



# GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: FULL SIZE PROJECT

TYPE OF TRUST FUND: GEF TRUST FUND

## PART I: PROJECT INFORMATION

Project Title:	Promoting conservation, sustainable utilization and fair and equitable benefit-sharing from Lesotho's Medicinal Plants for improved livelihoods		
Country(ies):	Lesotho	GEF Project ID:	9799
GEF Agency(ies):	UNDP	GEF Agency Project ID:	5891
Other Executing Partner(s):	Ministry of Tourism, Environment and Culture	Submission Date:	March 3, 2017
		Resubmission Date:	September 25, 2017
GEF Focal Area(s):	Biodiversity	Project Duration (Months)	60
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/>	Corporate Program: SGP	<input type="checkbox"/>
Name of parent program:	n/a	Agency Fee (\$)	276,801

## A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Trust Fund	(in \$)	
		GEF Project Financing	Co-financing
BD-3 Program 8: Implementing the Nagoya Protocol on Access and Benefit Sharing	GEF TF	2,913,699	4,500,000
Total Project Cost		<b>2,913,699</b>	<b>4,500,000</b>

## B. INDICATIVE PROJECT DESCRIPTION SUMMARY

<b>Project Objective:</b> To promote conservation, sustainable use and improved access and benefit-sharing from ABS products derived from selected Medicinal Plants in selected Highlands and Foothill areas of Lesotho						
Project Components	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Project Financing	Co-financing
<b>Component 1: Enabling institutional capacity and regulatory framework strengthened to support implementation of the Nagoya Protocol on Access and Benefit Sharing (ABS)</b>	TA	<b>Outcome 1.1:</b> Functional national ABS policy and regulatory framework operational and supportive of access and benefit sharing from the use of genetic resources  Indicator: ABS policy-, legal- and regulatory - framework in place.	<i>Output 1.1.1: National Environment Policy of 1998 and Biodiversity Bill of 2016 reviewed to address ABS in accordance with the Nagoya Protocol</i>  <i>Output 1.1.2.: National ABS regulations developed and presented to Parliament for approval</i>  <i>Output 1.1.3: Proposed interim ABS and Traditional Knowledge Strategy reviewed and finalized for approval</i>	GEFTF	350,000	675,000
	TA	<b>Outcome 1.2:</b> Capacity of national institutions to develop, implement and enforce national legislative, administrative or policy measures on ABS strengthened  Indicator: Capacity of institutions to develop,	<i>Output 1.2.1: National Focal Point, Competent National Authorities and Checkpoints identified and supported with training and technical capacity building to implement the ABS framework and to monitor and enforce compliance</i>  <i>Output 1.2.2: Institutional Capacity Development Strategy</i>	GEFTF	300,000	500,000

		<i>implement and enforce ABS policies and regulations increased by XX% as measured by the GEF Tracking Tool on ABS and the UNDP ABS Capacity Development Scorecard (baseline and target to be determined during the PPG phase)</i>	<i>for the ABS framework implementation, monitoring, enforcement and compliance developed and rolled-out</i>			
	TA	<p><b>Outcome 1.3:</b> Management, ownership and access rights, rules and procedures over access and utilization of genetic resources defined, clarified and encoded in the legal system (e.g. by-laws/ community protocols)</p> <p>Indicators: <i>Administrative procedures for users and providers of genetic resources to develop, implement and monitor ABS agreements with proper Prior Informed Consent (PIC), Mutually Agreed Terms (MAT) and Benefit Sharing (BS) principles and guidelines</i></p>	<p><i>Output 1.3.1: Guidelines and procedures for obtaining Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT) developed and approved</i></p> <p><i>Output 1.3.2: Biocultural community protocols governing management, ownership, access rights and benefit sharing rules and procedures defined and adopted</i></p> <p><i>Output 1.3.3: Codes of conduct, best-practices and standards that ensure sustainable harvesting, fair and equitable benefit-sharing established for industry and research sectors active in bioprospecting</i></p>	GEFTF	150,000	300,000
<b>Component 2: Sustainable utilization and conservation of selected commercially-important Medicinal Plants for the development of ABS products for the pharmaceutical sector</b>	TA	<p><b>Outcome 2.1:</b> Research and development for ABS products derived from <i>Pelargonium sidoides</i>, <i>Aloe polyphylla</i> and <i>Hypoxis hemerocallidea</i> enhanced</p> <p>Indicator: <i>Number of R&amp;D and bioprospecting trials/ initiatives supported</i></p>	<p><i>Output 2.1.1: National research and development strategy on bioprospecting</i></p> <p><i>Output 2.1.2: National University of Lesotho supported to conduct pharmacological research and development on selected genetic resources of medicinal value</i></p> <p><i>Output 2.1.3: A comprehensive valuation of selected genetic resources with known commercial value conducted</i></p>	GEFTF	350,000	575,000

	TA	<p><b>Outcome 2.2:</b> Sustainable harvesting, value addition and benefit-sharing from genetic resources promoted for <i>P.sidoides</i>, and <i>Hypoxis hemerocallidea</i></p> <p>Indicator: <i>Number of value added initiatives supported at country level to develop natural products (genetic resources to be identified during PPG)</i></p>	<p><i>Output 2.2.1: Small-scale community-based enterprises supported with business and value-addition skills to harvest, process, package and market natural products from selected genetic resources</i></p> <p><i>Output 2.2.2: National University of Lesotho's Innovation Hub supported to conduct R&amp;D and natural product development for pharmaceutical and food and beverage use (with a focus on <i>P.sidoides</i> and <i>Hypoxis hemerocallidea</i>)</i></p>	GEFTF	600,000	750,000
	TA	<p><b>Outcome 2.3:</b> ABS agreements for <i>Pelargonium sidoides</i>, compliant with sustainable utilization practices, bioprospecting ethics, PIC, MAT and benefit-sharing provisions and guidelines developed and implemented together with local communities</p> <p>Indicator: <i>Number of ABS agreements in place for utilization of <i>P.Sidoides</i></i></p>	<p><i>Output 2.3.1: The Pelargonium Biodiversity Management Plan (BMP) adopted and implemented in close collaboration between the Pelargonium Working Group in South Africa, and community enterprises and CSO stakeholders in Lesotho</i></p> <p><i>2.3.2: ABS deals with monetary and non-monetary benefits negotiated between providers and users of <i>Pelargonium sidoides</i></i></p> <p><i>Output 2.3.3: Model ABS agreements cognisant of the pharmaceutical business models, developed/reviewed and implemented for <i>P.Sidoides</i> with a focus on medium enterprises and exporters</i></p>	GEFTF	850,000	950,000
<b>Component 3: Gender mainstreaming, Knowledge Management and M&amp;E</b>	TA	<p><b>Outcome 3.1:</b> Gender mainstreaming, lessons learned by the project through participatory M&amp;E are used to guide adaptive management, collate and share lessons, in support of upscaling</p> <p>Indicator: <i>Ratio of women/ men benefitting from project interventions</i></p>	<i>Output 3.1.1 Gender strategy developed and used to guide project implementation, monitoring and reporting</i>	GEFTF	100,000	150,000
	TA	<p><b>Outcome 3.2:</b> Awareness on sustainable utilization, conservation and access to and benefit sharing from the use of genetic resources enhanced</p> <p>Indicator: <i>Increased level of awareness among all stakeholders about the</i></p>	<p><i>Output 3.2.1: Knowledge, attitudes, and practices (KAP) assessment/ surveys carried out and an awareness-raising programme developed and implemented on ABS</i></p> <p><i>Output 3.2.2: Participatory monitoring, evaluation and learning strategy developed and implemented to support project</i></p>	GEFTF	74,952	100,000

		<i>provisions of the Nagoya Protocol on ABS (measured by KAP index).</i>	<i>management, collate and disseminate lessons</i>			
Project Management			<b>Subtotal</b>	<b>GEFT F</b>	<b>2,774,952</b>	<b>4,000,000</b>
			<b>Project Management Cost (PMC)</b>	<b>GEFT F</b>	<b>138,747</b>	<b>500,000</b>
			<b>Total Project Cost</b>		<b>2,913,699</b>	<b>4,500,000</b>

**C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE**

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
Government	Department of Environmental Affairs	In-kind	3,475,000
Academia	National University of Lesotho	In-kind	525,000
GEF IA	UNDP	Grant	500,000
<b>Total Co-financing</b>			<b>4,500,000</b>

**D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS <sup>a)</sup>**

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b) <sup>b)</sup>	Total (c)=a+b
UNDP	GEF TF	Lesotho	Biodiversity	n/a	2,913,699	276,801	3,190,500
<b>Total GEF Resources</b>					<b>2,913,699</b>	<b>276,801</b>	<b>3,190,500</b>

**E. PROJECT PREPARATION GRANT (PPG)**

Is Project Preparation Grant requested? Yes  No  If no, skip item E.

**PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS**

Project Preparation Grant amount requested: \$100,000					PPG Agency Fee: \$9,500		
GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee <sup>1</sup> (b)	Total c = a + b
UNDP	GEF TF	Lesotho	Biodiversity	(select as applicable)	100,000	9,500	109,500
<b>Total PPG Amount</b>					<b>100,000</b>	<b>9,500</b>	<b>109,500</b>

**F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS**

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that	Improved management of landscapes and seascapes covering 300 million hectares	85,000 hectares <sup>2</sup>

<sup>1</sup> PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

<sup>2</sup> Target to be confirmed at PPG phase.

## **PART II: PROJECT JUSTIFICATION**

### *1. Project Description.*

#### **1. The global environmental and/or adaptation problems, root causes and barriers that need to be addressed.**

Lesotho is located in Southern Africa, it is completely surrounded by South Africa, and has a population of about 2.14 million people, as estimated by the World Bank in 2015. It is located on the highest part of the Drakensburg escarpment with altitude reaching 3,482 meters above sea level in some places. It lies between 30° South and 29° Eastern longitude and has a total surface area of 30 648 km<sup>2</sup>. Lesotho is divided into four agroecological zones namely the lowlands, 1500-1800m high, the foothills 1800- 2200m high, and Mountains 2200-3000m. The Senqu River valley, which is the fourth agro-ecological zone is the extension of the lowlands into the eastern mountain along the Senqu River, an internationally-shared and economically important river systems for Lesotho, South Africa, Namibia and Botswana, the three states that share it. It is mostly a floristic country that forms the greatest part of the globally recognized biodiversity hotspot in the Southern Africa Maluti-Drakensberg mountains known as the Drakensberg Alpine Centre (DAC) (Carbutt and Edwards 2005). The Centre is located within the Afro-montane and Afro-alpine vegetation zone and the mountain area is important for high altitude flora, estimated at about 1,750 plants species; of which 30% is endemic to the DAC. Lesotho is also home to a system of unique wetlands found nowhere else in the world, mostly in the eastern alpine areas (Drakensberg Afroalpine Heathland). These wetlands support a network of unique high altitude bogs and sponges and are a key contributor to the water system of the country. The country is therefore well endowed with water, a resource that is nationally referred to as “white Gold”. The country’s unique ecosystems offer goods and services such as food, medicinal plants, firewood, water, land, building materials, scenery, and water purification required for survival.

Lesotho has three formally protected areas that include the Sehlabathebe National Park (6,952 ha), the Tšehlanyane National Park (5,394 ha) and the Bokong Nature Reserve (1,952 ha). Since 2013, the Sehlabathebe National Park (SNP) has been a declared world heritage site by the UNESCO (UNESCO, 2013). Furthermore, the SNP has been combined with the uKhahlamba Drakensberg National Park in South Africa to form a transboundary protected area, known as the Maloti-Drakensberg Park (UNESCO, 2013). This heritage site is a haven for many threatened and endemic species. The country is also in the process of preparing a proposal for the designation of the Tšehlanyane National Park and the Bokong Nature Reserve as Man and Biosphere Reserves (MABs). Additionally, the Letša-la-Letsie Wetland in the Quthing District, is designated as a Ramsar site, and thus accorded protection. Over and above the formally designated protected areas, there are several areas that are either informally designated or proposed for protection in various parts of the country. These fall into IUCN Categories II, III and IV and are managed for different objectives, including economic and biodiversity functioning of the region, ecosystem protection and recreation; conservation of specific natural and cultural features; and for sustainable use of natural ecosystems.

An LDC with more than half of its population living in poverty, Lesotho is significantly constrained in its capacity to conserve and sustainably manage its natural resources and conserve its biodiversity, including key threatened species. Other than international treaties and conventions to which Lesotho is a party, the country lacks comprehensive national laws to facilitate comprehensive biodiversity protection and sustainable natural resources management. Local implementation of international conventions is also poor, and most conservation laws in Lesotho focus on improvement of economic or agricultural benefits rather than direct conservation of flora and ecological processes. Only three pieces of legislation directly address biodiversity conservation and these are the Historical Monuments, Relics, Fauna and Flora Act of 1967, National Parks Act of 1975, and Managed Resource Areas Order of 1993 (Marake et al. 1998). Nevertheless, an umbrella Environmental Bill that has specific provisions for conservation of biological diversity has been drafted (since 2016) and awaits enactment. In the long run, biodiversity conservation will depend on a better management of biodiversity outside protected areas. Even with the existing formal PAs, there are management problems which warranted GOL to commission a study in 2013 to determine best approaches to manage these areas for improved socio-economic gains. Recommendations of the study are yet to be

implemented. However, with the establishment of local councils at village level, the councilors use the provisions of the Local Government Act of 2007 which allows them to make their own by laws to ensure that they benefit from the utilization of their resources in their territory.

Problem areas identified include the quality of environmental legislation and the implementation of environmental laws. Existing statutes governing natural resource management and the protection of the environment are considered inconsistent, inadequate and un-consolidated. They also overlap and are often in conflict with one another. Their implementation is poor because they are inaccessible (out of print, written only in English, and outdated). In addition, they depend on coercive measures, and are often reactive rather than preventive. Other factors that contribute to poor implementation of environmental legislation include poorly trained personnel, inadequate financial resources, weak administrative and organisational structures, institutional conflicts, scarcity of monitoring equipment and lack of environmental education and public awareness programmes. Legal reforms were initiated as early as 1989 to address the shortcomings in environmental legislation and in institutional capacity. This has culminated in the drafting of the Environmental Bill and in the establishment of NES (National Environment Secretariat) to spearhead and co-ordinate environmental issues and ensure compliance with international conventions and treaties. As indicated, the proposed reforms are yet to be implemented, so these challenges remain.

Threats to biodiversity and natural resources in Lesotho are significant and varied. The country is faced with severe land degradation due to its topography, climate, fragile soils, and human-induced pressures. This has caused loss of vegetation cover including significant biodiversity loss, soil erosion, decreased soil fertility and a reduction in the size of productive land. Agricultural production has ultimately declined, contributing further to over-harvesting and over-exploitation of wild resources, food insecurity, rural poverty and consequently rural-urban migration, resulting in increased mushrooming of informal settlements around main towns. Recently, there is an alarming rate of over-harvesting of biological resources as ethno-medicines and sources of fuel wood. The human-induced pressures include poor farming practices, poor range management practices (e.g. overgrazing and overstocking), over-collection of firewood and unsustainable management of the impacts of developmental activities (e.g. construction and mining). The poor range management practices have contributed to the spread of alien invasive species (AIS) in the rangelands which outcompete indigenous plants species, negatively impacting livestock production. Moreover, despite that Lesotho is one of the least-forested countries in Africa, most Basotho use biomass in the form of trees and shrubs as the main form of fuel to meet their energy needs, as only a small percentage of households (15%) have access to electricity. This further depletes biodiversity, accelerates land degradation and reduces carbon sequestration capacity of the country's landscapes. This situation is bound to continue if left unabated, further exacerbating the country's socio-economic challenges and reducing the nation's resilience to environmental degradation and climate change.

Beyond utilising biodiversity to meet daily subsistence needs, recently, Basotho have turned biological resources into trade commodities, largely as medical remedies, to generate income and support livelihoods. Popular medicinal and aromatic plants (MAPs) that have been commercialized include *Aloe polyphylla*, *Aloe ferox*, *Pelargonium sidoides* and *Hypoxis hemerocallidea*. Most of these Medicinal, Aromatic and Ornamental Plants (MAPs and MOPs) are collected directly from the wild, putting them at risk of over-exploitation and extinction. *A. polyphylla* in particular, endemic only to Lesotho, has been reported to be threatened by illegal trade, hence it was included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This trade is largely unregulated due to factors such as inadequate institutional and regulatory frameworks as well as poor law enforcement, as already noted above. The illegal trade is often unfair, with limited benefits accruing to communities and limited monitoring for safety assurance of natural products. Additionally, harvesting practices are usually unsustainable not only threatening target species but also degrading habitats where such species occur.

In terms of resource assessments, the Government of Lesotho has not done much to assess the biodiversity status of medicinal plants as well as socio-economic studies associated with such plants, and the capacity to conduct these assessments is lacking. As a result, information on medicinal plants in Lesotho is currently limited. Hence the government has acknowledged in several reports that lack of empirical data on biodiversity status such as that of medicinal plants hinders development of effective conservation strategies. Perhaps, *Pelargonium sidoides* (Khoara) studies done by TRAFFIC East/Southern Africa are some of the only few studies for Lesotho that specifically

targeted a single species by doing resource assessments and thereafter developing management plans. While there is a general lack of empirical data, there are indications that many species of flora and genetic resources are being over-exploited to meet the growing trade demand. There is therefore a growing concern about the impacts of this trade on the long-term survival of these species and the sustainability of the industry as this directly affects community livelihoods. The fourth Lesotho CBD report has also reported that lately medicinal plants are over harvested for commercial market, and in the advent of emergence of HIV pandemic for instance, the use of indigenous herbs has intensified because of the assumed potency in managing the viral conditions, and relatively easier access associated with the herbs against the cost of conventional medication. Understanding the status of genetic resources in Lesotho is particularly urgent if they are to be protected and sustainably managed for equitable access and benefit sharing. Currently it is not clear: (1) how many species are involved in the trade and what their conservation status is; (2) how many Basotho are involved in trading in these resources; (3) how much the trade is contributing to improving livelihoods and the national economy; and (4) to what extent the trade is fair to both providers and users.

Research by Moteetee and VanWyk (2011)<sup>3</sup> shows that 355 plant species (including 23 exotics), from eight pteridophyte and 76 angiosperm families, are used for various medicinal purposes in Lesotho. In terms of the number of medicinal species, the most important families are Asteraceae (76), Fabaceae (33), Hyacinthaceae (15), Apocynaceae (12), Scrophulariaceae (12), Lamiaceae (11) and Poaceae (11). It is also interesting to note that seven species of ferns are used medicinally - mostly used to treat headaches, either through smoking the leaves or inhaling smoke from smouldering leaves. Some plants are age and gender specific, others are strictly for livestock, whereas others are used for both humans and animals. Several plants are used to treat children's ailments. The following pattern of exclusive uses emerges: human (287 species), livestock (8 species), women (20 species), men (three species) and children (29 species). The medicinal plant uses can also be grouped on the basis of the ailment treated, such as problems relating to digestion (84 species), respiration (67 species), fertility and reproduction (31 species), circulation (26 species) and skin and wounds (24 species). Another important category is that of magic and sorcery; at least 50 species are used for this purpose. A total of 37 species studied by Moteetee and Van Wyk have at least four citations for medicinal uses - and almost invariably the same number of citations for vernacular name(s). These 37 species may be considered as the most important and best known medicinal plants in Lesotho.

Despite the richness of its ecosystems and species diversity, Lesotho has struggled to derive any significant benefits from its natural resources, with the exception of water resources, which it currently sells to South Africa. Even then, the focus on exporting water has had significant local environmental consequences, as the benefits of this trade have not been reinvested into conservation and sustainable management of the water resources, evidenced by significant land degradation in the river basin. Regarding the fair and equitable sharing of benefits arising from the use of genetic resources, in the context of the CBD and the Nagoyal Protocol on ABS, Lesotho is quite constrained and lacks the capacity to facilitate generation of benefits, and its resources remain vulnerable to over-exploitation by both local and international users, as evident in the area of medicinal, aromatic and ornamental plant species. The main challenge is the lack of policy and legislative frameworks specific to genetic resource management, ABS and traditional knowledge (TK). The current related regulatory frameworks are outdated and mainly focus on biodiversity conservation but not ABS and/or TK. The challenges that have been identified regarding institutional arrangements are many and relate to capacity elements. Only few government Ministries have demonstrated the capacity to develop regulatory frameworks (policies, laws and regulations) while on the other hand many have cited limited or lack of funds as an obstacle to develop such regulatory frameworks. There is also lack of capacity in specific ABS and TK requirements such as handling prior informed consents (PIC), developing mutually agreed terms (MAT) of contracts between users and providers and carrying out endogenous research. Moreover, mandates and roles of key institutions seem to be not clearly articulated and this is a setback for effective implementation of ABS, TK and the Nagoya Protocol in general. The issue of communication and coordination amongst all the stakeholders involved in ABS, TK and NP was also found to be currently poor. The shortage of skilled staff, lack of infrastructure in the form of laboratories, equipment, as well as lack of awareness on ABS issues were identified as other factors limiting effective implementation of ABS and TK issues.

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<sup>3</sup> See Moteetee, A., and Van Wyk, B-E. *The medical ethnobotany of Lesotho: a review.*, in *Bothalia* 41,1: 209-228 (2011)

Unlike neighbouring South Africa, which has an advanced regulatory and management framework for many of the genetic resources found in the country, including those shared with Lesotho (e.g. *P. sidoides*), Lesotho is lagging behind in developing its genetic resource sector. Significant lessons could be learned from South Africa. On the other hand, due to its proximity to South Africa and the fact that the South African ‘bio-economy and bio-prospecting’ sector is advancing quickly, Lesotho is increasingly become a target for illegal harvesting and trading of potentially threatened plant species because the sector is unregulated.

The preferred long-term solution is to reduce threats to Lesotho’s biodiversity, and protect its biological and genetic resources, and ensure that the country and people of Lesotho benefit from the conservation, use and sustainable management of these resources. As an important pillar of the CDB, the Nagoya Protocol on ABS serves as a key instrument in pursuing this goal, and so building long-term capacity at all levels to effectively implement its provision will provide the right incentives for an overall improved and sound management of Lesotho’s environment and contribute to addressing the pressing poverty-environment challenges the country currently faces.

The objective of this project is, therefore, to promote conservation, sustainable use and benefit sharing from the use of the country’s genetic resources and the research and development of natural products from such resources, by supporting the creation of an enabling environment and equipping all stakeholders (users, providers, policy makers, researchers, law enforcement officers and the wider Basotho) with the skills, capacity and resources to sustainably harvest, add value, manage, conserve and benefit from these resources.

The project interventions will remove several barriers and support the country to build its capacity to protect, regulate the use of genetic resources and facilitate increased benefit sharing from their utilisation. The key identified barriers that the project will remove are as follows:

*Barrier 1- Limited institutional and technical capacity to coordinate implementation of biodiversity and natural resources conservation initiatives, including limited capacity to design and implement appropriate policies and programmes:* The technical capacity to plan, implement and upscale conservation and sustainable natural resources management programmes and initiatives is limited at national, sub-national and local levels. This technical limitation is a result of: i) insufficient training of staff employed in relevant departments within the government institutions, including the Ministry of Tourism, Environment and Culture, Ministry of Forestry Resources and Soil Conservation and Ministry of Agriculture and Food Secusry; and ii) understaffing of the MTEC, MFRSC and MAFS and overall lack of financial resources for environment and natural resources management. As a result, mainstreaming of biodiversity and natural resources conservation, including implementation of ecosystem approaches into sub-national development strategies is hampered. This will be addressed through Component 1 of the project (*Enabling institutional capacity and regulatory framework strengthened to support implementation of the Nagoya Protocol on Access and Benefit Sharing (ABS)*) through support to policy reviews, development of guidelines and training of government staff, local government authorities, communities and other stakeholders on the application/implementation and monitoring of policy and regulatory frameworks biodiversity conservation and sustainable natural resources management.

*Barrier 2 – Lack of enabling environment (including policies, laws, regulations and guidelines) to implement the provisions of the Nagoya Protocol on ABS:* Even though Lesotho has acceded to the Nagoya Protocol on ABS, there exists virtually no capacity to effectively engage with the complex technical and financial requirements for implementation of the provisions of this interventional instrument, including negotiating benefit sharing agreements on the use of its genetic resources. Currently there are no guidelines for sustainable harvesting of genetic resources in place and the relevant institutions have no capacity to develop such guidelines, meaning there’s no regulation of their harvest and utilization. There’s no clear permit system in place, such that permits are issued without consultation with other relevant stakeholders, nor the consent of communities who reside where these resources are harvested from. The issuing of permits is also ad hoc and not informed by an understanding of the resource, its status, threats, or commercially value, as these are unknown and undefined. The institutional environment for defining these resources, regulating and enforcing their use are uncoordinated and often conflicting and overlapping, resulting in inefficiencies and lack

of decision making. The governance mechanisms are also unclear, with both the central government institutions, and the traditional authorities having mandates and power to regulate and manage these resources. Often management decisions are reactive. Currently, the only context within which ABS issues may be considered is within the Environmental Impact Assessment (EIA) process, resulting in development projects (e.g. mining and construction) being prioritized over conservation and sustainable management of natural resources, in the quest for economic growth and development. Component 2 of the project (*Sustainable utilization and conservation of selected commercially-important Medicinal Plants for the development of ABS products for the pharmaceutical sector*) will support the removal of this barrier by using selected commercially-important genetic resources species as an entry point for implementing Nagoya Protocol provisions in Lesotho, including through support to local research and development for bioprospecting and natural product development.

*Barrier 3 – Under-valuation of indigenous technical knowledge on genetic resources and lack of benefit-sharing from their harvest and utilisation:* Lesotho is endowed with a variety of species of flora that occur within its borders, and in some cases not much elsewhere. Research also shows that Lesotho hosts extensive indigenous knowledge on the pharmaceutical and medicinal uses of these genetic resources, that has been held and utilized by Basotho throughout history and is still in use today. It is quite evident, however, that very little benefits accrue to the country and its people from the ownership and use of this knowledge and resources. On the other hand, trends show that significant benefits are being lost by Lesotho and her people, to other, more powerful groups elsewhere in the region (e.g. South Africa) and beyond, through unfair trade deals and even illegal harvesting of the resources and extraction of knowledge. Inadequate tools and guidelines prevent equitable sharing of the benefits (monetary and non-monetary) to be shared equitably with the holders of such knowledge and the harvesters of the resources. The lack of an enabling policy and regulatory environment is the main barrier to potential formal ABS arrangements, and this doesn't only place the resources under threat, but also denies the country from benefitting from these resources and also adequately conserving and protecting them. As a consequence, vulnerable groups become worse off as they continue to be exploited, resources become threatened with overharvesting and unsustainable use, and the Indigenous Knowledge held by Basotho is extracted and may even be lost together with the resources. Component 2 (*Sustainable utilization and conservation of selected commercially-important Medicinal Plants for the development of ABS products for the pharmaceutical sector*) and 3 (*Gender mainstreaming, Knowledge Management and M&E*) will therefore support the removal of this barrier by ensuring that women, youth and other vulnerable groups benefit from sustainable harvesting and utilization of Lesotho's genetic resources, and knowledge about these resources is preserved through awareness-raising on their values and the need to conserve them. Component 3 will also support the exchange of knowledge and learning from others and similar work beyond Lesotho, with other regional and international players who have a stake in Lesotho's biological and genetic resources sector.

Key local species of flora (*Aloe polyphylla*, *Pelargonium sidoides* and *Hypoxis hemerocallidea*) will form the focus of the work in this project, and will be the entry point for Lesotho to build its overall capacity to develop and implement the provisions of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS), being a supplementary agreement to the Convention on Biological Diversity, which Lesotho is party to. These species are among the most commercially harvested and therefore threatened species of flora in Lesotho.

Of all the species, *Pelargonium sidoides* is the most understood, mostly because it also occurs in neighbouring South Africa and is the most traded plant. A management plan for *Pelargonium sidoides* was drafted in 2010, based on assessments conducted in collaboration with TRAFFIC-Southern Africa. For Lesotho, this management plan was never finalised into a working document, nor officially approved because it was based on South African biodiversity legislation (i.e. National Environmental Management: Biodiversity Act No. 10 of 2004) and therefore has no legal basis in Lesotho. Detailed research on the status (distribution, threats, uses and value) of these plants will be further explored during the PPG phase. Currently, harvesting of these species within Lesotho is believed to be unsustainable, the markets are unregulated and therefore do not equitably benefit communities that live next to such resources, or possess the knowledge about their use values. It is clear though, that not enough data and information are available on

many of the genetic and biological resources within Lesotho, including the private sector players in this space, with the exception of *P. sidoides*. *P. Sidoides* will therefore form the focus for work to be conducted under component 2. It is expected that at the end of the project, Lesotho natural resources institutions and resource users, will be capacitated to better manage the genetic resource species of flora found within Lesotho, and able to better regulate and enforce the laws and policies that manage their harvesting and utilization, and better govern the access and benefit-sharing arrangements as per the provisions of the Nagoya Protocol on Access and Benefit Sharing.

## 2. The baseline scenario or any associated baseline projects.

Since the early 1930s, Lesotho has taken steps to protect biodiversity, especially flora species believed to have medicinal and ornamental value, as exemplified by the decision to assign protection status to *Aloe polyphylla* in 1938 and subsequent enactment of the Historical Monuments, Relics, Fauna and Flora in 1967, which requires the written consent from the Protection Preservation Commission, before floral resources can be harvested. Following independence, significant time and resources have been invested in developing policies and legislation to protect Lesotho's biodiversity and natural resources. In 2004, following legal disputes between a German company and some communities in South Africa over the harvesting, trading and patenting of *P. sidoides*, this plant was put on the list of protected species, and the Historical Monuments, Relics, Fauna and Flora Act of 1967 was amended to accommodate this change. Lesotho's environmental policy and regulatory environment is therefore characterized by a large number of policies, laws and regulations (over 20), many of which remain in draft status, unimplemented or both. These, however, form the basis for action in beginning to effectively protect the environment and natural resources of the country. Annex 1 lists the policy and legislative instruments in place to protect biodiversity and natural resources.

Lesotho has past and on-going initiatives to conserve the country's natural wealth, some of these initiatives have been financed through GEF resources, as described under section 5 of this document (Coordination). The baseline scenario includes the following projects, programs and technical support aimed at facilitating implementation of aspects of the Nagoya Protocol and related activities in Lesotho. The total amount of these projects to be implemented during the lifetime of the GEF investment, with direct contributions to aspects of the proposed project, is estimated at \$26,800,000. The exact number of support initiatives and planned resources will be confirmed during the PPG. The preliminary list of program, initiatives and projects include:

- a. **Vision 2020** – This is Lesotho's overarching development plan that will guide the country's economic development from 2004 through to year 2020. The Vision includes a chapter on sound environmental management that seeks to among others: strengthen coordination of institutions responsible for natural resource management; preserve and conserve biodiversity and heritage; and reduce over-harvesting of natural resources.
- b. **National Strategic Development Plan 2012/13 – 2016/17** – Currently in its last year of implementation, the NSDP serves as a 5-year implementation strategy for the National Vision 2020. Strategic Goal 5 of the NSDP is to reverse environmental degradation and adapt to climate change.
- c. **Accession to the Nagoya Protocol on Access and Benefit Sharing in 2015** – this presents an important foundation for implementing ABS in Lesotho, and has generated an awareness, at least within the Ministry of Environment, on the need for ABS issues to be integrated into natural resources management policies and governance regimes.
- d. **Biodiversity Bill (2016) and the Biodiversity Management Plan (BMP) for *Pelargonium sidoides* (\$1,200,000 budgeted)** - Lesotho in partnership with Traffic East/Southern Africa and IUCN has implemented a program on sustainable use of *Pelargonium sidoides* which focused on undertaking a CITES Non-Detriment Finding (NDF) study, undertaking resource assessments, harvest impact assessments and investigating ABS regime of the species. All collected information was compiled and used to develop a Biodiversity Management Plan (BMP) for *P. sidoides*. The BMP is yet to be formally adopted and fully implemented, in line with Lesotho's laws and policies. Upon adoption/approval, Lesotho will use around \$1,2 million to implement the BMP and to finalise the development of the Biodiversity Bill (2016), currently in draft form. Budgetary projects for the Ministry of Environment are estimated at M118,895,587 (USD8,976,639) between 2018 and 2019.

- e. **Katse Botanical Garden** (\$1,130,000 budgeted) – The Katse Botanical Gardens play an important role in conservation and propagation of Lesotho’s flora biodiversity. The gardens were created as a result of plant rescue missions to mitigate the impact of the Katse Dam, particularly spiral aloes (*Aloe polyphylla*). The collection has a focus on traditional Sotho medicinal plants and has a large seed bank. During the implementation of the planned GEF 6 project, the botanical garden will spend up to \$1,130,000 on activities related to conservation and sustainable management of Lesotho’s key medicinal and ornamental plants, including on training on the establishment of community botanical gardens, provision of seed and propagation materials, wild collection, propagation and storage (i.e. gene bank), demonstration of best practices and upkeep of the botanical garden.
- f. **National University of Lesotho** (\$950,000 budgeted) - Support to technical assessments, research and scientific investigations on genetic resources of key concern, including the species already identified. Academic researchers at the National University of Lesotho are conducting scientific research and investigations on Lesotho’s biological and genetic resources and published these results in different fora. The research conducted is not used beyond academic publication and teaching purposes, and does not inform policy or practice, either at the national level or in the communities where these resources occur. The University also manages a botanical garden, a herbarium and laboratory equipment that will be used for implementation of activities under component 2 of the project. The Innovation Hub linked to the National University of Lesotho is emerging as a potential player in R&D for bioprospecting and an investor in natural product development, especially for the food and beverage and pharmaceutical industries.
- g. **Technical support from other government institutions** (\$6,667,000 budgeted) - Ministry of Communications, Science and Technology; Ministry of Health; Ministry of Trade and Industry; Ministry of Local Government; Ministry of Agriculture and Food Security; and the Lesotho National Development Cooperation have programs that support conservation and management of natural resources, as well as local enterprise development.
- h. **The Land Rehabilitation Programme** - The Ministry of Forestry, Range and Soil Conservation (MFRSC) has been implementing a Land Rehabilitation Programme (LRP) since 2007. The targeted outcomes of the LRP include: i) increase the total area of rehabilitated and protected watersheds; ii) increase the area of productive rangelands under appropriate management plans; iii) protect wetlands to enhance the availability and quality of water resources; iv) contribute to the reduction of employment and resultant poverty; v) increase honey production; and vi) increase fruit tree production. As of January 2012, the LRP had created temporary jobs for ~387,836 labourers, rehabilitated ~250,000 ha of land, planted ~11,000,000 trees and implemented numerous land reclamation works. The project sites for this project overlap to some extent with areas where these genetic resources are located, and so will complement the ABS project on aspects on in-situ conservation and sustainable harvesting under component 2 of the project. Currently the Ministry of Forestry is implementing the GEF-LDCF project on *Reducing Vulnerability from Climate Change in the Foothills, Lowlands and the Lower Senqu River Basin*, a 6-year programme that began in 2015, with GEF-LDCF resources totaling \$8,398,172 and government co-financing of \$27,000,000. This programme promotes adaptation to climate change through rehabilitation of degraded ecosystems and landscapes as an adaptation approach.
- i. **Nimura Genetic Solutions technical support to Lesotho** (\$330,000 budgeted) – The Japan-based company, a key beneficiary in the trading and R&D for bioprospecting of *Pelargonium sidosies*, is currently supporting training and capacity building through a sponsorship for Master’s Degree scholarship for a Lesotho national up to a total of \$330,000 in collaboration with the National University of Lesotho. Nimura is also supporting exchange programs by supporting Basotho scientists to travel to Japan on work exchange visits in Nimura pharmaceutical laboratories.
- j. The Department of Forestry is currently piloting programmes for devolving the management of State Forest Reserves to the Local Government Community Councils under the Forest Policy and Programme. This process is accompanied by training of communities and their councils on various aspects of forest management, business opportunities and cottage industries. Under component 2, the ABS project will complement these initiatives by supporting activities that promote conservation of the forest resources and deliver benefits to local communities in these landscapes.

There is growing private sector interest in accessing genetic resources in Lesotho for bioprospecting and trading purposes. There are currently two prominent local companies which are involved in international trading of indigenous Lesotho resources: Bophelo Natural Products, largely exporting to South Africa, and ROSA CANINA Pty Ltd (possibly trading as The Rosehip Company)<sup>4</sup>. Little information about these players is however available in the public sphere. The PPG will therefore be used to establish further information on the nature of these entities and the types of agreements they have currently signed with the Government of Lesotho and the genetic resources provider communities around the country. The DOE has issued these companies with environmental clearances as a requirement under the Environment Act of 2008 and has also facilitated development of tripartite ABS agreements among companies, communities and the Department, although it's unclear what these entail. The companies mostly serve as middlemen for international companies and do very limited processing nationally. These companies mostly use indigenous medicinal and aromatic plants, and few use AIS. Financial limitations have hindered the companies to undertake full scale processing nationally. Other industry players are mostly operating at a small scale and are largely targeting the local market. The other key groups are the individuals who sell the resources in their raw form mostly within major towns. To improve value-adding and promote investment in the industry, the government has established a partnership with the National University of Lesotho (NUL) and Nimura Genetic Solutions, a Japan-based company<sup>5</sup>. The partnership is expected to facilitate natural product development from the country's genetic resources as well as ABS implementation. The NUL's Innovation Hubal is already assisting some industry role players in the screening of active compounds for drug development.

Lesotho is party to a number of conventions which directly or indirectly deal with ABS and TK such as the CBD, Convention on International Trade on Endangered species of Wild Fauna and Flora (CITES), International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), United Nations Convention to Combat Desertification (UNCCD), and Agreement on Trade and Related Aspects of Intellectual Property Rights (TRIPS). Lesotho also has various national legislation, policies and plans which provide for protection of the environment, genetic resources and human health as well as safeguarding the rights of Basotho and which have direct or indirect bearing to ABS and TK. Lesotho acceded to the Nagoya Protocol on ABS in early 2015 but does not yet have a regulatory framework on ABS. Prior to, and in preparation of the accession, a situational analysis was conducted to assess the capacity needs of Lesotho's regulatory regime and institutional arrangements. The situational analysis was conducted through the support of a GEF-financed project entitled "Early Ratification to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization". The situational analysis concluded that significant investments in capacity are required at all levels in Lesotho for the country to be able to effectively implement the provisions of the Nagoya Protocol.

Lesotho has also established institutions that deal directly and/or indirectly with ABS and TK issues and those that have a potential to do so. The Department of Environment (DOE) within the Ministry of Environment, Tourism and Culture (MTEC) has assumed the roles of a National Focal Point (NFP) and National Competent Authority (NCA) for the purposes of the Nagoya Protocol. Other institutions have a potential to assume key roles in the management of ABS and TK by among others serving as information hubs and check points on ABS and TK. These are the Ministry of Forestry and Land Reclamation, Ministry of Agriculture and Food Security, Ministry of Local Government, Chieftainship and Parliamentary Affairs, Ministry of Health, Ministry of Law and Constitutional Affairs, Ministry of Trade and Industry, Cooperatives and Marketing, Lesotho Revenue Authority and Lesotho Mounted Police Services. On the other hand, other institutions such as Civil Society Organisations (CSOs) and key stakeholder groups such as local authorities, women groups and other community groups can easily assume roles of regulators and providers while users have been identified as various traders, traditional healers as well as research and training institutions such as National University of Lesotho and Lesotho College of Education.

While the government has set-up these institutions, not enough resources have been invested for them to function effectively. Almost all the existing lead institutions in genetic resource conservation (i.e. DOE, Ministry of Forestry and Land Reclamation – MFLR and Ministry of Agriculture and Food Security - MAFS) have inadequate technical expertise on genetic resources, ABS and TK issues, severe staff shortages, poor and/or no infrastructure and

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<sup>4</sup> <http://www.therosehipcompany.com>

<sup>55</sup> <http://www.ngs-lab.com/en/corp/index.html>

inadequate financial resources to carry out their mandates effectively. Even with the available staff, there is significant lack of technical expertise for natural resources conservation and management, including for development of ABS legislation, skills to negotiate MAT of contracts between users and providers of GRs, how to conduct ethno-botanical studies on genetic resources, use of valuation methods for genetic resources and how to document TK so that it becomes easier to determine how much benefits should accrue to all deserving communities.

Detailed studies and investigations on the commercial and genetic resources research and development (R&D) and bioprospecting activities of private and public entities will be further conducted during the PPG, and value chain analyses carried out to determine the potential value of these resources in Lesotho and where the entry points for beneficiation are. These studies will inform the development of strategies and regulations that the country will need to put in place to further its national priorities in the area of genetic resource ABS and bioprospecting.

### **3. The proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project**

The baseline above demonstrates that while there has been some effort towards conserving Lesotho's biodiversity, and understanding the biological and genetic resources sector, and promoting the sustainable use and benefit sharing from the utilisation of these resources, this has been severely hampered by the lack of a policy, regulatory and facilitatory/enabling environment, as well as capacity and resources (including financial and technical). The country is therefore constrained to exploit the resources it has to their full advantage, nor does it have the capacity to protect and conserve them against unsustainable harvesting and utilisation, and therefore remains vulnerable to illegal exploitation and trade. Illegal and unsustainable harvesting and trading in both local and international markets also poses significant threats to these resources. As a poor country with limited options for growth and support to livelihoods and income generation, the government also sees this sector as a potential growth pathway, where Lesotho can more than just host these important resources, but also benefit from them. It is clear that Lesotho's historical interaction with these resources and the Indigenous Knowledge possessed by many Basotho on the use and values of these genetic resources, especially for medicinal purposes, is extensive, and must be protected. However, the country does not currently possess the capacity to effectively do this on its own.

The proposed alternative scenario is to fully support Lesotho's aspirations, expressed through the accession to the Nagoya Protocol, to fully regulate and develop its genetic resource sector. The project will do so by supporting all the core activities that will contribute to Lesotho's compliance with the provisions of the Nagoya Protocol as articulated in the GEF 6 BD Strategy (BD Objective 3 - Sustainably Use Biodiversity), Program 8 (Implementing the Nagoya Protocol on Access and Benefit Sharing). Because the sector is at a nascent stage, and this support therefore presents an opportunity to lay the foundation for its full development, the project will provide support to all areas under the strategy for implementation of the Nagoya Protocol as follows:

- 1. Stocktaking and assessment - The GEF supports gap analysis of ABS provisions in existing policies, laws and regulations, stakeholder identification, user rights and intellectual property rights, and assessments of institutional capacity including research organizations.*
- 2. Development and implementation of a strategy and action plan for the implementation of ABS measures (e.g. policy, legal and regulatory frameworks governing ABS, National Focal Point, Competent National Authority, Institutional agreements, administrative procedures for Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT), monitoring of use of genetic resources, compliance with legislation and cooperation on trans-boundary issues).*

In preparation for accession to the Nagoya Protocol, support was provided to the Government of Lesotho to assess the capacity needs of the country's regulatory regime and institutional arrangements. This would therefore form a good point of departure but there is need for a thorough and systematic assessment of the situation to explore what policies, laws and regulations are required to be able to properly enable the sector to develop and manage the resources. This process will also assist in defining and identifying the stakeholders and their rights, and clarifying what capacities exist in the country to develop this sector and fill the gaps.

This type of work will be supported under the proposed **Component 1: Enabling institutional capacity and regulatory framework strengthened to support implementation of the Nagoya Protocol on Access and Benefit Sharing (ABS)**.

This component is designed to support the creation of an enabling environment at the national level, through the policies, regulations, strategies and guidelines that the country can use to promote conservation, sustainable use and benefit sharing from the utilisation of biological and genetic resources in the country. The component will pursue the following outcomes:

**Outcome 1.1:** Functional national ABS policy and regulatory framework operational and supportive of access and benefit sharing from the use of genetic resources.

*Indicator: ABS Policy-, legal- and regulatory -framework in place*

As discussed above, there's no enabling policy and legislative environment to develop and implement an ABS framework, nor any critical aspects of the Nagoya Protocol itself. Currently the government is drafting/discussing policy reviews/reforms in the area of environmental governance, and a Biodiversity Bill is proposed. Through these reviews/reforms, ABS will be prioritized, largely to respond to the emerging challenges and threats to biological and genetic resources as highlighted in the situational analysis conducted during the accession to the Nagoya Protocol. The project will therefore support the following outputs under this component/outcome:

*Output 1.1.1: National Environment Policy of 1998 and Biodiversity Bill of 2016 reviewed to address ABS in accordance with the Nagoya Protocol*

*Output 1.1.2.: National ABS regulations developed and presented to Parliament for approval*

*Output 1.1.3: Proposed interim ABS and Traditional Knowledge Strategy reviewed and finalized for approval*

**Outcome 1.2:** Capacity of national institutions to develop, implement and enforce national legislative, administrative or policy measures on ABS strengthened. *Indicator: Capacity of institutions to develop, implement and enforce ABS policies and regulations increased by XX% as measured by the GEF Tracking Tool on ABS and the UNDP ABS Capacity Development Scorecard (baseline and target to be determined during the PPG phase)*

*In line with Articles 13 and 22 of the Nagoya Protocol*

Support under this outcome will complement the creation of an enabling policy and legislative environment, but providing the much-needed training and technical capacity for the key institutions at national, regional and local structures to develop the tools and strategies required to operationalize ABS, and enforce the laws policies, and regulations, once in place. The following outputs will be pursued:

*Output 1.2.1: National Focal Point, Competent National Authorities and Checkpoints identified and supported with training and technical capacity building to implement the ABS framework and to monitor and enforce compliance*

*Output 1.2.2: Institutional Capacity Development Strategy for the ABS framework implementation, monitoring, enforcement and compliance developed and rolled-out*

**Outcome 1.3:** Management, ownership and access rights, rules and procedures over access and utilization of genetic resources defined, clarified and encoded in the legal system (e.g. by-laws/ community protocols).

*Indicator: Administrative procedures for users and providers of genetic resources to develop, implement and monitor ABS agreements with proper Prior Informed Consent (PIC), Mutually Agreed Terms (MAT) and Benefit Sharing (BS) principles and guidelines*

*In line with Articles 17, 18, 19, and 20 of the Nagoya Protocol*

Support under this component will support work towards development of guidelines, procedures, standards and codes of conduct to operationalize an ABS regime in the country, including support to community-level institutions, to establish community protocols for governing the access to and the distribution of benefits from the utilization and conservation of biological and genetic resources within their control. The following outputs will be supported under this component/outcome:

*Output 1.3.1: Guidelines and procedures for obtaining Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT) developed and approved*

*Output 1.3.2: Biocultural community protocols governing management, ownership, access rights and benefit sharing rules and procedures defined and adopted*

*Output 1.3.3: Codes of conduct, best-practices and standards that ensure sustainable harvesting, fair and equitable benefit-sharing established for industry and research sectors active in bioprospecting*

## **Component 2: Sustainable utilization and conservation of selected commercially-important Medicinal Plants for the development of ABS products for the pharmaceutical sector**

This component will be aligned to the third support area under BD 3 Program 8: *Building capacity among stakeholders (including Indigenous and local communities, especially women) to negotiate between providers and users of genetic resources. This may include institutional capacity building to carry out research and development (R&D) to add value to their own genetic resources and traditional knowledge associated with genetic resources.*

The potential commercial value of Lesotho's biological and genetic resources is unknown, and remains unexplored. Some scientific research and testing has been conducted on a negligible number of species (e.g. see study on *Modulation of Mutagen-Induced Genotoxicity by two Lesotho Medicinal Plants in Allium cepa L*)<sup>6</sup> but data collection, analysis and R&D are limited within Lesotho. This lack of scientific knowledge constrains the ability of the country to invest in the development of sustainable and inclusive value chains that can deliver tangible benefits to Lesotho and local communities who harvest, use and trade in these resources. The benefits to communities and the country are therefore limited to income generated from the sale of the resources in their raw state, in the local, largely undeveloped markets, with the majority of the materials being exported in raw form, without (any) clear, fair or equitable benefit sharing agreements in place. This component will therefore build on the capacity and enabling framework that Component 1 will support and take the process a step further to support investments in key R&D and bioprospecting initiatives around selected genetic resources (plant species) that have been identified to have potential commercial value, based on known ethnobotanical and enthomedicinal uses. Support will be provided to unlock the potential of these species through community initiatives that promote in-situ conservation, sustainable harvesting and value addition, ethical trading and benefit sharing, in line with the provisions of the Nagoya Protocol.

The component will pursue the following outcomes:

**Outcome 2.1:** Research and development for ABS products derived from *Pelargonium sidoides*, *Aloe polyphylla*, *Hypoxis hemerocallidea* enhanced.

*Indicator: Number of R&D and bioprospecting trials supported*

*In line with Article 6 of the Nagoya Protocol*

The three genetic species indicated here are among the most harvested, traded and utilized within Lesotho, with *P.sidoides* comprising the bulk of the harvesting and international trade between South Africa and other parts of the world. These species will form the basis for the technical work that the project will support under this component/outcome, in terms of R&D for bioprospecting and an assessment of their value for the pharmaceutical and medicinal value. The component will support the following outputs:

*Output 2.1.1: National research and development strategy on bioprospecting*

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<sup>6</sup> Published in Environment and Natural Resources Research; Vol. 5, No. 3; 2015, by Asita O. Asita, David H. Heisi & Tumelo Tjale.

*Output 2.1.2: National University of Lesotho supported to conduct pharmacological research and development on selected genetic resources of medicinal value*

*Output 2.1.3: A comprehensive valuation of selected genetic resources with known commercial value conducted*

**Outcome 2.2:** Sustainable harvesting, value addition and benefit-sharing from genetic resources promoted for *Pelargonium sidoides* and *Hypoxis hemerocallidea*.

*Indicator: Number of value added initiatives supported at country level to develop natural products (genetic resources to be identified during PPG)*

*In line with Article 5 and 9 of the Nagoya Protocol*

Stakeholders active in the use of these resources, including small-scale harvesters, R&D institutions and business enterprises and exporters will be supported with skills, training and tools/technologies to add value to selected resources and develop natural products. This support will be provided to local community level enterprises as well as the country's only Innovation Hub, hosted by the National University of Lesotho.

*Output 2.2.1: Small-scale community-based enterprises supported with business and value-addition skills to harvest, process, package and market natural products from selected genetic resources*

*Output 2.2.2: National University of Lesotho's Innovation Hub supported to conduct R&D and natural product development for pharmaceutical and food and beverage use*

**Outcome 2.3:** ABS agreements for *Pelargonium sidoides*, compliant with sustainable utilization practices, bioprospecting ethics, PIC, MAT and benefit-sharing provisions and guidelines developed and implemented together with local communities.

*Indicator: Number of ABS agreements in place for harvesting and utilization of P. sidoides*

*In line with Articles 17, 18, 19, and 20 of the Nagoya Protocol*

As indicated above, *P. sidoides* holds the most potential for operationalization of an ABS framework as a fair amount is already understood about the resources, where it occurs and where it is traded, as well as its commercial value. It is also currently the most harvested and traded, within and outside the country. There is an existing management plan that was developed following fairly comprehensive assessment/studies supported by TRAFFIC/East and Southern Africa, covering South Africa and Lesotho. The key next steps in terms of operationalizing an ABS system for this resource is therefore to implement the *Pelargonium sidoides* Management Plan, and enhance Lesotho's capacity to collaborate with South Africa, which will soon begin implementation of the *P. sidoides* management plan under the auspices of a full-sized GEF 6 project that is currently under preparation. This component/outcome will pursue the following outputs:

*Output 2.3.1: The Pelargonium Biodiversity Management Plan (BMP) adopted and implemented in close collaboration between the Pelargonium Working Group in South Africa, and community enterprises and CSO stakeholders in Lesotho*

*Output 2.3.2: ABS deals with monetary and non-monetary benefits negotiated between providers and users of Pelargonium sidoides*

*Output 2.3.3: Model ABS agreements cognisant of the pharmaceutical business models, developed/reviewed and implemented for P. Sidoides, with a focus on medium enterprises and exporters*

The table below presents some information on the three species (*Pelargonium sidoides*, *Aloe polyphylla* and *Hypoxis hemerocallidea*). Among these three species, *Pelargonium sidoides* is the most researched and well known as it is also widely traded in neighbouring South Africa, and already used in phyto medicine. *Hypoxis hemerocallidea* is also one of the most locally-traded plants used for ethno-medicinal purposes. *Aloe polyphylla*, on the other hand, is not well known, as it only occurs in Lesotho, and also currently classified as endangered and therefore protected. As an aloe species, and with the level of interest in the multiple benefits of aloe in medicine, pharmacology, cosmetics, food and beverage industries, this species faces potential threats from biopiracy, mostly because it is a rare species.

Currently, not much is known about its uses beyond ornamental, even within Lesotho, as capacity for research is extremely limited.

**Table 1: Plant species that will form the focus of the project interventions**

Plant species	R&D objective	National R&D institution	International partner institution in R&D	Commercial users that have expressed interest in the R&D results	Status of commercialisation (for those ABS products that are supposed to generate revenues)
<i>Pelargonium sidoides</i> (Khoara)	The species is harvested from the wild for a bio-active substance found in its lignotubers that is processed and used by the local and international pharmaceutical industry. Research is limited to genotoxicity, microbiological and antioxidant testing.	NUL, Agricultural Research Department	Numora Technologies (Japan), German company (Kiwa BCS)- organ certification	Martin Bauer <a href="http://www.martin-bauer-group.us/">http://www.martin-bauer-group.us/</a>	Successfully traded internationally for pharmaceutical purposes, including in neighbouring South Africa. This is now widely commercialised as a product. The majority of retail products use <i>Pelargonium sidoides</i> as an active indigenous ingredient in South Africa. Within Lesotho, where processing is limited and markets are not developed, this plant is harvested and sold in its raw form, often on the street by petty traders. Since the 1990s, a prodelphinidin-rich ethanolic extract, made from the tuberous roots of <i>P. sidoides</i> called EPs 7630 (Umckaloabo), licensed to treat respiratory tract infections such as acute bronchitis, has become one of the most successful phyto-medicines in the world. The annual sales in Germany alone exceed € 80 million. A preparation of <i>P. sidoides</i> mother tincture is marketed in Ukraine, Russia, and Latvia as Umkalor. Proprietary extracts of <i>P. sidoides</i> and their preparations as well as the use thereof are currently protected by seven patents worldwide.
<i>Hypoxis hemerocallidea</i> (Moli/African potato)	Pharmaceutical. The plant is known for its beneficial medicinal effects in the treatment of diabetes, cancer, and high blood pressure. Current research is limited to genotoxicity, microbiological and antioxidant testing.	NUL, Agricultural Research Department	University of Johannesburg (South Africa) {plant screening}	Commercial interest in R&D results	Commercially known as the African Potato, this is one of the most locally-traded plants in Lesotho, neighbouring South Africa and many parts of Southern Africa. Scientific research on it is not conclusive, although in recent trials <i>Hypoxis hemerocallidea</i> were shown to have enhanced antioxidant activity and antihyperglycemic effects.

Aloe Polyphilla	The plant is currently categorised as endangered, and therefore protected. Current use is for ornamental purposes but there are indications that it may have skin health benefits. Research is however non-existent as this species of aloe only grows within Lesotho.	National University of Lesotho	Unknown	The plant is currently categorised as endangered, and therefore protected. Current use is for ornamental purposes but there are indications that it may have skin health benefits. Research is however non-existent as this species of aloe only grows within Lesotho.	Aloe Polyphilla is endangered in Lesotho, and therefore protected. However, it's another subspecies of Aloe (Aloe Ferox) is one of the most traded in neighbouring South Africa, therefore posing some threat to Lesotho's indigenous aloe species, Aloe Polyphilla. There is emerging interest in understanding the medicinal and pharmacological properties of Aloe, including Aloe Polyphilla, partly due to its rarity.
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### **Component 3: Gender mainstreaming, Knowledge Management and M&E**

This component will complement the other components and support the development and implementation of a gender action plan to ensure that women and marginalized groups benefit from the project interventions and are empowered to become active agents and participants in the ABS regime. It will also support a national awareness raising program, explore transboundary, south-south and triangular cooperation in key aspects of the genetic resources development sector and between communities, and public and private sector players active in the area of bioprospecting. This will promote cross-sectoral learning, generate knowledge in the sector, through the use of existing tools and platforms such as the CBD Portal, and ensure learning and empowerment of poorer and marginalized groups. It will support participatory monitoring of project results and impacts, and promote upscaling through additional investments. The component will pursue the following outcomes:

**Outcome 3.1:** Gender mainstreaming, lessons learned by the project through participatory M&E are used to guide adaptive management, collate and share lessons, in support of upscaling

*Indicator: Increased learning and participation and gender mainstreamed into project interventions  
In line with Articles 21, 22 and 29 of the Nagoya Protocol*

Work under this outcome will facilitate learning and participation at all levels in conservation, sustainable utilization and ensure a fair and equitable process for distribution of benefits among all players in the ABS system. The participation of women, men and youth in implementation of project interventions will be promoted and facilitated by the project, and inclusive and participatory monitoring and evaluation processes, will be used to ensure that learning facilitates uptake and upscaling in other parts of the country. The following outputs will be pursued:

*Output 3.1.1 Gender strategy developed and used to guide project implementation, monitoring and reporting*

**Outcome 3.2:** Awareness on sustainable utilization, conservation and access to and benefit sharing from the use of genetic resources enhanced

*Indicator: Increased level of awareness among all stakeholders about the Nagoya Protocol on ABS and its provisions*

*In line with Article 21 of the Nagoya Protocol*

Work under this outcome will promote learning through participatory processes, as well as communication and outreach on the project activities and the results of project interventions. The following output will be pursued:

*Output 3.2.1: Knowledge, attitudes, and practices (KAP) assessment/ surveys carried out and an awareness-raising*

*Output 3.2.1: Participatory monitoring, evaluation and learning strategy developed and implemented to support project management, collate and disseminate lessons*

By the end of the project, it is expected that Lesotho will have adequate skills, capacity and enabling policy and regulatory environment to protect, sustainably utilize and generate and equitably share the benefits of its biological and genetic resources. The potential of the country's biological and genetic resources will be better understood, and entry points for facilitating increased, fair and equitable sharing of the benefits, through value addition and business enterprise development will have been identified and piloted to demonstrate the potential of the sector as a driver of conservation and sustainable utilization and economic development.

#### **4. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTE, LDC, SCCF, and co-financing**

The table below describes the baseline situation (without project), alternative scenario and incremental reasoning for the component objectives proposed by the project.

**Table 2: Current baseline, expected contributions and incremental reasoning for GEF investments**

<b>Baseline</b>	<b>Business-as-usual scenario (without the project)</b>	<b>Alternative scenario (with the project)</b>	<b>Incremental reasoning (GEBs to be generated)</b>
Accession to the Nagoya Protocol on Access and Benefit-sharing in 2015	In the current scenario, while Lesotho has acceded to the Nagoya Protocol, and invested resources in engaging with the concept of ABS at policy levels, atleast within the Ministry of Environment, these investments have been minimal, and will not generate the momentum that's required for decisive action to be taken in operationalizing an ABS regime and implement the Nagoya Protocol in Lesotho. Currently the Ministry of Environment has not taken steps to provide the necessary financial, human and technical resources required to implement ABS and the Nagoya Protocol, and this lack of investment has therefore curtailed the country's ability to position itself to address the challenges and take advantage of the opportunities that come with acceding to the Nagoya Protocol. Currently there is a substantial Indigenous Knowledge (IK) about plant genetic resources within Lesotho, and this knowledge has been used over hundreds of years by locals to utilize plant genetic resources to cure ailments and promote health, yet to date, there are negligible benefits accruing to the people and economy of Lesotho. In addition, there are increasing threats to these resources, due to unsustainable harvesting, mostly driven by local markets but particularly by unregulated international trade and bioprospecting.	In the alternative scenario, Lesotho will, for the first time, actively engage in the processes involved in establishing an ABS regime, and build capacity to implement provisions of the Nagoya Protocol on Access and Benefit Sharing. Under Component 1 of the project, support will be provided to facilitate a review of the existing policy and legal frameworks to mainstream and integrate provisions of the Nagoya Protocol, and to codify laws and policies for establishment of a national ABS regime.	Acceding to the Nagoya Protocol was an important first step Lesotho took in recognizing the need to not only protect its local genetic resources but to also protect them from the potential threats posed by unregulated international biotrade and biopiracy, and most important recognize the need to ensure a fair and equitable sharing of the benefits that arise from the extraction, development and trade in these resources and the knowledge that accompanies their use. In light of this, through this project, there will result a formal process to ensure that bioprospecting and biotrade activities are: (i) more compliant with Nagoya Protocol; and (ii) based on a more sustainable management of biological and genetic resources at the landscape level
<b>Biodiversity Bill (2016) and the Biodiversity Management Plan</b>	In the baseline situation, the lack of a domesticated ABS regime backed by	In the alternative scenario, the GEF funds will be used to support the establishment of a	A strengthened enabling and regulatory environment for

<p><b>(BMP) for <i>Pelargonium sidoides</i></b> (<i>\$1,200,000 budgeted</i>)</p> <p><b>Nimura Genetic Solutions technical support to Lesotho</b> (<i>\$330,000 budgeted</i>) – The Japan-based company, a key beneficiary in the trading and R&amp;D for bioprospecting of <i>Pelargonium sidoides</i>, is currently supporting training and capacity building through a sponsorship for Master’s Degree scholarship for a Lesotho national up to a total of \$330,000 in collaboration with the National University of Lesotho. Nimura is also supporting exchange programs by supporting Basotho scientists to travel to Japan on work exchange visits in Nimura pharmaceutical laboratories.</p>	<p>laws and policies is a major constraint to any investments being made at the national level to operationalize the provisions of the Nagoya Protocol. There is limited or no locally-relevant enabling environment and systems, in terms of laws, policies, regulations and protocols for governing the harvest, utilization, trading and benefit-sharing from biological and genetic resources within the context of the Nagoya Protocol on ABS. The lack of an enabling environment presents potential threats to the resources as they are vulnerable to overharvesting and overexploitation due to lack of regulations and also denies Lesotho and its people, as well as the global community, opportunities to benefit from controlled and regulated use and bioprospecting from these resources. There are no local systems, standards, codes of conduct or protocols to govern the harvest, use or trading in the genetic resources, nor guidelines or protocols on how to negotiate ABS deals and implement and monitor ABS and mutually agreeing on terms (MAT) for benefit-sharing and seeking Prior Informed Consent (PIC) from communities who hold and own the knowledge about the use of these resources</p>	<p>comprehensive enabling environment contributing towards expanding the national capacity for ABS, by facilitating an important national law and policy process for the establishment of an ABS regime, characterized by national policy instruments (National Environment Policy of 1998 and Environment Bill of 2016) that include and mainstream ABS and Nagoya Protocol provisions into public and private sectors. The project will support the development, implementation, monitoring and enforcement of an ABS system with clear guidelines and procedures for governing management, ownership, access rights and benefit sharing from the conservation and use of biological and genetic resources.</p> <p>One of the key and early engagements with aspects of the Nagoya Protocol within Lesotho was through the development of <i>Pelargonium Sidoides</i> Management Plan through a collaborative process with South Africa. This plan, though not formally adopted in Lesotho as it is in South Africa, forms an important basis and entry point, through which to effectively engage with Nagoya Protocol issues at the national, sub-national and local level in Lesotho. It will be an key for catalyzing the negotiation of agreements towards successful &amp; equitable benefit-sharing, recognizing the contribution of TK within Lesotho, and opening up the process for other genetic resources to be recognized for their comprehensive value.</p>	<p>ABS will increase Lesotho’s capacity to conserve, utilize and facilitate governance mechanisms for increased benefit-sharing derived from the biological and genetic resources within the country, and promote sustainable livelihoods and income generation for local communities.</p> <p>The development of guidelines, protocols, codes of conduct and standards to regulate and govern the use of genetic resources will facilitate the emergence of a fair and equitable ABS regime based on the Nagoya Protocols principles of PIC, respect for and protection of Intellectual Property, access and ownerships rights, as well as benefit sharing based on Mutually Agreed Terms between the users and providers of genetic resources and the knowledge about their use and value. <i>Pelargonium sidoides</i> in particular, will, after years of dialogue and some ad hoc decision-making and action around its trade, will finally be subjected to a formal ABS regime.</p> <p>This will facilitate the protection of the resources, but also lead to increased benefits from these resources for the</p>
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			poorer groups and resource users, such as women, small-scale harvesters and youth who will benefit through jobs and incomes from small enterprise development.
<p><b>Katse Botanical Garden</b> (\$1,130,000 budgeted) – The Katse Botanical Gardens play an important role in conservation and propagation of Lesotho’s flora biodiversity. The gardens were created as a result of plant rescue missions to mitigate the impact of the Katse Dam, particularly spiral aloes (<i>Aloe polyphylla</i>). The collection has a focus on traditional Sotho medicinal plants and has a large seed bank. During the implementation of the planned GEF 6 project, the botanical garden will spend up to \$1,130,000 on activities related to conservation and sustainable management of Lesotho’s key medicinal and ornamental plants, including on training on the establishment of community botanical gardens, provision of seed and propagation materials, wild collection, propagation and storage (i.e. gene bank), demonstration of best practices and upkeep of the botanical garden.</p> <p><b>National University of Lesotho</b> (\$950,000 budgeted) - Support to technical assessments, research and scientific investigations on genetic resources of key concern, including the species already identified. The University also manages a botanical garden, a herbarium and laboratory equipment that will be used for</p>	<p>In the baseline situation, there is unregulated and unsustainable harvesting of plant species such as <i>Pelargonium sidoide</i> and <i>Hypoxis hemerocallidea</i>. These plant species have been shown to have medicinal and pharmaceutical use values, an obvious link to potential biodiscovery for the pharmaceutical industry. This potential remains largely unexplored, and open to overexploitation due to lack of regulations and polices to govern their extraction and use. As their status is also not fully known, their continued existence may be threatened. Despite the lack of a comprehensive knowledge and understading of these genetic resources, they are being exploited and traded in informal, unregulated markets within Lesotho, and also being exported to other users outside the country, yet it is not entirely clear what they are used for, and how much commercial value is derived from them, once they leave the country. For this reason, it is unclear what and how much Lesotho should benefit from being the ‘provider’ of these resources, and how access to the them or their ownership and use should be governed.</p>	<p>With the GEF project, there will be improved knowledge and understanding of these resources, their status and value. The project will support assessments of their status as species and the landscapes they occur in, their comprehensive values and the current benefits being derived from them. It will also support R&amp;D investments to determine potential medicinal and pharmaceutical value beyond the current understanding that is based on basic research and biological screening. Based on these assessments and improved knowledge on the value of these resources, the project will support the negotiation of a sample of ABS deals between provider communities and users to facilitate fair and equitable sharing of the benefits. The project will also promote innovation and nature-based enterprises at community levels, targeting small-scale harvesters, processors and traders. Skills and capacity building on sustainable harvesting and processing will also be imparted with the provider communities, and foundation laid for future technology transfers between users and providers.</p>	<p>The development of an ABS regime between providers and users of biological and genetic resources is a potential catalyst for a more sustainable approach to governing their extraction, use and trade, and ensuring that those who own them and possess knowledge about their value, also benefit from their exploitation and trade, in line with the principles and provisions of the Nagoya Protocol on ABS. There are significant social and economic development gains to be had from this alternative scenario, with implications for reducing poverty and ensuring sustainable consumption and economic growth.</p> <p>Overall, through pilots and systemic measures, the project will ensure that whenever an indigenous plant species enters a bioprospecting value chain, both the associated TK is respected and derived benefits more equitably shared, and that the commercial trade does not lead to a threat to biodiversity and ecosystems.</p>

<p>implementation of activities under component 2 of the project. The Innovation Hub linked to the National University of Lesotho is emerging as a potential player in R&amp;D for bioprospecting and an investor in natural product development, especially for the food and beverage and pharmaceutical industries.</p>			
<p><b>Technical support from other government institutions</b> (\$6,667,000 budgeted) - Ministry of Communications, Science and Technology; Ministry of Health; Ministry of Trade and Industry; Ministry of Local Government; Ministry of Agriculture and Food Security; and the Lesotho National Development Cooperation have programs that support conservation and management of natural resources, as well as local enterprise development.</p>	<p>In the baseline situation, while there are ongoing investments in sustainable natural resources management, these are inadequate to stem the real and potential threat to natural resources in general, and genetic plant resources of medicinal value in particular. There is limited knowledge and awareness about the value of these biological and genetic resources beyond the basic traditional ethnobotanical and ethnomedicinal use. Their exploitation and the benefits that arise therefrom, are also limited to those who control them, mostly men of privileged position within society, including medicine men and traditional healers. The access to and control over these resources is therefore skewed along gender lines, and so are the benefits. There is also limited understanding and awareness of the impact of unsustainable harvesting and exploitation methods (e.g. uprooting whole plants) on their continued existence and regenerative capacity. This lack of awareness poses a threat to the resource itself and the continued benefits to those who rely on them for basic use such as traditional medicine.</p>	<p>Under the alternative scenario, all stakeholders, including government institutions, local authorities and local users, would participate and fairly and equitably share in the benefits conserving and using these biological and genetic resources, and have the capacity to monitor and enforce regulations on their harvesting/exploitation and use. The project will support the development of a gender action plan, an awareness-raising and knowledge management program to ensure that all stakeholder are made aware of the issues pertaining to the conservation, use and ABS aspects of these resources, and that they take up sustainable practices and approaches to interacting with them. A participatory approach to monitoring the interventions and results from the project will promote wider learning, knowledge exchange and upscaling beyond the project sites and the biological and genetic resources in question.</p>	<p>Increased participation of all groups in decision-making about the management, use and conservation of genetic resources, including those marginalized, such as women, poor men, small-scale harvesters and petty traders, has proven beneficial for facilitating a fairer and more sustainable approach to managing and conserving natural resources, and promoting a fair and more equitable sharing of the benefits from such processes.</p>

## **5. Global environment benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF).**

Through ratification of the Nagoya Protocol, the Government of Lesotho has demonstrated high level political will to conserve Lesotho's biological and genetic resources, which are estimated to be varied and extensive in number, as previously shown. Based on local traditional and historical uses, many of these genetic resources have been shown to have potential 'public good' qualities, particularly for the medicinal/pharmaceutical sector. Due to the unique climatic and environmental conditions where these resources occur, and the role they play in the functioning of the natural ecosystems that they form a part of, and the fact that these are not fully understood, inadequate protection and unsustainable exploitation of these genetic and biological resources poses a potential risk to the integrity of these ecosystems, and their ability to support their continued existence. The country has put in place policy and legislative frameworks for support biodiversity conservation in general, but these lack the specificities required to properly regulate the exploitation and use of biological and genetic resources and to conserve and protect key species that have been shown to have commercial value and are currently utilised for bioprospecting purposes.

Lesotho also lacks the capacity to conduct research and development on these resources within its borders, or adequately protect these resources within its borders, from illegal access and use (i.e. biopiracy) by both local and international exporters. As an LDC, with around 50% of the population living below the poverty line, Lesotho could significantly benefit from developing its genetic resources sector, and like neighbouring South Africa, strategically invest in developing a 'biodiversity economy' with a focus on developing an ABS system and natural product business sector and create sustainable employment.

The realisation of equal access to, and the benefit sharing from the use of genetic resources is central to their conservation and sustainable use. Sharing the benefits from the use of biological and biological resources is, however, complex, and requires detailed technical understanding of their individual properties, or their potential for application, which is often lacking in the developing world, and certainly so in LDCs such as Lesotho. Support for establishment of a policy and regulatory framework to govern ABS, as well as explore their economic value and commercial use potential is therefore critical to enable Lesotho to invest in the conservation and sustainable use of its genetic resources for equitable benefit sharing within and beyond Lesotho.

Like many countries, Lesotho also views its biological resources as a potential economic investment area, and proximity to South Africa, with its fairly developed bioprospecting and natural product development and trading sectors, represents both an inspiration and a pressure for Lesotho to 'catch up'. The potential for Lesotho's bioprospecting and natural product development sectors are far from being realized, it's not even known what this potential is, or how to measure it, and even if it was known, the country would still fail to capture the benefits from this sector, as it lacks the foundational elements to do this, beyond acceding to the international instrument: the Nagoya Protocol. Lesotho is also well aware of the losses that emanate from its inability to capture the benefits of developing its natural products. Harvesting and trade in these resources remains unregulated for both local and international users, and the narrow focus on the 'benefits' poses a potential risk and threat to the resources themselves. The Nagoya Protocol, and its domestication through national policies, regulations and laws can therefore fill the gap and facilitate a balance between utilization and conservation.

Without the support from the GEF project, the focus on capturing the benefits might be realized at a cost, to both the resource itself, in terms of environmental sustainability, as well as the poor rural communities who 'host' these resources, and 'own' the knowledge behind their many uses and applications. The absence of a strong policy and regulatory framework also means that Lesotho is vulnerable to exploitation by powerful groups and private interests operating in the bioprospecting space. Beyond the benefits outlined in the table below, the support from the GEF project would contribute to Lesotho's realization of the following SDGs: 1 – No Poverty, 3 – Good Health and Well-being, 8 – Decent Work and Economic Growth, 9 – Industry, Innovation and Infrastructure, 13 – Climate Action, and 15 – Life on Land, among others.

## 6. Innovation, sustainability and potential for scaling up

Through support from this project, Lesotho will for the first time engage comprehensively with ABS, bioprospecting and natural product development issues as they pertain to biological and genetic resources (plant species). It will also be the first project to be conceptualized since the accession to the Nagoya Protocol on ABS in early 2015. By its very nature this project will bring the issue of sustainability to the fore, and facilitate required systematic engagement with all the three objectives of the CBD. The bioprospecting and natural product development sectors in Lesotho are at their infancy stage, and require a facilitated and informed process to create the appropriate enabling environment to ensure that it follows a sustainable pathway as per the CBD and Nagoya Protocol provisions. This project will provide an opportunity for strategic partnerships between the country's research and academic community, private sector stakeholders, government and public institutions and the Indigenous and Local Communities involved in the conservation, harvesting and use of biological and genetic resources. Through the activities proposed under Component 2, the stakeholders will pilot initiatives and approaches to accessing genetic resources and knowledge about them (i.e. conservation, collection/harvesting), exploring their potential uses and applications (i.e. bioprospecting, scientific research and investigations) and putting in place mechanisms for sharing the benefits from their utilization (e.g. bioprospecting, value addition and new product development). The project will use the three identified species as an entry point to facilitating practical application of the Nagoya Protocol provisions and informing future directions for the country in terms of the requirements for the type of conditions required (i.e. enabling environment in terms of policies, laws, regulations, and technical skills, capacity and resources, including infrastructure and technology) for these resources to be conserved, sustainably used and the benefits from their utilization better captured and equitably shared.

Once the current barriers in this area have been removed, the potential for scaling up will be significant. The country will be better equipped to further explore the benefits that can accrue from fully developing this sector. Once the benefits are realised and equitably shared, the country can strategically invest in this sector as a economic growth pathway (i.e. develop a biodiversity economy based on bioprospecting and natural product development).

2. *Stakeholders. Will project design include the participation of relevant stakeholders from [civil society](#) and [indigenous people](#)? (yes  /no  ) If yes, identify key stakeholders and briefly describe how they will be engaged in project design/preparation.*

The following government and non-government stakeholders will be key to the management of the genetic resources in Lesotho and so will form a core group of stakeholders during project development and implementation. Lesotho's aspirations are to create an enabling environment and technical capacity to engage on bioprospecting and natural product development and overall better facilitation of an ABS systems in the country. The stakeholders include organisations (businesses, national and provincial government departments, public entities, research organisations, academic organisations) and people (communities, individuals, investors) that are searching for, collecting, harvesting and extracting living or dead indigenous species, or derivatives and genetic material thereof for commercial or industrial purposes. The table below lists the stakeholders and their expected role in the project. A more detailed stakeholder analysis will be conducted during the PPG phase and their different roles and contributions clarified and agreed.

Organization	Responsibility
Department of Environment	Lead agency in environmental management and principal implementing partner, co-financing, regulation, certification, permitting
UNDP	GEF Implementing Agency (IA)
Key Government Institutions e.g. Department of Science and Technology, Ministry of Health, Ministry of Trade and Industry, Ministry of Local Government, Ministry of Agriculture and Food Security)	Support implementation of project through e.g. co-financing, legislation development, certification, permitting, marketing, soil testing, research, gene banks, governance, agriculture activities
Katse Botanical Garden	Training, Wild collection, propagation and storage, demonstration

	of best practices
Private Sector/ Natural Product Industry	Users of resources, bioprospecting, product development, compliance, markets, technologies
Financial Institutions	Provide financing for natural product investments
Nimura Genetic Solutions	Support implementation of project through e.g. co-financing, staff training, research and development, market, technologies
Academia: NUL	Support implementation of project through e.g co-financing, relevant research, product development, offer laboratories, technologies
NUL Innovation Hub	Technical support and potential beneficiary and project partner for R&D and product development
Civil Society Organizations	Implement relevant project activities e.g. community mobilization, organization, advocacy, awareness raising, education and outreach, community empowerment
Communities and community groups e.g. traditional healers, herd boys	Custodians, harvesters, users and traditional knowledge holders, primary beneficiaries of the project

3. *Gender Considerations. Are [gender considerations](#) taken into account? (yes  /no  ). If yes, briefly describe how gender considerations will be mainstreamed into project preparation, taken into account the differences, needs, roles and priorities of men and women.*

Access to and control over natural resources always has a gender dynamic to it, and so are the costs and benefits of interacting with the environment and natural resources. In the context of Lesotho and the history of its interaction with biological and genetic resources, traditionally and historically-defined gender roles determine which genetic and biological resources women have access to and benefit from. These roles are defined by traditional norms and values and taboos restricting interaction with particular species. Interestingly, research on Lesotho people's (Basotho) historical interaction with indigenous plant species, particularly those used for medicinal purposes, reveals that over 20 to 29 plant species were used to treat women and children's ailments, respectively. A consideration of gender dynamics around access to, use and control as well as benefit sharing from the use plant and genetic resources is therefore closely linked to poverty outcomes, considering that a significant number of poor rural communities engage in petty trading of these resources as a source of income. Women are often involved in the harvesting and trading part of the value chain, often receiving disproportionately less than men engaged in the same activities. The PPG will therefore conduct targeted assessments and analysis of the gender dynamics and outcomes arising from the human-environment interactions in this sector, and explore opportunities for the empowerment of poor rural women, men and youth, as an aspect of promoting inclusive and participatory governance processes and operationalizing ABS as per the provisions of the Nagoya Protocol on ABS.

4. *Risks. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable).*

The table below shows the possible risks to the project and proposed mitigation measures. These will be further refined during the PPG.

Possible Risks	Proposed Risk Management Measures
Overharvesting of species in the wild continues unregulated or increases even under regulation, due to the prioritization of monetary benefits	The project is designed to support the development of Lesotho's institutional capacity and enabling environment to not only access the benefits from the utilisation of genetic resources but to also conserve these biological resources. Current enforcement of existing regulations is weak, so this project will support the strengthening of enforcement mechanisms and support stronger conservation focus for biological and genetic resources.

Lack of coordination between the different stakeholders (national government agencies and/or district local authorities, private sector, research and academic institutions and communities (e.g. harvesters, traders) operating in the biological and genetic resources sector.	The project will support the development of guidelines, protocols, codes of conduct and standards for coordinated action for the sector, and provide training and capacity building for applying/implementing them. Collectively, these tools and systems should improve coordination, led by the relevant government institutions, to ensure that the provisions of the Nagoya Protocol on ABS, and the relevant support national frameworks facilitate a functional operating environment.
Climate change impacts negatively affect the ecosystems where these genetic and biological resources occur.	R&D activities to be supported by the government, as well as the conservation initiatives to be put in place will endeavour to promote the resilience of these resources, and the ecosystems and landscapes where they are found, to be strengthened.

5. *Coordination. Outline the coordination with other relevant GEF-financed and other initiatives.*

Lesotho is currently implementing the following ongoing and planned projects that this project will coordinate with:

- *GEF ID 9054* (UNDP) - Support to the Orange-Senqu River Strategic Action Programme Implementation. Strengthening joint management capacity for the basin-wide IWRM implementation and demonstrating environmental and socioeconomic benefits of ecosystem-based approach to water resources management through the implementation of SAP priority actions in the Orange-Senqu River basin.
- *GEF ID 5075* (UNDP) - Reducing Vulnerability from Climate Change in the Foothills, Lowlands and the Lower Senqu River Basin
- *GEF ID 5124* (FAO) - Strengthening Capacity for Climate Change Adaptation through Support to Integrated Watershed Management Programme in Lesotho. (1) Project Objective: to implement sustainable land and water management practices (SLM/W) and resource conservation measures in selected watersheds to reduce vulnerability and enhance adaptive capacity at community level(2) to strengthen diversified livelihood strategies focusing on crop, livestock and agro-forestry systems at community level in selected watersheds in three most vulnerable livelihood zones
- *GEF ID 6926* (UNEP) - Strengthening Climate Services in Lesotho for Climate Resilient Development and Adaptation to Climate Change. To strengthen the climate monitoring capabilities, early warning systems and human resources in Lesotho in order to effectively address climate impacts and better plan adaptation to climate change
- *GEF ID 4453* (IFAD) - Adaptation of Small-scale Agriculture (LASAP) - To increase the resilience of small-scale agriculture to climate change impacts by promoting climate-proofed investments for agriculture-based development, as well as by enhancing the resilience of agricultural productivity under increased climate variability

The UNDP-supported projects have a strong focus of supporting landscape and ecosystem resilience. GEF ID 5075 for instance is supporting the rehabilitation of degraded rangelands and therefore reducing the impacts of overgrazing on the landscape and river ecosystem to promote natural regeneration and recovery. These are the same landscapes and ecosystems that host Lesotho's floristic diversity. GEF ID 9054 will support implementation of strategic actions agreed by the member states sharing the river basin, one of which is to address land and ecosystem degradation, the impacts of which include changes in species composition and abundance.<sup>7</sup>

This project will also closely work with the South Africa project on ABS, titled 'Securing Multiple Ecosystems Benefit Through SLM in the Productive But Degraded Landscapes of South Africa', currently at PPG stage. Collaboration on ABS issues around *Pelargonium sidoides* in particular will be a critical aspect of the implementation for the two projects/countries.

<sup>7</sup> <http://orasecom.org/system/writable/DMSStorage/651orange-senqu-river-basin-preliminary-transboundary-diagnostic-analysis.pdf>

Further analysis on how this project can benefit from and contribute to the learning and interventions from these ongoing GEF projects will be further explored during the PPG.

*A.6. Consistency with National Priorities. Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes  /no  ). If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.*

The project is in line with national development and environmental protection priorities set by the GOL under various policy documents such as V2020, National Strategy for Development Planning (NSDP), NBSAP, Environment Act 2008, Biodiversity Resources Management Draft Bill of 2016 and National Range Resources Management Policy of 2014. These policy and legal pronouncements outline Lesotho's vision and commitment towards biodiversity conservation, sustainable use and equitable sharing of benefits arising from utilization of biological resources. The project will support the mainstreaming of the Nagoya Protocol into these instruments and facilitate the creation of an enabling environment to facilitate the operationalization of an ABS system, in line with the protocol. It is expected that the project will generate valuable lessons, technical guidance, tools and approaches to strengthen these policies so as to promote the value of biodiversity towards increasing national economy and reducing poverty in Lesotho through the equitable sharing of benefits from its environmental resources.

National Biodiversity Strategy and Action Plan (NBSAP) priority activities to enable implementation of biodiversity conservation goals are as follows:

- Identification of biological diversity components through research and compile inventories to improve biodiversity conservation.
- Identification of processes likely to threaten Lesotho's biodiversity.
- Identify and implement strategies that ensure sustainable conservation of biodiversity components (PAs, RMAs, ERMAs, Botanical gardens, Maboella).
- Strengthening of legal measures.
- Develop human resources and improve the skills required for biodiversity management.
- Increase participation of rural households in forest activities through their own initiatives, for their own purposes and under their own control.
- Identify and enhance management of Lesotho's unique wetland systems.
- Reform agricultural practices in Lesotho, manage and constrain human activities that are responsible for destruction of biodiversity.
- Perform Environmental Impact Studies prior to implementation of activities that are likely to affect biological diversity adversely.
- Establish measures of benefit sharing.
- Develop material incentive program to change people's behavior so that future land title holders make appropriate conservation decisions.
- Engage in international strategies that facilitate security of national and regional biodiversity components.

*A.7. Knowledge Management. Outline the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.*

This project will generate a significant amount of new information and knowledge during both the PPG and implementation stages. Research data on the species of national importance will contribute to strengthening Lesotho's decision-making on conservation, sustainable use and ABS from genetic and biological resources. This information will also guide subsequent capacity building and awareness-raising, beyond the life of the project. Component 3/Outcome 3.1 and 3.2 of the project will specifically address knowledge management, communication and awareness-raising issues and explore opportunities for south-south and triangular cooperation as it pertains to international trade and bioprospecting on genetic resources.

**PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)**

**A. RECORD OF ENDORSEMENT<sup>8</sup> OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):**

(Please attach the [Operational Focal Point endorsement letter](#)(s) with this template. For SGP, use this [SGP OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mr. Stanley Damane	GEF Operational Focal Point	ENVIRONMENTAL AFFAIRS, KINGDOM OF LESOTHO	17 FEBRUARY 2017

**B. GEF AGENCY(IES) CERTIFICATION**

**This request has been prepared in accordance with GEF policies<sup>9</sup> and procedures and meets the GEF criteria for project identification and preparation under GEF-6.**

Agency Coordinator, Agency name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email
Adriana Dinu, UNDP-GEF Executive Coordinator		09/25/2017	Phero K. Kgomotso, UNDP Technical Advisor	251-912-503309	<a href="mailto:Phero.kgomotso@undp.org">Phero.kgomotso@undp.org</a>

<sup>8</sup> For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

<sup>9</sup> GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

## Annex 1: List of polices, laws and regulations to protect Lesotho's biodiversity and natural resources

The table below indicates the list of key legislative and policy instruments currently in place or under development in Lesotho:

	<b>Policy/Legislation</b>	<b>Objectives</b>	<b>Responsible Institution</b>
1.	National Environment Policy 1998	Protection and conservation of the environment with a view to achieving sustainable development for Lesotho.	Department of Environment (Ministry of Tourism, Environment and Culture)
2.	National Biosafety Policy 2005	To ensure safe use of biotechnology in order to protect human health and environment while maximising benefits from biotechnology	Department of Environment (Ministry of Tourism, Environment and Culture)
3.	Seed Policy 2014	Develop an effective, efficient and sustainable seed system capable of producing and supplying high quality seeds to supply national seed demand as well as for export	Ministry of Agriculture and Food Security
4.	Water and Sanitation Policy 2007	Proper management and sustainable utilization of the country's water resource and ensure adequate supply of potable water and sanitation services to Basotho	Department of Water Affairs (Ministry of Energy, Meteorology and Water Affairs)
5.	Biodiversity Resources Management Draft Bill 2014	Conserve Biodiversity, provide for the fair and equitable sharing of benefits arising from bio-prospecting of indigenous biological resources	Department of Environment (Ministry of Tourism, Environment and Culture)
6.	National Heritage Act 2011	Preservation, protection and management of the heritage of Lesotho and establishment of the Heritage Council.	Department of Culture (Ministry of Tourism, Environment and Culture)
7.	Land Act 2010	Provision of titles to land and administration of the land	Land Administration Authority (Ministry of Local Government, Chieftainship and Parliamentary Affairs)
8.	Environment Act 2008	Protection and management of environment and conservation and sustainable utilization of natural resources of Lesotho	Department of Environment (Ministry of Tourism, Environment and Culture)
9.	Forest Act 1998	Regulation and control of dealings in forest produce and sustained management of forests and forests reserves.	Department of Forestry (Ministry of Forestry and Land Reclamation)
10.	Managed Resources Areas Order (18 of 1993)	To establish managed resource areas in order to conserve and sustainably use biodiversity	Department of Range Management Resources (Ministry of Forestry and Land Reclamation)
11.	Range Management and Grazing Control Regulations 1980	Establishment of grazing areas, rotational grazing, regulation of stock numbers and prevention of grass burning.	Department of Range Management Resources (Ministry of Forestry and Land Reclamation)
12.	Lesotho Universal Medicinemen and Herbalist Act 1978	Establishment of Medicinemen and herbalists Council for promoting and controlling activities of Medicinemen and herbalists.	Ministry of Health
13.	National Parks Act 1975	Protection of wild fauna and flora in the national parks	Department of Environment (Ministry of Tourism, Environment and Culture)
14.	Medicinemen and Herbalists Regulations 1969	Regulates activities of Medicinemen and herbalists	Ministry of Health
15.	Weeds Eradication Act 1969	Eradication of certain injurious weeds by allottee or occupants of lands.	Ministry of Agriculture and Food Security
16.	Land Husbandry Act 1969	Controlling and improving the use of land, soil	Department of Range

		conservation, water resources, irrigation and certain agricultural practices.	Management Resources (Ministry of Forestry and Land Reclamation)
17.	Historical Monuments, Relics, Fauna and Flora Act 1967	Protection of historical monuments, relics and certain protected fauna and flora from damage, destruction or removal from original habitat	Department of Environment (Ministry of Tourism, Environment and Culture)
18.	Wild Birds Proclamation 1914	Prohibition of sale or export of the plumage or skins of wild birds.	Ministry of Tourism Environment and Culture
19.	Sale of Game Proclamation 1939	Prohibition of sale of game , biltong, hides , skins and flesh of game/wild animals	Department of Marketing (Ministry of Trade and Industry, Cooperatives and Marketing)
20.	Game Preservation Proclamation 1951	Regulation of hunting of game	Ministry of Tourism, Environment and Culture
21.	Protection of Fresh Water Fish Proclamation 1951	Protection of fresh water fish	Ministry of Tourism, Environment and Culture