owned and women. **Cause:** Insufficient consideration of social dynamics and gender roles in the for cultivation, harvesting and processing of pergalonium, leading to limitations on San's people, women, black people and other vulnerable groups' ability to access support services. **Impact: San, b**lack women and other vulnerable groups may face increased inequality in access to support and seedling from the Bioproducts Development Hub.	**Principle Leave No One Behind** P.5, P.7,P.8,P.10 and P.11	• Design a support service to community projects through which the various BMP's will be transferred at a regular basis. • Produce seedlings for sale/supply to community projects	All targeted areas	Moderate I = 3 L = 3
Risk 2- Risk of inadequate engagement with communities benefitting from the Hub	**Event:** Inadequate engagement of communities , including exclusion of San, women, black peoples and other vulnerable groups in project decisions that affect them. **Cause:** insufficiently and potentially inappropriately conduction of consultations to determine activities in the support service	**Principle Leave No One Behind** P.2 and P.13	• Design a support service to community projects through which the various BMP's will be transferred at a regular basis.	All targeted areas	High I = 4 L = 5

	provided by the Hub to community projects based on best practice management for Devil's claw cultivation, processing and marketing as well as access to seedlings. **Impacts:** • Erosion of trust among community enterprises. • Reduced number of community project supported. • Discrimination in access to support services and seedlings for groups identified.		• Produce seedlings for sale/supply to community projects		
Risk 3- Concerns or grievances raised by participants recipients in the call for proposal not being properly addressed	**Event:** Stakeholders, both communities and Hub staff, face challenges in effectively claiming rights, raising concerns, or filing grievances. **Cause:** Stakeholders may face barriers and limiting factors including: • Lack of awareness of processes to raise a grievance • Logistical challenges. • Language, cultural, and literacy differences. • Limited access to or familiarity with necessary technology. **Impacts:** • Erosion of trust and collaboration. • Generation/exacerbation of conflict • Breach of law not reported.	Accountability Principle: P.14, P.15	All activities	All targeted areas	High I = 5 L = 5

Risk 4 – Non-compliance with environmental regulations and potential international conflict over unverified Devil's claw origins	**Event:** Non-compliance with environmental regulations and potential international conflict over unverified Devil's claw origins **Cause:** Cultivation and propagation of Devil's Claw without prior environmental authorizations **Impacts:** • Legal risks, including fines and project delays. • Reputational damage and loss of trust among stakeholders.	**Standard 1. Biodiversity conservation and sustainable NRM** S1.13	• Obtain the requisite permits and authorizations for the establishment, of the Hub • 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 • Implement the 3-year research plan		Moderate I = 3 L = 3
Risk 5 - Mishandling of cultural heritage due to commercial cultivation	**Event:** Undermining traditional knowledge of Devil's claw, including San's people traditional knowledge	**Standard 4: Cultural Heritage,** 4.5	• Develop best management practices (BMPs) for cultivation and harvesting planning		Moderate I = 3 L = 3

	Cause: Lack of protocol for how traditional knowledge is used for **research and commercial development of Devil's Claw**. **Impacts:** • Conflicts over use of devil's claws for community projects. • Ecosystem disruption following propagation.		(testing approaches, techniques and methodologies) for each species • Develop best management practices (BMPs) for agro-processing support and quality control for product application each species		
Risk 6 –San peoples may be negatively impacted by the implementation of activities, including Free Prior Informed Consent (FPIC) not properly obtained	**Event:** Use of traditional knowledgeof Devil's claws do not take into account potential negative impacts on San peoples **Cause:** Failure to conduct consultations in alignment with Free, Prior, and Informed Consent (FPIC) protocols on activities affecting the rights, lands, resources, and cultural practices of San in the Norther Cape Hub. **Impacts:** • Disruption to San's lands, access to resources, and cultural practices. • Potential conflicts and reduced trust in project activities.	**Standard 6: Indigenous Peoples** 6.1, 6.2, 6.3, 6.4, 6.5 and 6.7	• Develop best management practices (BMPs) for cultivation and harvesting planning (testing approaches, techniques and methodologies) for each species • Develop best management		Substantial I = 4 L = 4

			practices (BMPs) for agro-processing support and quality control for product application each species		
Risk 7 – Potential non respect of labour and working conditions	**Event:** Non-compliance with fair working conditions and occupational health and safety standards for staff involved in cultivation of Devil's Claw at the facility . **Cause:** The Hub involved in the cultivation of Devil's Claw does not have the systems in place to ensure compliance with labor law for its employees. **Impacts:** • Breaches of labor laws and regulations. • Increased risk of workplace accidents, harassment, and unsafe working conditions. • Inequitable or unlawful pay practices, leading to staff dissatisfaction and potential legal challenges.	**Standard 7: Labour and working conditions** P.7.1, 7.2, 7.3, 7.4, 7.5, 7.6	• Obtain the requisite permits and authorisations for the establishment, of the Hub • 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		Substantial I = 4 L = 3

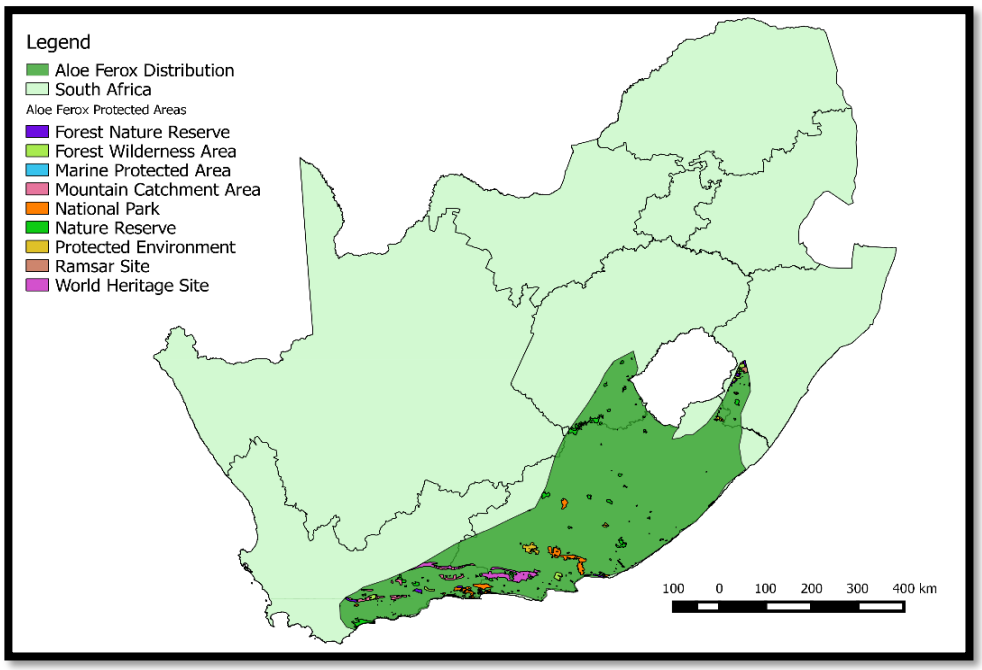
			• Implement the 3-year research plan		
Risk 8 – Potential pollution of ecosystems and energy consumption for cultivation of Devil's Claw.	**Event:** Potential environmental harm associated with cultivation of Devil's Claw. **Cause: Potential** application of pesticides, generation of waste, and excessive resource consumption in during cultivation of Devil's Claw in the Northern Cape hub. **Impacts:** • Pollution of soil, water, and air, leading to environmental degradation.	**Standard 8: Pollution Prevention and Resource Efficiency** P8.1, 8.2, 8.5 and 8.6	• Obtain the requisite permits and authorisations for the establishment, of the Hub • 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 • Implement the 3-year research plan		Moderate I = 3 L = 4

4.4 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.

4.4.1 Output activities

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.. 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.

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. 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 differs 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.



Aloe ferox distribution

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.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.

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. 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.

In this context, Output 2.2 involves the 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 through:

- Appoint Output Manager
- Independent community facilitator
- Aloe Business Advisor
- Community training- Project management Business Management Sustainable Harvesting
- Horticultural planning for wild harvesting
- EIA consulting firm for the establishment of 1 hectare Aloe and free-standing processing plant
- Pre-fabricated modular office and workshop for the plantation (including bulk services and office equipment/ furniture)
- Wild harvesting management staff
- Procurement scope to be applied for wild harvesting, in relation to harvesting staff, equipment's and implements
- Procurement scope to be applied for wild harvesting, in relation to consumables for harvesting staff and management
- Pre-fabricated modular testing, processing and packaging facility (including bulk services and facility equipment/ furniture)

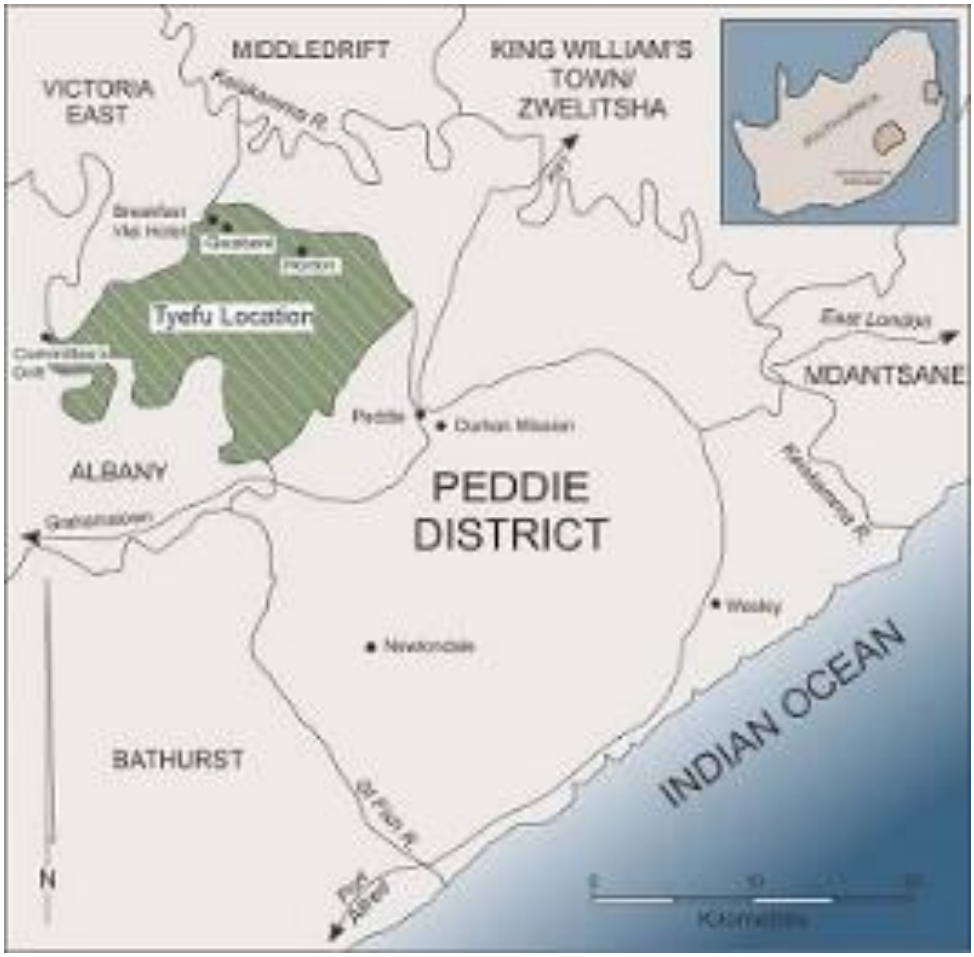
- Testing, processing and packaging staff
- Procurement (or rental, as required) of processing plant staff equipment
- Procurement of consumables for processing staff and management
- Hire a marketing company

4.4.2 Baseline

- **Project area**

Tyefu is communal land, situated within the municipal jurisdictional area of the Ngqushwa Local Municipality and Amathole District Municipality in the Eastern Cape. It is bordered by the Great Fish River to the west and the Keiskamma River to the east. The Tyefu community consists of 10 villages that still under the traditional leadership of Chief Sizwe Msutu's land. The formation of Tyhefu community has a recent historical context. People were forcibly removed form their traditional areas for the creation of space for the Great Fish Nature Reserve. These forced removals of large numbers of people to a small and confined space resulted in overpopulation and increased utilisation of natural resources. Overgrazing resulted in increased soil erosion and less productive land.

The area is known for its scenic beauty and rural charm, with a predominantly Xhosa-speaking population. The community is closely-knit, and the village is surrounded by agricultural land, which is a significant part of the local economy. This area is characterized by its undulating hills and agricultural landscape. The natural environment is predominantly made up of farming fields and small patches of natural vegetation.



- Socio-economic conditions

According to the StatsSA information the Tyhefu community is in line with the general national trends, women constitute the majority of the population and there is a high proportion of children in the village. Also, in line with the region and other rural parts of South Africa from the ages of 16-30, the numbers drop significantly. This is due to migration of young people to the cities in search of employment once they reach a working age. This migration is driven by lack of employment opportunities in rural areas such as Tyhefu.

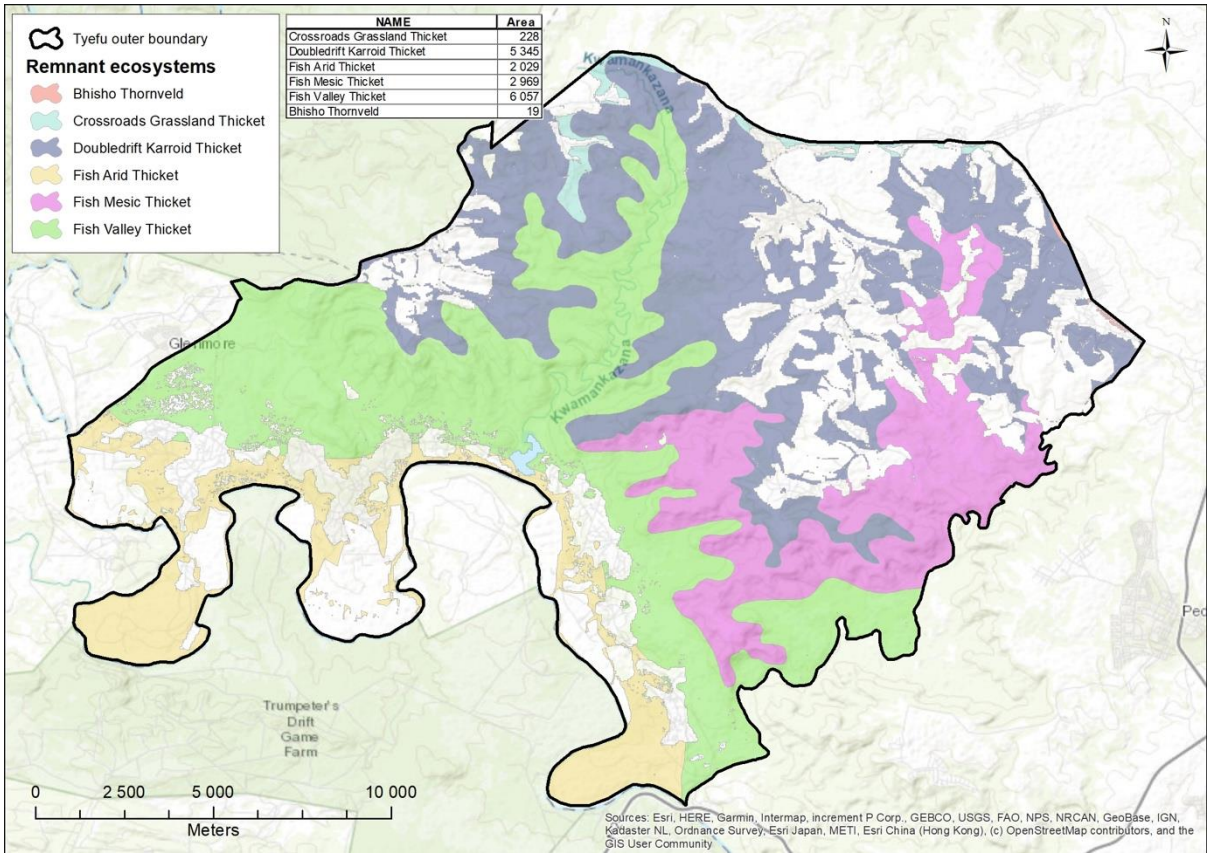
At least 50 harvesters from the Tyefu community currently harvest leaves of the naturally abundant A. ferox from a communal area of approximately 50,000 ha. These harvesters typically operate as independent entrepreneurs, reportedly selling unprocessed aloe sap to local buyers for only half of the market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

- Biophysical context

The Tyhefu area has a river basin topography with a climate that can be generally described as warm and dry. The summers in the area are usually very hot while winter temperatures are mild. The mean annual rainfall in the area is less than 400mm. The area has historically been described as ‘one of the most eroded and impoverished areas of the Eastern Cape. Some of the drier parts seem to be beyond natural rehabilitation without human intervention. The area is densely populated and is so drought-prone that the people are unable to subsist from the land. The

agricultural productivity in the Tyhefu area is further limited by the agro-ecology of the region. This includes poor soils, low and irregular rainfall, water quality problem, high evapotranspiration rates, seasonal extremes of temperature and a poor resource base.



The climate in Tyhefu is generally moderate, with warm summers and cool winters. The area receives a fair amount of rainfall, which supports the agricultural activities in the region1. The summers can be quite hot, with temperatures occasionally reaching above 30°C, while winters are mild, with temperatures sometimes dropping below 10°C.

4.4.3 Social and Environmental impacts

Risk	Description	UNDP SES	Activity introducing risk	Scope	Rating
Risk 1- Inequitable impacts on marginalized groups, including women within the Tyefu	**Event:** The call for proposal may result in inequitable or discriminatory impacts on youth, women or elderly peoples in the Tyefu community. **Cause:** Insufficient consideration of social dynamics and gender roles in the design of activities leading to limitations on youth, women or elderly peoples to participate, access opportunities and benefits, or manage Aloe Ferox harvesting or processing activities effectively. **Impact: Y**outh, women or elderly peoples may face increased inequality and reduced benefits from the output activities.	**Principle Leave No One Behind** P.5, P.7,P.8,P.10 and P.11	All	All targeted areas	Moderate I = 3 L = 3
Risk 2- Risk of inadequate Tyefu community engagement	**Event:** Inadequate engagement of Tyefu community in design and implementation of output activities affect them. **Cause:** Insufficiently and potentially inappropriately conduction of consultations to determine activities following the revision of the output. **Impacts:** • Erosion of trust among community towards project.	**Principle Leave No One Behind** P.2 and P.13	All	All targeted areas	High I = 4 L = 5

	• Delay in activities implementation and limited participation of communities' members.				
Risk 3- Concerns or grievances raised by Tyefu community members in design and implementation of activities	**Event:** Tyefu community memebers face challenges in effectively claiming rights, raising concerns, or filing grievances. **Cause:** Participants or recipients may face barriers and limiting factors including: • Lack of awareness of processes to raise a grievance • Logistical challenges. • Language, cultural, and literacy differences. • Limited access to or familiarity with necessary technology. **Impacts:** • Erosion of trust and collaboration. • Generation/exacerbation of conflict	Accountability Principle: P.14, P.15	All	All targeted areas	High I = 5 L = 5
Risk 12 – Potential non respect of labour and working conditions	**Event:** Non-compliance with fair working conditions and occupational health and safety standards for staff involved in wild harvesting, processing, marketing and set up of facility. **Cause:** Community organization involved in wild harvesting management, processing, packaging, and marketing of Aloe ferox (Output 2.2) does not have the systems in place to ensure compliance with labor law. **Impacts:**	**Standard 7: Labour and working conditions** P.7.1, 7.2, 7.3, 7.4, 7.5, 7.6	▪ Pre-fabricated modular office and workshop for the plantation (including bulk services and office equipment/ furniture) ▪ Wild harvesting management staff		Substantial I = 4 L = 3

	• Breaches of labor laws and regulations. • Increased risk of workplace accidents, harassment, and unsafe working conditions. • Inequitable or unlawful pay practices, leading to staff dissatisfaction and potential legal challenges.		▪ Pre-fabricated modular testing, processing and packaging facility (including bulk services and facility equipment/ furniture) ▪ Testing, processing and packaging staff		
Risk 13 – Potential pollution of ecosystems and energy consumption for Aloe Ferox processing center	**Event:** Potential environmental harm associated with processing of Aloe Feroc **Cause: Potential** use of chemicals for processing of Aloe Ferox, generation of waste, and excessive resource consumption at the newly established facility **Impacts:** • Pollution of soil, water, and air, leading to environmental degradation. • Potential harm to local biodiversity and ecosystems. • Increased resource depletion and reduced environmental sustainability due to waste generation and overuse of water and energy.	**Standard 8: Pollution Prevention and Resource Efficiency** P8.1, 8.2, 8.5 and 8.6	▪ Pre-fabricated modular office and workshop for the plantation (including bulk services and office equipment/ furniture) ▪ Pre-fabricated modular testing, processing and packaging facility (including bulk services and facility equipment/ furniture) Procurement		Moderate I = 3 L = 4

			(or rental, as required) of processing plant staff equipment		

4.5 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.

4.5.1 Output activities

Output 2.3 aims to support community-based enterprises in Honeybush farming, ensuring conservation and equitable benefit sharing outcomes across the Cyclopia spp. landscape in the Cape Region.

This output will support community-based enterprises though a Small Grant Fund mechanism in the target region aimed at promoting cultivation and mitigating the current impact of habitat destruction and overharvesting. The process for implementing the mechanism will be to host, manage, and measure the impact of the grant on target beneficiaries. A service provider was hired to manage the fund and the following activities have been completed:

- Establish a Technical Advisory Group (TAG) to both guide and assist in determining 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.
- Conduct baseline assessment of grant receiving areas in the Eastern and Western Cape. The baseline study has provided clarity on i) area available for cultivation, ii) land tenure arrangements, iii) Analysis of target stakeholders, iv) land capability, and v) Environmental and social risks.
- Develop implementation guidelines for the grant
- Host the grant facility

The service provider[1] will launch a second call for proposals for non-for-profit organisations or individuals in early 2025 that will include:

- Preparation and implementation of target beneficiaries' awareness campaign of the grant
- Call for proposals, selection of beneficiaries (with consideration of safeguards aspects) and Disbursement of funds
- Assessment of the impact of the facility against the baseline

The call for proposals will be open for support to the following activities through small grants:

- **Start-up and capacity building**: support to harvest groups, trainings on sustainable practices, anti-poaching initiatives, support to establishment of businesses.
- **Support to establishing cultivation**: support transition to cultivation, improve existing practices, support market requirements for exportation, preparation of land, business and technical support for cultivation, capacity building.
- **Processing**: support processing capacity, formalize partnerships, encourage innovation.

[1] The Responsible Party (service provider) for this output may change during the project extension phase but this will have no impact on the activities.

- **Marketing**: increase awareness about sustainable honeybush, marketing practices, promotions of local and indigenous knowledge enterprises.

4.1.1 Baseline

- **Project area**

The scope of the project for the Western and Eastern Cape includes areas for cultivation and wild harvesting of *Cyclopia spp.* (honeybush). The project sites selected for the cultivation of honeybush are the following:

- **Genadendal community in the Western Cape**: falls in the Theewaterskloof Local Municipality (TLM), which consist of Riviersonderend, Greyton, Genadendal, Caledon, Villiersdorp, Botrivier, Grabouw towns and settlements, as well as an extensive rural area in the Overberg District Municipality. Genadendal is the oldest mission station in South Africa and the area is home to about 8,000 people. Genadendal was originally established with the purpose of evangelising the Khoikhoi, some of whom ended up settling in the area after being forced out of the Cape by Dutch settlers. Today Genadendal, with its 3,500 registered occupants, is a remote, under-developed, and degraded village.
- **George and Oudsthoorn areas in the Western Cape**:
    - **George falls** in George Local Municipality (GLM) in the Garden Route District Municipality in the Western Cape Province. George is the second largest city in the Western Cape Province of South Africa with a population of almost 300,000 people in 2022 (GLM, 2023). The GLM includes Haarlem, Avontuur, Misgund, Louterwater, Krakeelrivier, Ravinia, and Kareedouw. Haarlem population groups comprised 94.1% coloured, 4.2% black African, 0.9% white, and 0.8% 'other' groupings (Statistics South Africa 2011). The other townships are in the Eastern Cape Province part of the Langkloof and all fall under the Kou-Kamma Local Municipality (KLM). The population groups in KLM comprised 61.4% coloured, 31% black African, 7.5% white, and 0.1% Indian/Asian (Kou-Kamma Local Municipality IDP, 2020). George is the administrative and commercial hub and the seat of the Garden Route District Municipality. Main Routes include the N9 to Graaf Reinette, the N12 linking to Oudtshoorn, Beaufort West and linking to the N1, and R62 in the Langkloof – connecting the rural hinterland to the east (Gqeberha) and to the N2, being the 'coastal corridor" linking Cape Town to Gqeberha. George regional airport serves the Southern Cape and Little Karoo, including the neighbouring towns of Mossel Bay, Oudtshoorn, Knysna and Plettenberg Bay. The George city area is the primary urban centre of the GLM, housing 84% of the municipal area's population. Wilderness, Uniondale and Haarlem house the bulk of the remaining urban population, while 9% of the population is rural. The rural population has declined by 4% per annum between 2011 and 2016. Of the total urban population, 49.5% are Coloured, 29.3% are Black African, 20.9% are White, and 0.3% are Indian/Asian. More than a third of the population (65.4%) has Afrikaans as their home language, while 26.9% spoke Xhosa, 6.9% spoke English, and 0.9% spoke other languages (StatsSA, 2016).
    - **Oudtshoorn** falls in the Greater Oudsthoorn Local Municpality (GOLM) in the Western Cape Province. Oudtshoorn is a smaller town and has a population of almost 71,000 in 2024, with a thriving ostrich value chain. The area in which Oudtshoorn is situated was originally inhabited by the Bushmen, as evidenced by

the many rock paintings that are found in caves throughout the surrounding Swartberg mountains. In the Oudtshoorn area, the coloured population represents 76.1% of the total population, followed by the white population at 8.9% and the black African population at 8.0%. The Indian or Asian demographic group is the minority, accounting for merely 0.3% of the municipal populace (GOLM, 2023).

- Tsitsikamma area near Stormsrivier in the Eastern Cape: The Tsitsikamma area of the project falls in the Kou-Kamma Local Municipality (KKLM) in the Eastern Cape. The KKLM has no cities or even large towns but a host of settlements in the form of villages and hamlets. The main settlements in KKLM are Clarkson, Joubertina, Kareedouw, Krakeel River, Louterwater, Misgund, Nompumelelo, Sanddrif, Storms River, and Woodlands. These settlements are divided into 6 electoral wards and are governed by a 12-member council. According to Census 2011, the KKLM had a total population estimated at 40 663, of which 59,8% are coloured, 30,6% are black African, 8,2% are white, and 0,3% are Indian/Asian. Afrikaans is the most spoken language in the Municipality, at 73,5%, followed by Xhosa at 19,9%. Only 2,5% of the population speaks English as their first language. The average household size was 3,6 persons per household. More than two-thirds (68,3%) of households had access to piped water inside dwelling/institution, 21,4% accessed piped water in their yard, and only 4,6% of households did not have access to piped water. Koukamma Municipal area has been declared a water scarce area more specifically the Langkloof area. The statement is intensified by regular raw water supply shortages that were experienced at various systems within Koukamma and more specifically in Langkloof. Besides the scarcity of rain in the area, the situation is also exacerbated by competition with agricultural farmers that also use water for irrigation purposes. Much of the existing water infrastructure is not adequately maintained due to limited technical staff capacity and the aging state of infrastructure and limited tools of trade. Backlogs have made it difficult to provide sanitation services in areas which do not have sanitation infrastructure especially in the rural dense and informal settlement. Much of the existing sewer infrastructure is not adequately maintained and in most infrastructure is malfunctioning/collapsed, impacting negatively on the quality of effluent discharged into rivers. The majority of the households (87,1%) had access to electricity for lighting (Kou-Kamma 15-year IDP, 2016).
- Joubertina area in the Eastern Cape. The KKLM is a relatively poor area that reports high unemployment and low levels of literacy. Settlements are scattered and far from each other, which poses challenges to the development of infrastructure and basic services such as water, sewage, electricity and sanitation. Storms River is the primary tourism centre within the municipality. The coastal belt includes the well-known Tsitsikamma area. The Langkloof area is surrounded by the Tsitsikamma Mountains. The coastal area is characterised by a diverse and fast-growing economy, a fast-growing population linked to economic opportunities, a good water supply, and a wealth of holiday destinations and indigenous forests. The main Economic Sectors are Tourism and agriculture (Kou-Kamma LM, 2017).

The selected project areas are overlaid on the map of the geographical distribution of the different *Cyclopia spp* (honeybush) in the figure below.

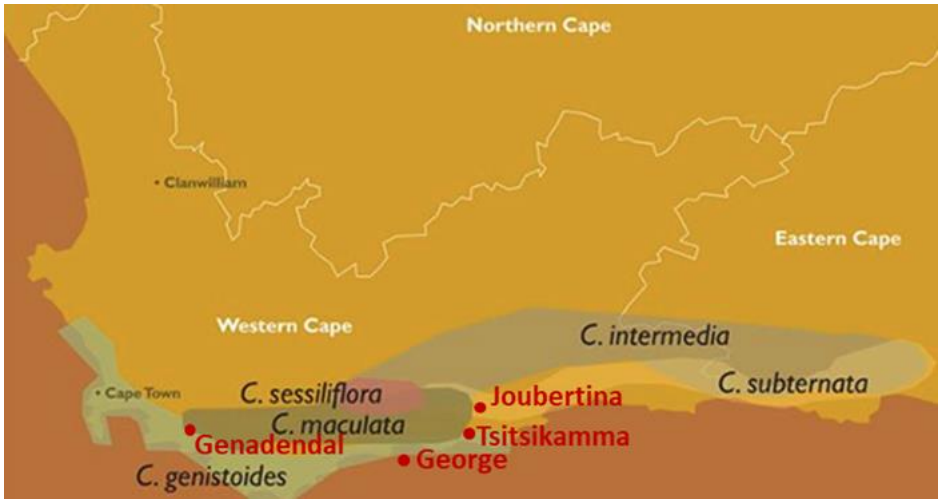


Figure 3-5: Project areas overlaid on the geographical distribution of *Cyclopia* spp (honeybush) (Adapted from: DFFE, 2023)

- Socio-economic context

A spectrum of socio-economic conditions is applicable. The average Khoi community members are generally impoverished and work as labourers on larger farms. The owners of large farms have a high standard of living, while the owners of smallholdings make a decent living.

The economy of Oudtshoorn Municipality is highly dependent upon its underlying natural resource base. For example, the vitality of the agricultural economy (and indeed the entire economy of the municipality) is intrinsically linked to the availability of water and the health of the associated ecological systems which protect the river system of the municipality. The Ostrich Industry in the Oudtshoorn municipal area is one of the largest in the global market and therefore has a well-developed local value chain. As such, mixed farming and meat processing are amongst the largest employers in the municipal area, with 1,197 and 924 formal jobs, respectively, but the single largest employer in the municipal area remains public administration (1,820 jobs). There are numerous government offices offering employment in the municipal area including the Oudtshoorn Municipality, the Garden Route District Municipality, Department of Social Development, Department of Agriculture, Department of Home Affairs, Department of Labour, a magistrate court, and post office, amongst others. The agriculture sector's precarious performance has resulted in some subsectors creating jobs while others shed jobs. For example, the employment of mixed farming and non-perennial crop cultivators increased while those working in animal production and agricultural support activities lost their jobs. However, the most significant job losses were recorded for retail workers and those working in short-term accommodation facilities, underscoring both the importance of tourism for local jobs and the slow recovery of tourism in the area. Labour in the Oudtshoorn municipal area is mostly semi-skilled (30.9%) and low-skilled (27.9%) (GOLM IDP, 2023).

The Langkloof Valley is a large deciduous-fruit farming area that extends for many kilometres along the R62 and between the Tsitsikamma and Kouga Mountains where wild honeybush grows. Many community members have been harvesting honeybush for generations and are exceptionally knowledgeable about the plant and the mountain terrain. Many live in the townships along the Langkloof and some live on the farms, such as Sonskyn Heuningbos, Thornham Heuningbos, Clarkson Heuningbos, and the company Kuyasa Amamfengu. Honeybush is also an important

resource for many farmers and community members in the Langkloof and Kouga, as it not only accounts for a substantial portion of their income but is also seen as part of their identity and livelihood (McGregor, 2017a). Poaching of wild honeybush and unregulated fire are serious problem that threaten the sustainability of the honeybush industry (McGregor, 2017b).

Small enterprises and community-based enterprises in the Honeybush industry face multiple challenges related to access to land to cultivate Honeybush, difficulties in securing land rights or water rights. This situation, compounded by other economic factors, render small producers vulnerable to fluctuations in demand and price of honeybush, affecting their income stability.

Unemployment has been on an upward trend from 2015 (13.1%) to 2021 largely driven by the job losses as a result of the drought, loadshedding and economic recession over this period. The not economically active population has also increased from 2020 to 2021 as job losses and an insufficient supply of jobs have led to an increasing number of discouraged work seekers. Unfortunately, most job losses affected low skilled and informal workers who are more vulnerable to living in poverty during times of economic decline (GLM IDP, 2023).

A critical issue is the difficulty for entrepreneurs to derive a sufficient income from Honeybush alone due to its niche market presence and potential seasonality of income, worsened by a general lack of business acumen, experience, training, and skills to manage an enterprise effectively. Accessing international markets is complex and the local market is unaware of Honeybush, limiting the scope for domestic market expansion and branding opportunities. Additionally, these enterprises frequently struggle with the high costs and complexities of certification processes, such as organic or fair trade, which are increasingly demanded by consumers. Limited financial resources restrict their ability to invest in improved cultivation techniques, processing equipment, and marketing strategies (Kruger, Swart & Associates, 2023).

The majority of marginalised people in the Langkloof reside in townships and/or village areas. The coloured and black African communities are reported to be amongst the poorest in the area with low levels of education and income (George Local Municipality 2019; Kou-Kamma Local Municipality 2020) and in 2016, 19,500 people lived in poverty across Kou-Kamma Local Municipality (Kou-Kamma, 2017). The main landowners in the Kou-Kamma areas of Eastern Cape Province are private landowners (85.05%), the state (13.20%), and the local municipality (1.59%), with some of the land owned by the Moravian church (Kou-Kamma Local Municipality 2020). Much of the land is used for commercial farming. Most of the coloured and black people in the Langkloof area are farmworkers. In Kou-Kamma Local Municipality the economic sectors that recorded the largest number of employments in 2016 were the agriculture sector with a total of 5 620 employed people or 25.6% of total employment in the local municipality. The trade sector with a total of 4 250 (19.4%) employs the second highest number of people relative to the rest of the sectors. The mining sector with 2.94 (0.0%) is the sector that employs the least number of people in Kou-Kamma Local Municipality, followed by the electricity sector with 98.1 (0.4%) people employed (Kou-Kamma, 2017). Kou-Kamma Local Municipality had a total number of 11,400 flush toilets (88.89% of total households), 358 Ventilation Improved Pit (VIP) (2.80% of total households) and 393 (3.08% of total households) had pit toilets. Kou-Kamma Local Municipality had 8,210 (71.63%) households with piped water inside the dwelling, 1,110 (9.68%) households had piped water inside the yard, and 1,770 (15.44%) households had no formal piped water. Kou-Kamma Local Municipality had 189 (1.43%) households with electricity for lighting only, 12,000 (90.83%)

households had electricity for lighting and other purposes, and 1,020 (7.74%) households did not use electricity.

- **Biophysical conditions**

Cyclopia is endemic to regions of the Cape Floristic Region across the Eastern and Western Cape provinces of South Africa and is commonly known as honeybush (Slabbert et al., 2019). Honeybush grows in small areas in the southwest and southeast of South Africa where the climate resembles a Mediterranean climate. Most of the honeybush-bearing lands fall in a rainfall zone of 200-600 mm, where rainfall is concentrated in winter but occurs throughout the year.
A number of species of honeybush is found in the wild, but only a few are in widespread home or commercial use. These are (McGregor, 2017):

- *Cyclopia intermedia*, known as 'bergtee' (mountain tea), found between Gcqeberha and the Langkloof, falls in mountain water catchment areas usually within formal protected areas. These include the Baviaanskloof Nature Reserve, Kammanassie Nature Reserve, the Garden Route National Park, Formosa Provincial Nature Reserve, Gamkaberg Nature Reserve, Rooiberg Nature Reserve, Towerkop Nature Reserve, Anysberg Nature Reserve, Groot Swartberg Nature Reserve, as well as biodiversity stewardship sites situated near Joubertina;
- *Cyclopia genistoides*, known as 'kustee' (coastal tea), found mostly in the Western Cape near Yxerfontein and Darling on the West Coast, but also in the South Cape if cultivated;
- *Cyclopia maculata*, grown in the Outeniqua area near George;
- *Cyclopia sessiliflora*, known as 'Heidelberg-tee', named after the town Heidelberg where it grows in the local mountain range;
- *Cyclopia subternata,* known as 'vleitee' (marshland tea) or 'valleitee' (valley tea); and
- *Cyclopia longifolia*, known as Van Stadenstee, found in the South Cape

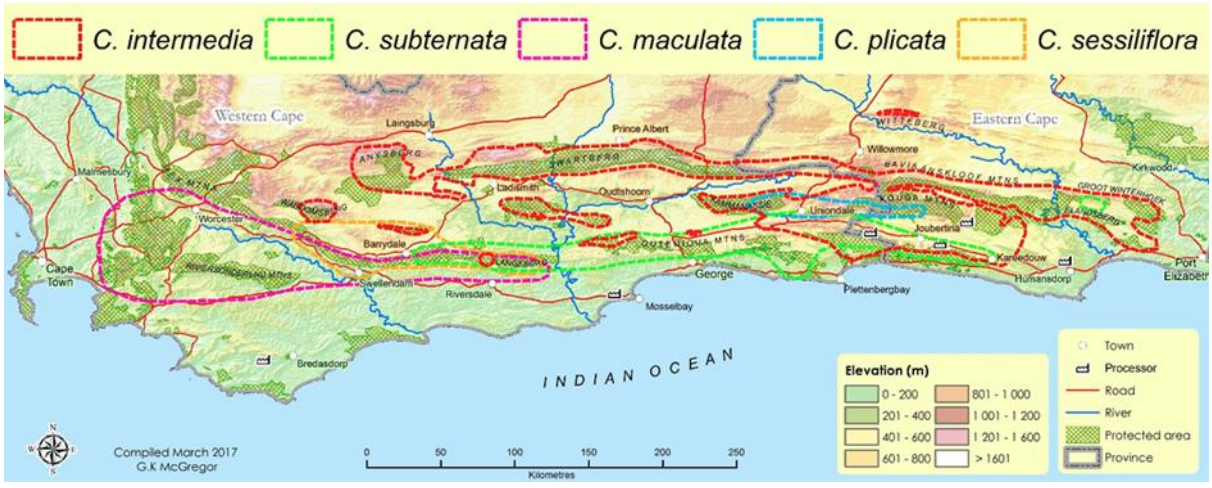


Figure 3-6: Geographical distribution of wild harvested *Cyclopia* spp (honeybush) (Source: McGregor, 2017)

- **Baseline for activities' implementation**

Honeybush, a plant native to the KhoiKhoi's ancestral lands, was used by the KhoiKhoi for generations, harnessing the medicinal and culinary properties of Honeybush tea and passing down their wisdom through oral traditions. In 2023, approximately 70% of honeybush tea comes from wild harvesting, while the remaining portion is cultivated. Cultivated tea primarily originates from a

select group of farmers with thriving honeybush plantations, as well as a few community-based projects in areas like Haarlem, Ericaville, Groendal, and Genadendal (Growing & Production | South African Honeybush Tea Association) The industry is actively engaging small and emerging farmers in honeybush cultivation to meet growing demand while alleviating pressure on honeybush grown in the wild.

Honeybush is wild-harvested in an area of approximately 30,000 ha, while only 230 ha is used to cultivate Honeybush. The annual processed tea output ranges from 20 to 200 tons by 9 honeybush processors. The industry employs approximately 150 harvesters, approximately 100 people at production level, and 40 people at processing level. The industry is represented by the South African Honeybush Tea Association (SAHTA) (DFFE, 2023).

In 2001, through assistance from Agribusiness in Sustainable Natural African Plant Products (ASNAPP), an NGO, and the ARC, the Haarlem community in the Langkloof domesticated honeybush on 10 hectares of communal land. The plantation, which increased to about 22 hectares, has not been in operation for about seven years because of insecurity of tenure, conflicts within a rural development project by a university, vandalism, and community dependence on outside intervention compared to white neighbouring farmers who were readily resourced to participate in the export-oriented market (Ndwandwe, 2023).

The Genadendal community have been harvesting and processing a particular species of honeybush called Cyclopia maculata for decades. They used it as herbal remedies for an array of ailments, brewing it into a tea to relieve coughs, colds, and respiratory issues. Additionally, they bathed in Honeybush to treat rashes and skin diseases, and as an alternative nourishment for infants unable to consume milk. Honeybush was also integrated into rituals and ceremonies, symbolising unity and harmony within communities (DEA, 2014).

The local communities involved in honeybush cultivation are small and dispersed between George and Oudtshoorn, in and amongst larger farms, such as Herold Meander farm, trading as Kaukou – a KhoiKhoi word for 'pricking thorn', and Driefontein Heuningbos near Mosselbay. The Western Cape Honeybush Tea Cooperative (WCHTC) in Oudtshoorn was registered by six members in 2016 as a vehicle to produce tea and address the high unemployment rate within the small community of Oudtshoorn in the Eden District. The WCHTC has started a trust that pays for the higher education of its employees' children. The WCHTC belongs to the Honeybush Tea Association and hopes to export the honeybush to other countries, once firmly established within the local markets including retail stores, places of accommodation, restaurants and also the Garden Route of the Western Cape.

Wild honeybush-bearing lands are harvested, occur on the slopes of the Kouga, Tsitsikamma, Outeniqua, Elandsberg, Grootwinterhoek, Kammanassie and Langkloof mountains. There appears to be no record of harvesting for commercial purposes in the wild in the western parts of the Cyclopia distribution range, beyond about 100km west of Uniondale. The Langkloof and the Kouga Mountains situated within the Eastern Cape province fall within the larger Cape Floristic Region (CRF), which is a Mediterranean-type biome recognised as a global hotspot for floral endemism and diversity (Michau, 2021).

The land on which honeybush is harvested is mostly privately owned. There are about 75 permit holders in the Eastern Cape who harvest wild honeybush, and probably about 50

farmers/landowners/land users in the Western Cape who harvest wild honeybush. There are many areas where honeybush occurs where it is not harvested, including privately owned farms, private reserves and formally protected areas under the management of ECPTA, Cape Nature and SANParks (McGregor, 2017b).

The invasion and required clearing of alien plant species, such as black wattle, not only poses a significant threat to native biodiversity but also incurs additional costs and labour. Illegal and unsustainable harvesting practices threaten the long-term survival of wild Honeybush populations, undermining conservation efforts and the industry's sustainability. Commercial cultivation occurs far more widely in the Western Province whilst wild harvesting is more prevalent in the Eastern Cape.

The growing demand for honeybush calls for increased agricultural production and a shift away from the predominantly wild harvested supply. However, some species can be cultivated whereas others have resisted all attempts at cultivation and must be harvested in the wild. The wild crop is made up of 85% C. intermedia, 10% C. subternata and 5% other wild harvested species. The cultivated crop is made up of 47% C. subternata, 43% C. longifolia and 10% C. genistoides. Overharvesting is causing declines to subpopulations particularly in the Langkloof, Tsitsikamma and Kouga mountain ranges. Habitat loss in lowland populations due to urban development and crop cultivation, water abstraction, and alien acacia (black wattle) invasion are also major concerns for the *Cyclopia spp*.

4.1.2 Social and Environmental risks and impacts

Risk	Description	UNDP SES	Activity introducing risk	Scope	Rating
Risk 1- Inequitable impacts on marginalized groups, including women,	**Event:** The call for proposal may result in inequitable or discriminatory impacts on Khoi's peoples, black owned or operated companies and women. **Cause:** Insufficient consideration of social dynamics and gender roles in the design of the call for proposal, leading to limitations on Khoi's people, women's and black people ability to participate, access opportunities and benefits, or manage honeybush harvesting or cultivation preparation activities effectively. **Impact:** Black-owned entreprises and women's groups may face increased inequality and reduced support from projects benefiting small-grant funding.	**Principle Leave No One Behind** P.5, P.7,P.8,P.10 and P.11	Call for proposal, all four modalities	All targeted areas	Moderate I = 3 L = 3
Risk 2- Risk of inadequate community-led entreprises engagement	**Event:** Inadequate engagement of community-led entreprises, including exclusion of Khoi, women and black peoples in project decisions that affect them.	**Principle Leave No One Behind** P.2 and P.13	Call for proposal, all four modalities	All targeted areas	High I = 4 L = 5

	Cause: insufficiently and potentially inappropriately conduction of consultations to determine eligible activities under call for proposal. **Impacts:** • Erosion of trust among community enterprises. • Reduced number of applications to the call for proposal.				
Risk 3- Concerns or grievances raised by participants recipients in the call for proposal not being properly addressed	**Event:** Participants in the call for proposal or grant recipients face challenges in effectively claiming rights, raising concerns, or filing grievances. **Cause:** Participants or recipients may face barriers and limiting factors including: • Lack of awareness of processes to raise a grievance • Logistical challenges. • Language, cultural, and literacy differences. • Limited access to or familiarity with necessary technology. **Impacts:** • Erosion of trust and collaboration. • Generation/exacerbation of conflict	Accountability Principle: P.14, P.15	Call for proposal, all four modalities	All targeted areas	High I = 5 L = 5
Risk 4 – Commercial cultivation of	**Event:** Negative impacts on habitats, including encroachment and ecosystem degradation	**Standard 1. Biodiversity conservation and**	Call for proposal, modality to support cultivation	All targeted areas	Substantial I =4

species leading to negative impacts on natural ecosystems	**Cause:** Support to cultivation of honeybush within communal or private land zones near natural habitats **Impacts:** • Disruption of ecosystems and biodiversity. • Reduced resilience and health of surrounding natural habitats.	**sustainable NRM**, 1.1, 1.2, 1.3, 1.8			L = 3
Risk 5 – Commercialization and wild harvesting leading to reduction of the populations of endangered species and increased illegal trade	**Event:** Threats to endangered species and increased illegal trade through wild harvesting and commercialisation **Cause:** Insufficient regulation and controls of the wild harvesting of honeybush, considered as in decline according to South Africa red list **Impacts:** • Further endangerment of these species. • Escalation of illegal trade activities.	**Standard 1. Biodiversity conservation and sustainable NRM**, 1.4, 1.5, 1.8, 1.13	Call for proposal, modalities to support wild harvesting	All targeted areas	Substantial I = 4 L = 3
Risk 6 - Mishandling of cultural heritage due to commercial cultivation	**Event:** Undermining traditional knowledge of honeybush use, including the Khoi's traditional knowledge **Cause:** • Wild harvesting for commercial purposes and cultivation encroaching on community-owned lands and	**Standard 4: Cultural Heritage,** 4.5	Call for proposal, all four modalities	All targeted areas	Moderate I = 3 L = 3

	resources without proper consultation or consent of Khoi's peoples. **Impacts:** • Conflicts over use and resource rights, reducing Khoi's access to essential resources like traditional medicine.				
Risk 7 – Khoi people may be negatively impacted by the implementation of activities, including Free Prior Informed Consent (FPIC) not properly obtained	**Event:** Use of traditional knowledge of Khois'peoples by community owned entreprises for business purposes without adequate safeguards results from the failure to conduct consultations in alignment with Free, Prior, and Informed Consent (FPIC) protocols on activities affecting the rights, lands, resources, and cultural practices of Khoi peoples. **Cause:** Potential adverse effects on the Khoi people related to implementation of the call for proposal. **Impacts:** • Disruption to Khoi's lands, access to resources, and cultural practices. • Erosion of traditional livelihoods and territorial rights.	**Standard 6: Indigenous Peoples** 6.1, 6.2, 6.3, 6.4, 6.5 and 6.7	Call for proposal, all four modalities	All targeted areas	**Substantial** I = 4 L = 4
Risk 8 – Potential pollution of ecosystems and energy	**Event:** Potential environmental harm associated with cultivation and processing activities	**Standard 8: Pollution Prevention and Resource**	Call for proposal, modality to support cultivation and	All targeted areas	Moderate I=3 I=4

consumption for cultivation and processing activities	**Cause:** Release of pollutants during the cultivation, preparation and processing of Honeybush by grant recipient organizations. This could include application of pesticides, generation of waste, and excessive resource consumption in these activities. **Impacts:** • Pollution of soil, water, and air, leading to environmental degradation. • Potential harm to local biodiversity and ecosystems. • Increased resource depletion and reduced environmental sustainability due to waste generation and overuse of water and energy.	**Efficiency** P8.1, 8.2, 8.5 and 8.6	processing of honeybush		
Risk 9 – Potential non respect of labour and working conditions by grant recipient organizations	**Event:** Non-compliance with fair working conditions and occupational health and safety standards for staff involved in cultivation, wild harvesting, processing, marketing and other support to value-chain development activities. **Cause:** Insufficient adherence to labor laws and workplace policies in preparation for cultivation activities and processing in organisations receiving funds for honeybush value-chain support.	**Standard 7: Labour and working conditions** P.7.1, 7.2, 7.3, 7.4, 7.5, 7.6	Call for proposal, modality to support cultivation and processing of honeybush	All targeted areas	**Substantial** I = 4 L = 3

	Impacts: • Breaches of labour laws and regulations. • Increased risk of workplace accidents, harassment, and unsafe working conditions. • Inequitable or unlawful pay practices, leading to staff dissatisfaction and potential legal challenges.				

4.6 Output 2.4 The ABS implementation in Rooibos farming is strengthened, ensuring fairness, equity and sustainability in relevant relationships among TK holders and industry.

4.6.1 Output activities

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' wild distribution falls mostly in the Western Cape and to a lesser extent the Northern Cape Province and covers an area of approximately 56,231 km^2. It is considered well-conserved across multi-use landscapes. Production of Rooibos for various purposes is mostly from cultivation.

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 R2,778.83 per month (or R128.26 per day) (Kaiser and Associates 2017).

In 2014, rooibos received geographical indication status, the first non-alcoholic South African product to be so designated. As a result, only rooibos tea from the indicated area (the Cederberg mountains of South Africa can legitimately be called rooibos (Schroeder et al., 2020). The San and KhoiKhoi peoples have been recognised as the TK holders related to the rooibos indigenous biological resource (DEA, 2014). Noting that rooibos resources have TK linked to them, the industry signed an Industry-wide ABS agreement with the TK holders, namely the KhoiKhoi and San peoples in 2019. The Industry-wide Access and Benefit Sharing Agreement for the Rooibos Industry has emerged from a long and often difficult process of recognising the TK holders of rooibos, extensive negotiations, and reaching consensus on the current structure, format and extent of the rooibos ABS agreement. The process largely started in 2010, when the South African San Council initiated steps to challenge the South African rooibos industry over their use of traditional knowledge in relation to rooibos. This is the first benefit sharing agreement in the world that encompasses a whole industry, guaranteeing that all quantities of rooibos traded contribute to benefit sharing.

The benefit sharing agreement includes a monetary levy that is placed at the beginning of the value chain, namely an annual levy of 1.5 % of the farm gate price (what processors pay for the unprocessed rooibos) is allocated to a government-managed fund (Schroeder et al., 2020). The Annual Levy is paid into the Bioprospecting Trust Fund, established in accordance with the provisions of Section 85 of the National Environmental Management: Biodiversity Act, and administered in accordance with the provisions of Regulation 40 of the Regulations on Bioprospecting, Access and Benefit Sharing. The Agreement and the Regulations provide for the distribution of the levies to the relevant trusts established for the benefit of the San and the Khoi people.

Output 2.4 relates to strengthening of ABS implementation in Rooibos farming, ensuring fairness, equity and sustainability in relevant relationships among TK holders and industry through eh following activities:

- 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;
- 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 institutionalisation 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
- Disseminating the case study outcomes as example to ABS stakeholders in SA and beyond.

4.6.2 Baseline

- **Project area**

The project location and area of influence (direct, indirect, and cumulative impacts) are focused on the geographical areas where Aspalathus Linearis (rooibos) grow wild and is cultivated on commercial farms, smallholdings and community land. The two beneficiary groups were identified:

- The San Council of South Africa, comprising the Khomani, Xun, Khwe, and Xam communities
- The KhoiSan Council, comprising five historical Khoi and San groupings vetted in official government reports, i.e. Griqua, Nama, Cape Khoi, and Koranna.

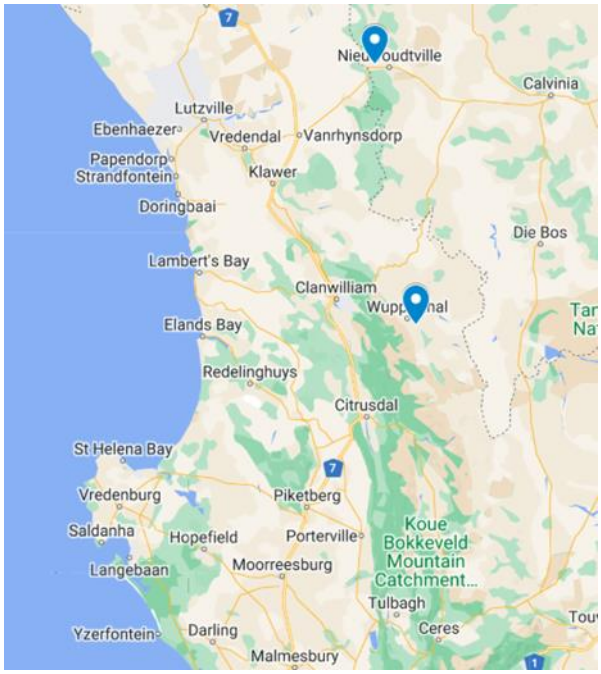


Figure 3-6: Location of Wupperthal community and Heiveld Cooperative

Wupperthal is a small town in the Cederberg mountains with a population of about 7,400 people. It was founded in 1830 by two German missionaries. The village remains isolated, and is accessible by a gravel road from Clanwilliam over the Pakhuis Pass. Community facilities include the Moravian Church, a shop, a tea room, a post office, a school with two hostels, and a community hall. Most families in the community are speak Afrikaans and their San dialect. The Wupperthal Original Rooibos Cooperative has its roots in the Wupperthal Association, which has been cultivating and jointly marketing rooibos in the area since 1998. The Cooperative was formed in

2009 by a group of 53 members and has since increased to 93 members, of whom 39 are female. Wupperthal Original Rooibos Cooperative members, who have grown rooibos for generations, have attained both organic and Fairtrade certification (in 2010) for their rooibos (GATC, 2016).

The Heiveld communities in the Suid Bokkeveld live scattered throughout the rocky terrain in the semi-arid winter rainfall region (receiving between 150 and 300 mm per annum). Using their traditional knowledge, these small-scale farmers produce rooibos tea (both wild and cultivated) and subsistence crops and practice pastoralism with small livestock. These small-scale farmers of the region generally work for between one and six months tending their own crops and livestock on land that they own, lease or have customary use of. The rest of their working time is spent as seasonal labourers on neighbouring farms or further afield. The area has limited arable land and small-scale farmers have very few alternatives to low-input subsistence and crop farming. It has become increasingly difficult to cultivate crops and make a living, because of the droughts and unpredictable weather conditions. The Heiveld Cooperative, a member-owned business based on agroecological principles, was formed in 2001 with 14 members and has since growing to 66 members in 2020 (Malgas, 2022). The Heiveld Cooperative provides cultivated and wild harvested rooibos tea for niche fairtrade and organic markets in Europe, North America, Australasia and South Africa. In keeping with international standards, the Heiveld has established internal mechanisms to ensure organic production of cultivated rooibos tea, sustainable harvesting of wild growing rooibos and the adoption of farming practices that ensure conservation of biodiversity, soil and water. In 2004, Heiveld obtained its own organic and Fairtrade certification. By 2014, Heiveld exported rooibos worth 4,5 million Rand (around 400,000 USD at the time) and in 2015 it exported R5 million worth of rooibos to countries in the global North.

- **Socio-economic conditions**

Rooibos is primarily cultivated and therefore produced by large-scale farmers (mostly whites) and smallholder farmers (mostly coloured). The number of Rooibos farmers (both large and smallholder farmers) is estimated to be between 250 – 300 rooibos producers (pers. Comm: Werner Nieuwoudt) although some have estimated the numbers at 500 produces (Schroeder et al., 2021). A large proportion of these rooibos plantations are predominantly owned by white farmers, who have a high level of education and access to capital. The majority of the estimated 210 smallholder rooibos producers are located in the mountainous parts of the Western Cape, producing their rooibos on about 1.8 hectares of land, which are much smaller portions compared to large-scale farmers. These smallholder Rooibos farmers have a much lower level of education and limited access to capital (Dept Agriculture, Forestry and Fisheries, 2012).

Vulnerable small-scale land users in the fynbos region often depend on the wild endemic fynbos resources for their livelihoods, deriving an income from the sale of wild-harvested fynbos biomass or from cultivation of rooibos on small parcels of land. Approximately 150 small-scale producers in the Wupperthal area and 60 small scale producers in Heiveld are organised into tea cooperatives and account for about 100 members actively involved in rooibos production. Each of these cooperatives owns about 30% shares in a rooibos packing facility that is located in Cape Town, South Africa. Rooibos Industry provides employment opportunities to over 5,000 individuals, thus contributing significantly to South Africa's economic growth (SARC, 2020).
A spectrum of socio-economic conditions is applicable. The average Khoi and San community members are generally impoverished and work as labourers on commercial farms. The owners of commercial farms have a high standard of living, while the owners of smallholdings make a decent living.

- The people of **Wupperthal** community are dependent on small-scale agriculture (mainly rooibos) or livestock farming for their livelihood. The mountainous areas surrounding the village provide grazing for goats. The CWP, a national initiative aimed at providing a safety net to working people, only employs about 47 people. The town also relies on the historic shoe factory producing "velskoene". The most important cash crop is rooibos. The people of Wupperthal have been farming rooibos organically for over 200 years, preserving

Wupperthal Rooibos cultivation rituals for generations. An industry-wide Access and Benefit Sharing Agreement was signed regarding rooibos with the San Council and the KhoiSan Council. Both Councils set up trusts to manage the funds.The communities in the Suid Bokkeveld live scattered throughout the rocky terrain in the semi-arid winter rainfall region (receiving between 150 and 300 mm per annum). Using their traditional knowledge, these small-scale farmers produce rooibos tea (both wild and cultivated) and subsistence crops and practice pastoralism with small livestock. These small-scale farmers of the region generally work for between one and six months tending their own crops and livestock on land that they own, lease or have customary use of. The rest of their working time is spent as seasonal labourers on neighbouring farms or further afield. The area has limited arable land and small-scale farmers have very few alternatives to low-input subsistence and crop farming. It has become increasingly difficult to cultivate crops and make a living, because of the droughts and unpredictable weather conditions.

- The **Heiveld Cooperative** provides cultivated and wild harvested rooibos tea for niche fairtrade and organic markets in Europe, North America, Australasia and South Africa. In keeping with international standards, the Heiveld has established internal mechanisms to ensure organic production of cultivated rooibos tea, sustainable harvesting of wild growing rooibos and the adoption of farming practices that ensure conservation of biodiversity, soil and water. In 2004, Heiveld obtained its own organic and Fairtrade certification. By 2014, Heiveld exported rooibos worth ZAR4,5 million (around US$400,000 at the time) and in 2015 it exported ZAR5 million worth of rooibos to countries in the global North. In the early 2000s the Heiveld Cooperative and Wupperthal Rooibos Tea Association, two small-scale farmer-producer organisations comprising chiefly of Coloured farmers, were established. Wild-harvested rooibos is now marketed as a stand-alone or as blended products, with selected brands (e.g. Heiveld Rooibos) bearing organic and/or fairtrade certification, such as Fairtrade and FairWild. The organic and fairtrade brands have been able to command a premium price over similar products from the larger producers. A portion of the premium was typically reinvested in developing business opportunities and running training programmes for cooperative members. Wild-harvesting of rooibos, however, remains limited to the export market only in small quantities, and as niche products.

The growing global awareness of rooibos' health benefits and its versatility in various products continue to drive its demand in these key markets. The demand for rooibos is expected to grow, driven by increasing consumer interest in health and wellness products. The industry is also exploring new markets and product innovations to sustain growth. Overall, the commercial rooibos market is dynamic and continues to grow, driven by its health benefits, versatility, and increasing global demand. The rooibos industry has immense potential to be exploited for its application in growing the ‘natural product’ economy. This endemic resource can provide an essential ingredient for economic expansion, contributing to the establishment of new and novel businesses, creating job opportunities, and supporting the development of the rural areas.

- Biophysical context

The geographical distribution of Aspalathus linearis (rooibos) is shown on the map in the figure below:

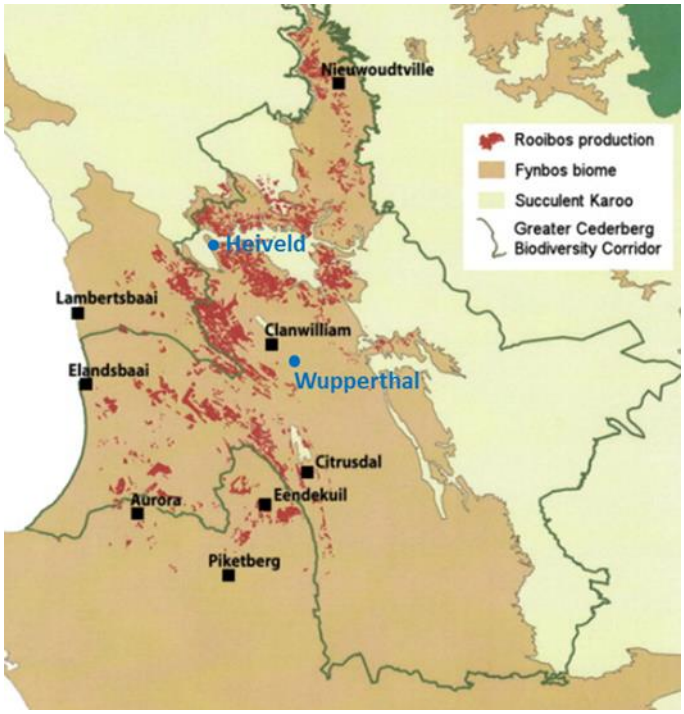


Figure 3-6: The geographical distribution of *Aspalathus Linearis* (rooibos) (Adapted from: Joubert & De Beer, 2011)

The rooibos plant is native to the winter rainfall fynbos region of southern South Africa, extending from the Cederberg region of the Western Cape to a few areas of the south-western parts of the Northern Cape (e.g., the Suid Bokkeveld and the Noord Bokkeveld Plateau near the rural town of Nieuwoudtville). As the species only grows at higher altitudes (200 to 1,000 meters above sea level), it is particularly well adapted to the unique geographical conditions in the distribution area that is predominantly arid and experiences hot, dry summers and cooler, wet winters. The narrow leaves of the plant have a limited surface area to minimise the loss of moisture on hot days. The plant requires winter rainfall so that active growth of the plant can start in early summer, and increases towards mid-summer. Humidity, water availability, air temperature, angle of the slope on which the plant is found, the texture of the soil and latitude play an important role in the lifecycle of the plant (Rooibos Council, 2020). Wild rooibos has been broadly categorised, based on their fire-survival strategy, into the two main groups of reseeders and resprouters and has been shown to be variable in morphology, biochemistry, ecology and genetics (Brooks et al., 2021).

Climate change threatens the future survival of the plant and the entire rooibos industry (12) – with declining yield potentially raising prices and resulting in a decreased demand. Changes to the climate thus place the entire industry at risk, which will impact on the livelihoods of TK holders.

4.6.3 Social and Environmental impacts

Risk	Description	UNDP SES	Activity introducing risk	Scope	Rating
Risk 1- Inequitable impacts of the ABS on marginalized groups, including women	**Event:** Negotiations on ABS may result in inequitable or discriminatory impacts on San and Khoi's peoples, black peoples, women and other vulnerable groups. **Cause:** Insufficient consideration of social dynamics and gender roles in access and processing of Roiboos in the ABS negotiations. **Impact:** San and Khoi's peoples, black peoples, women and other vulnerable groups no or limited access to Roiboos.	**Principle Leave No One Behind** P.5, P.7,P.8,P.10 and P.11	• 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; • Investigate and develop non-monetary TK benefit sharing mechanisms which may support rights-holding communities through contributions-in-	All targeted areas	Moderate I = 3 L = 3

			kind and related mechanisms by the private sector • Develop and propose a suitable and simple governance and institutionalisation framework for implementing and monitoring the TK benefit sharing mechanism		
Risk 2- Risk of inadequate consultations in the ABS negotiations	**Event:** The consultations on ABS for Rooibos do not engage all relevant stakeholder groups who are impacted by the ABS. **Cause:** Insufficient mapping and outreach to stakeholders on ABS for Rooibos. **Impact:** All stakeholders, including youth, women and 's groups impoverished or illiterate people's, views are not reflected in the ABS resulting in limited access to Rooibos monetary and non-monetary benefits.	**Principle Leave No One Behind** P.2 and P.13	• 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	All targeted areas	High I = 4 L = 5

			modelling and forecasting; • 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 institutionalisation framework for implementing and monitoring the TK benefit sharing mechanism		
Risk 3- Concerns or grievances raised by stakeholders participanting in ABS negotiations	**Event:** Stakeholders participating in the ABS for Rooibos negotiations face challenges in effectively claiming rights, raising concerns, or filing grievances.		All	All targeted areas	High I = 5 L = 5

not being properly addressed	**Cause:** Participants or recipients may face barriers and limiting factors including: • Lack of awareness of processes to raise a grievance • Logistical challenges. • Language, cultural, and literacy differences. • Limited access to or familiarity with necessary technology. **Impacts:** • Erosion of trust and collaboration. • Generation/exacerbation of conflict	Accountability Principle: P.14, P.15			
Risk 5 - Mishandling of cultural heritage in ABS negotiations	**Event:** Undermining traditional knowledge of use and processing of Rooibos by traditional healers, including San and Khoi peoples **Cause: Lack of protocol for recording and using traditional knowledge for ABS on** Rooibos during consultations with communities and representatives of the San and Khoi Councils **Impacts:** • Reducing access to Rooibos for traditional healers • Unfair access to benefits for traditional healers, including San and Khoi, under ABS	**Standard 4: Cultural Heritage,** 4.5	• 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		Moderate I = 3 L = 3

			economic modelling and forecasting; • 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 institutionalisation framework for implementing and monitoring the TK benefit sharing mechanism		
Risk 11 – Indigenous Peoples (including Khoi and San) may be negatively impacted by the	**Event:** Use of traditional knowledge and implementation of Access and Benefit Sharing (ABS) agreements do not take into account negative impacts on Indigenous Peoples (including Khoi and San)	**Standard 6: Indigenous Peoples** 6.1, 6.2, 6.3, 6.4, 6.5 and 6.7	• Investigate and develop a suitable TK benefit sharing mechanism that effectively captures the		Substantial I = 4 L = 4

implementation of activities, including Free Prior Informed Consent (FPIC) not properly obtained	**Cause:** Failure to conduct consultations in alignment with Free, Prior, and Informed Consent (FPIC) protocols on activities affecting the rights, lands, resources, and cultural practices of Khoi and San in ABS for Rooibos farming (Output 2.4). **Impacts:** • Disruption to Khoi and San's lands, access to resources, and cultural practices. • Erosion of traditional livelihoods and territorial rights. • Potential conflicts and reduced trust in project activities.		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; • 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		

			institutionalisation framework for implementing and monitoring the TK benefit sharing mechanism		

5 Stakeholders

5.1 Summary of Stakeholder Engagement Plan

To be updated

5.2 Summary of plan for consultations on ESIA and ESMP

To be updated based on SEP

6 Conclusions and recommendations