NATIONAL BIODIVERSITY ECONOMY STRATEGY (NBES)

Department of Environmental Affairs

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Department:
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FOREWORD

South Africa is the third most biological diverse country in the world in terms of species richness and endemism. Conservation and Sustainable Utilisation of South Africa's biological diversity is thus of strategic importance in terms of provision of ecosystem services, now and in the future. This species richness provides an important basis for economic growth and development that underpins the well-being of our society.

The biodiversity economy of South Africa, encompasses the businesses and economic activities that either directly depend on biodiversity for their core business or that contribute to conservation of biodiversity through their activities. In other words, the ambit of the biodiversity economy is the Bioprospecting (i.e. research on, or development or application of, indigenous biological/genetic resources for commercial or industrial exploitation and includes: the systematic search, collection or gathering of such resources or making extractions from such resources; the utilisation of information regarding any traditional uses of such resources by indigenous communities; and the research on, or the application, development or modification of such traditional uses for commercial exploitation; the trading in and exporting of indigenous biological/genetic resources in order to develop and produce products, such as medicines, industrial enzymes, food flavours, fragrances, cosmetics, colours, extracts and essential oils), and Wildlife sub-sectors (i.e. live sales of indigenous wildlife; sale of game meat and the hunting industry).

The key findings from a situational analysis of the bioprospecting industry commissioned by the DEA provides insight about the manner in which value is being added to the country's biodiversity and the extent that it is sought after by domestic and international markets. A bioprospecting commercial industry value chain was developed showing the key role players, from the resource to the end user. This value chain was used to describe the indigenous plant resources and bee products currently utilised in the formal commercial bioprospecting sub-sector of South Africa. The largest resource use in products was *Aloe ferox* (bitter Aloe), followed by bee products, *Aspalathus linearis* (rooibos) and *Pelargonium sidoides*. It was also found that the potential market size until 2012 of the bioprospecting industry, based on resource permit application data, is about R2 billion per year. This means that the current industry has reached only about 20 % of its potential, and thus has a large growth potential. Therefore, with adequate sustainable use and economic growth plans, these findings provide a fair baseline for strategic interventions and innovative collaboration to elevate the profile of this sector.

The Wildlife Industry value chain is centred on game and wildlife farming/ranching activities that relate to the stocking, trading, breeding, and hunting of game, and all the services and goods required to support this value chain. The key drivers of this value chain include domestic hunters, international hunters and a growing retail market demand for wildlife products such as game meat and taxidermy products. This sector is therefore characterised by an interesting combination of agriculture, eco-tourism and conservation characteristics.

Over the period 2008-2013, the total Wildlife Industry market has grown by more than 14% per year. To understand the future growth potential of this sector, it is important to first understand how this growth was comprised. This growth comprised an average annual growth exceeding 6% in domestic hunting, a decrease in international hunting, and an exponential growth in live auction sales. It is likely that the increase in the domestic hunting market would continue. International hunting has reduced since 2008, evidently as a result of the global economic crisis, and thus holds a very significant growth potential as the international economy stabilises and grows, at least on par with domestic hunting. The growth in live auction sales has experienced unprecedented growth over the past 5 years, mostly likely driven by new investments in the Wildlife Industry. It is likely that this market segment will stabilise and that annual growth will thus also stabilize at normal levels. Based on these figures, it is likely that the consolidated Wildlife Industry has the potential to experience a weighted average annual growth rates between 4 %-14 % per year over the next 14 years.

The commercial or industrial utilisation of the indigenous biological/ genetic resources in biodiversity economy sectors offers the opportunity to create additional employment in the country, as shown by a number of notable industries that have developed within South Africa using indigenous biological/ genetic resources and associated traditional knowledge. The effective implementation of the legislative provisions (namely, National Environmental Management Biodiversity Act No. 10 of 2004) on the use of indigenous biological/ genetic resources, and the effective support of small enterprises in this field, is reliant on a sound knowledge and understanding of the biodiversity economy.

Furthermore, this Strategy will not only assist South Africa's transition to Green Economy, but will also play a bigger role for livelihoods in job creation and poverty reduction, especially for rural communities, as most of the indigenous biological resources surrounds these communities. This Strategy will also play a major role in the transformation of the economy by motivating marginalised individuals to start their own

biodiversity based enterprises, as well as enhancing the entrepreneurial spirit of current players in the sector, thus, creating an appreciable and sustainable economic presence.

We need to step up our efforts to utilise our biodiversity sustainably and economically to support livelihoods of all South Africans including present and future generations.

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Minister: E. E. Molewa

Department of Environmental Affairs

EXECUTIVE SUMMARY

The biodiversity economy of South Africa encompasses the businesses and economic activities that either directly depend on biodiversity for their core business or that contribute to conservation of biodiversity through their activities. The commercial wildlife and the bioprospecting industries of South Africa provide cornerstones for the biodiversity economy and are the focus of this strategy.

Despite South Africa having an incredibly rich diversity of genetic and biological resources, the biodiversity economy has not reached its full potential, as it remains largely unrecognised, underdeveloped and untransformed. Sustainable use of our genetic and biological resources has the potential to support many local economies and livelihoods in the country, providing business and job creation opportunities for individuals and communities.

Both the wildlife and bioprospecting sub-sectors of the biodiversity economy have already demonstrated the potential for significant future development and growth. In the study commissioned on the situational analysis of the biodiversity economy, the contribution of the biodiversity economy to the national economy can be measured in terms of Gross Domestic Product (GDP), with the wildlife and bioprospecting industries contributing approximately R3 billion to GDP in 2013. Growth in the wildlife and bioprospecting industries can make a significant impact on the national economy, while contributing to national imperatives such as job creation, rural development and conservation of our natural resources.

However, for these two sectors to achieve its full potential, we require a strategic partnership between the state, private sector and communities.

To this end, a National Biodiversity Economy Strategy (NBES) is required to guide the sustainable growth of the wildlife and bioprospecting industries and to provide a basis for addressing constraints to growth, ensuring sustainability, identifying clear stakeholder's responsibilities and monitoring progress of the Enabling Actions.

The Vision of NBES is to optimise the total economic benefits of the wildlife and bioprospecting industries through its sustainable use, in line with the Vision of the Department of Environmental Affairs. The purpose of NBES is to provide a 14 year national coordination, leadership and guidance to the development and growth of the biodiversity economy.

NBES has set an industry growth goal stating that by 2030, the South African biodiversity economy will achieve an average annualised GDP growth rate of 10% per annum. This envisioned growth curve extends into the year 2030 and is aligned to the efforts of the country's National Development Plan, Vision 2030. This growth would be achieved through cooperation between the private sector, government and communities; through realising opportunities in various market segments; through addressing development and growth constraints; and through

managing both the wildlife and bioprospecting industries in an environmentally sustainable manner. This growth would not only support returns on investment for existing investors but would also enable new investments in support of South Africa's economic transformation.

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

To address these transformation NBES imperatives, NBES has the principles of:

- Conservation of biodiversity and ecological infrastructure
- Sustainable use of indigenous resources
- Fair and equitable beneficiation
- Socio-economic sustainability
- Incentive driven compliance to regulation
- Ethical practices
- Improving quality and standards of products.

NBES provides the opportunity to redistribute South Africa's indigenous biological/ genetic resources in an equitable manner, across various income categories and settlement areas of the country. Development and growth of the biodiversity economy focuses on markets and activities which address national socio-economic imperatives, especially in the rural areas. Working collaboratively and cooperatively, NBES provides the opportunity to develop the rural economy of the country and address environmental and rural development imperatives of government. The NBES has prioritised nodes in the country for biodiversity economy transformation, referred to as BET nodes. NBES prioritises 18 BET nodes, 13 rural and 5urban districts across the nine provinces of the country, with communities having been prioritised for development of small and medium size enterprises and community-based initiatives which sustainably use of indigenous biological and/or genetic resources.

Based on these principles, NBES envisages a set of 10 transformation enabling interventions for the wildlife industry (refer to Chapter 4) and a set of 10 transformation enabling interventions for the bioprospecting industry (refer to Chapter 5). These transformation enabling interventions were developed during an extensive consultation process with the relevant role players in the wildlife and bioprospecting industries during June-September 2014. The transformation enabling interventions address a wide variety of constraints faced by the wildlife and bioprospecting industries separately, and identify responsibilities for government and the private sector.

In the wildlife industry, it is important to reconstitute the Wildlife Forum, and have the Forum adopt NBES as its implementation mandate. Through DEA and the Wildlife Forum, NBES identifies a need for streamlining the regulatory environment; optimising various institutional arrangements; supporting research and development, enhancing skills development; fostering entrepreneurship; launching, marketing and public relations campaign; improving access to finance and implementing various economic transformation initiatives. The details of these interventions are set out in Chapter 4.

In the bioprospecting industry, the formulation of a Bioprospecting Forum is necessary in the immediate future, to adopt the NBES as their implementation mandate and guide this implementation process with DEA. Through DEA and this forum, NBES identifies a need for similarly Transformative Enabling Interventions as those of the Wildlife economy, but will also focus on developing the infrastructure necessary to support the transformation of this sector, such as the development of a Compound Library for South Africa and Africa, focussing of advocating the importance of biodiversity which underpin this sector and provide valuable ecosystem services to the people of South Africa. The details of these interventions are set out in Chapter 5.

One of the crucial aspects of NBES will be to demonstrate the value of the strategy and the progress in its implementation. The strategy thus has a results-base monitoring programme which provides indicators of success of implementing the various interventions of the strategy. These indicators will allow the sectors to hold themselves to account in achieving the Transformative Enabling Interventions (TEIs), to prioritise interventions for implementation and to determine future interventions required. The monitoring programme is provided in Appendix 1.

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GLOSSARY OF TERMS

Biodiversity	Means the variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and also includes diversity within species, between species, and of ecosystem[1]
Biodiversity Economy	The biodiversity economy of South Africa encompasses the businesses and economic activities that either directly depend on biodiversity for their core business or that contribute to conservation of biodiversity through their activities[2]
Biological resource	Is defined in the National Environment Management Protected Areas Act[3] (hereafter referred to as NEMPAA) to mean any resource consisting of- a) a living or dead animal, plant or other organism of an indigenous species; b) a derivative of such an animal, plant or other organism, as defined in section c) any genetic material of such animal, plant or other organism, as defined in 1 of the Biodiversity Act; or section 1 of the Biodiversity Act.
Bioprospecting:	Is defined in the National Environmental Management Biodiversity Act[1] (hereafter referred to as NEMBA) and the 2013 Amendment to the Act[4], as any research on, or development or application of, *indigenous biological* resources for *commercial exploitation*[5] and includes[6]- a) the systematic search, collection or gathering of such resources or making extractions from such resources for purposes of such research, development or application, b) the utilisation for purposes of such research or development of any information regarding any traditional uses of indigenous biological resources by indigenous communities, or c) research on, or the application, development or modification of, any such traditional uses, for commercial or industrial exploitation, or d) trading in and exporting of indigenous biological resources in order to develop and produce products such as drugs, industrial enzymes, food flavours, fragrances, cosmetics, emulsifiers, oleoresins, extracts and essential oils.
BioTrade	Means the buying and selling of indigenous biological resources for the purpose of[7]:- (a) bioprospecting (b) product development; or (c) product manufacturing.
Commercialisation	In relation to biological resources relates to the following activities: Filing of a complete intellectual property application, whether in South Africa or anywhere else; Obtaining or transferring any intellectual property right or any other right;

[1] South Africa (2004). National Environmental Management Biodiversity Act, No 10 of 2004. Government Printers, Pretoria, South Africa

[2] Adopted from: Van Paddenburg, A., Bassi, A., Buter, E., Cosslett C. & Dean, A. 2012. Heart of Borneo: Investing in Nature for a Green Economy. WWF Heart of Borneo Global Initiative, Jakarta

[3] South Africa (2003). National Environmental Management Protected Areas Act, No 57of 2003. Government Printers, Pretoria, South Africa

4 South Africa (2013). National Environmental Management Law Act, No 14 of 2013. Government Printers, Pretoria, South Africa

5 Commercial exploitation is defined as the engaging in any bioprospecting activity with the intention of making a profit (South Africa, 2013)

6 Bioprospecting (b) excludes-
(i) genetic material of human origin;
(ii) any exotic animals, plants or other organisms, other than exotic animals,
(iii) indigenous biological resources listed in terms of the International Treaty plants or other organisms referred to in paragraph (u,)(iii); and on Plant Genetic Resources for Food and Agriculture (South Africa, 2004)

[7] South Africa (2014). National Environmental Management: Biodiversity Act (10/2004): Draft amendment regulations on bio-prospecting access and benefit-sharing. Government Printers: Pretoria.

	Commencing product development, including the conducting of market research and seeking pre-market approval for the sale of resulting products; The multiplication of indigenous biological resources through cultivation, propagation, cloning or other means to product and develop products, such as drugs, industrial enzymes, food flavours, fragrances, cosmetics, emulsifiers, oleoresins, extracts and essential oils. Trading in and exporting of indigenous biological resources to develop and produce products such as drugs, industrial enzymes, food flavours, fragrances, cosmetics, emulsifiers, oleoresins, extracts and essential oils; Commercial exploitation
Ecological infrastructure	Ecological infrastructure refers to naturally functioning ecosystems that deliver valuable services to people, such as water and climate regulation, soil formation and disaster risk reduction. It is the nature-based equivalent of built or hard infrastructure, and can be just as important for providing services and underpinning socio-economic development.
Ecosystem services	Are defined in the Millennium Ecosystem Assessment (MA)[8] report 2005, as the benefits people obtain from ecosystems and distinguishes four categories of ecosystem services (i.e. provisioning, regulating, cultural, and supporting services), where the so-called supporting services are regarded as the basis for the services of the other three categories
Genetic resources	According to NEMBA[1] is defined to include- a) any genetic material; or b) the genetic potential or characteristics of any species.
Indigenous biological resources	are defined in NEMBA[1] as: (a) when used in relation to bioprospecting, means any indigenous biological resource as defined in section 80(2); or (b) when used in relation to any other matter, means any resource consisting of- (i) any living or dead animal, plant or other organism of an indigenous (ii) any derivative of such animal, plant or other organism; or (iii) any genetic material of such animal, plant or other organism; (b) excludes- (i) genetic material of human origin; (ii) any exotic animals, plants or other organisms, other than exotic animals, (iii) indigenous biological resources listed in terms of the International Treaty plants or other organisms referred to in paragraph (u,) (iii) and on Plant Genetic Resources for Food and Agriculture
Indigenous community	according to the Intellectual Property Law Amendment Act (2011)[9] means any recognizable community of people originated in or historically settled in a geographic area or areas located within the borders of the Republic, as such borders existed at the date of commencement of the Intellectual Property Laws Amendment Act, 2011, characterized by social, cultural and economic conditions which distinguish them from other sections of the national community, and who identify themselves and are recognized by other groups as a distinct collective
Sustainability	in relation to the use of a biological resource, means the use of such resource in a way and at a rate that- (a) would not lead to its long-term decline;

[8] Millennium Ecosystem Assessment (MA). 2005. Ecosystems and Human Well-Being: Synthesis. Island Press, Washington. 155pp.
[9] South Africa (2011) Intellectual Property Law Amendment Act.

	(b) would not disrupt the ecological integrity of the ecosystem in which it occurs; (c) would ensure its continued use to meet the needs and aspirations of present and future generations of people[1].
Sustainable Use of Biological Resources	The use of components of biological diversity in a way and at a rate that does not lead to its long term decline, thereby maintaining its potential to meet the needs and aspirations of present and future generations[10]

10 South Africa (1997) White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity. Government Printers: Pretoria.

LIST OF ACRONYMS

ABS	Access and benefit sharing
AU	African Union
BRICS	Brazil, Russia, India, China and South Africa
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DOE	Department of Energy
DoBE	Department of Basic Education
DoH	Department of Health
DoHE	Department of Higher Education
DOT	Department of Tourism
DRDLR	Department of Rural Development and Land Reform
The dti	Department of Trade and Industry
EU	European Union
IDC	Industrial Development Cooperation
NCL	National Compound Library
NEMBA	National Environmental Management Biodiversity Act
NEMPAA	National Environmental Management Protected Areas Act
NPC	National Planning Commission
OECD	Organisation for Economic Co-operation and Development
SACNASP	South Africa Council Natural Scientific Professionals
SADC	Southern African Development Community
SANPARKS	South African National Parks
SANS	South African National Standards
SAPS	South Africa Police Services
SARS	South African Revenue Services
SETA	Skills Education Training Authorities
STATSSA	Statistics South Africa
UNEP	United Nations Environmental Programme
USA	United States of America

1 WHAT IS BIODIVERSITY ECONOMY?

1.1 IMPORTANCE OF THE BIODIVERSITY ECONOMY

1.1.1 Biodiversity Economy Defined

The biodiversity economy of South Africa encompasses the businesses and economic activities that either directly depend on biodiversity for their core business or that contribute to conservation of biodiversity through their activities[2]. The biodiversity economy contains the formal commercial biodiversity markets of South Africa, which recognises but does not include the informal biodiversity markets as these markets are currently largely undetermined and fall outside the bounds of the bioprospecting regulations of the Department of Environmental Affairs.

The biodiversity economy addressed in this strategy is currently limited to two sub-sectors within the biodiversity economy, namely:

- The bioprospecting sub-sector: which encompasses organisations and people that are searching for, collecting, harvesting and extracting living or dead indigenous species[11], or derivatives[12] and genetic material thereof for commercial or industrial purposes.
- The wildlife sub-sector: which is centred on game and wildlife farming/ranching activities that relate to the stocking, trading, breeding, and hunting of game, and all the services and goods required to support this value chain.

Africa is a continent endowed with a wealth of unique and diverse genetic resources, species, ecosystems, as well as blessed with diverse people and cultures[13]. The continent contains a quarter of the world's biodiversity and has an extraordinary range of animal and plant species[13]. These biological resources are the backbone of many African economies, providing life-support systems for many people, especially marginalised rural communities.

South Africa and the majority of African countries, are party to the Convention on Biological Diversity. This convention has three core principles:

[11] **indigenous species:** Species that occurs, or has historically occurred, naturally in a free state in nature within the borders of the Republic, but excludes a species that has been introduced in the Republic as a result of human activity (South Africa, 2004)

[12] **derivative** in relation to an animal, plant or other organism, means any part, tissue or extract, of an animal, plant or other organism, whether fresh, preserved or processed, and includes any genetic material or chemical compound derived from such part, tissue or extract (South Africa, 2004; South Africa, 2013).

[13] Taukondjo Shikongo, S. (2005). Report On Threats To The Practice And Transmission Of Traditional Knowledge Regional Report: Africa. Phase II of the Composite Report on the Status and Trends Regarding the Knowledge, Innovation and Practices of Indigenous Peoples and Local Communities Relevant to the Conservation and Sustainable Use of Biodiversity. Prepared for the Secretariat of the Convention on Biological Diversity

- the conservation of biological diversity;
- the sustainable use of biological resources; and
- fair and equitable sharing of benefits arising from the use of genetic resources.

Linked to the principle of fair and equitable sharing of the benefits arising from the use of genetic resources, parties to the CBD adopted the *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity (Nagoya Protocol)* in 2010. In addition in 1973, CITES, an international cooperation conservation and trade treaty which regulates and safeguards species from over-exploitation to threaten their survival and further contribute to the current extinction crisis, was developed and ratified by a number of states.

Collective and cooperative efforts of African states have also resulted in the drafting of the *African Union Guidelines for the Coordinated Implementation of the Nagoya Protocol on ABS*[14], which will provide policy and practical guidance to Member States on how national ABS systems can be implemented in a regionally cooperative and coordinated manner, consistent with the provisions of the Nagoya Protocol on ABS. Similarly, the southern African states through SADC have adopted a SADC Regional Biodiversity Strategy, with the aim to provide a framework for cooperation and implementation of provisions toward sustaining the region's biodiversity[15].

Many countries have established international and national provisions on sustainable use, management and conservation of genetic and biological resources through laws.

South Africa, in their commitment to the CBD and CITES, the AU and SADC have adopted and is currently implementing the Nagoya Protocol and species trade restrictions through national environmental legislation and regulations. These environmental legislations and regulations are crucial to the sustainable use and management of the country's rich biological diversity which is the foundation of human well-being and supports many of the country's economic activities. Although South Africa comprises only 2 % of the world's land area, it is home to a remarkable 6 % of the world's plant and mammal species, 8 % of bird species and 5 % of reptile species[16]. The country has nine biomes with a range of habitats, ecosystems and landscapes[16]. In addition, South Africa's marine biodiversity straddle three oceans and include an exceptional range of habitats which are home to almost 15 % of known coastal marine species, including 270 marine fish families out of a world total of 325[16]. South Africa is listed as one of only 17 global megadiverse countries[16].

South Africa's biodiversity constitutes the ecological infrastructure on which human well-being depends. It is critically important to conserve and maintain this ecological infrastructure as it provides the ecosystem services

[14] African Union (2013). African Union Guidelines for the Coordinated Implementation of the Nagoya Protocol on ABS.
[15] SADC (undated). Regional Biodiversity Strategy. [Online]. Available: http://www.sadc.int/issues/environment-sustainable-development/biodiversity/
[16] Driver A., Sink K.J., Nel J.N., Holness S., Van Niekerk L., Daniels F., Jonas Z., Majiedt P.A., Harris L. and Maze K. 2012. National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems. Synthesis Report. South African National Biodiversity Institute and Department of Environmental Affairs, Pretoria

that are fundamental for human life. If ecological infrastructure is degraded or lost, the flow of ecosystem services from which humans benefit will diminish[16]. These ecosystem services are critical as they provide food security, protection from natural hazards, and support the development of economic sectors such as bioprospecting, eco-tourism and the wildlife industry, as well as providing a safety net for rural communities where the cash economy is meagre.

Conservation and protection of the countries ecological infrastructure is a priority for the biodiversity economy development path in South Africa. The government has committed to creating a prosperous and equitable society which is in harmony with natural resources and protects the rich biodiversity heritage for all citizens. South Africa has long been a global leader in biodiversity conservation and wildlife management and has in place a first-rate network of protected areas making it an international ecotourism destination of choice. At least 11.4 % of the land in the country is under conservation or protection, with South Africa home to a number of world renowned national and provincial nature reserves[17].

While many biodiversity businesses are well established and profitable in South Africa, marginalised individuals and communities which are currently benefiting from the biodiversity economy are limited.

1.1.2 The South African Economy and the Biodiversity Economy

The diverse structure of the South African economy is a critical aspect of its historical and current growth performance. Some of the key sectors, as measured by their nominal value added in 2013[18], were as follows:

- Finance, real estate and business services: 21.5 % (R652 billion);
- General government: 17.1 % (R518 billion);
- The wholesale, retail and motor trade; catering and accommodation sector: 16.6 % (R502 billion);
- The manufacturing sector: 11.6 % (R351 billion);
- The transport, storage and accommodation sector: 8.9 % (R269 billion); and
- Agriculture, forestry and Fishing sector: 2.4 % (R72 billion).

The biodiversity economy forms an important part of the South African economy. Biodiversity is internalised in the Gross Domestic Product (GDP) of the national economy in many sectors, including directly in the agriculture sector, the tourism sector, the manufacturing sector and indirectly in many other sectors. In addition, it is likely that

[17] DEA (2014). Protected area database. [Online]. Available: http://egis.environment.gov.za/sapad.aspx?m=64
[18] Statistics South Africa. Gross Domestic Product, Fourth Quarter 2013.

biodiversity also produces many services to the economy and to South Africa's human well-being that are not internalised in the economy.

South Africa experienced an average growth rate of approximately 5 per cent in real terms between 2004 and 2007. However, during the global economic recession period from 2008 to 2013, South Africa only recorded an average growth just above 2 %. Moreover, of the nine provinces in South Africa, Gauteng, Kwazulu-Natal and Western Cape collectively contribute a significant portion to the country's value added, reported by Statistics SA at over 60 %.

The biodiversity economy therefore has an important role to play in generating economic development, growth and transformation opportunities.

1.1.3 The National Development Plan and a Green Economy

South Africa's intent of growing an inclusive economy is given voice through the National Development Plan 2030, launched in August 2012[19]. The proposed interventions of the NDP are to eliminate poverty and reduce inequality, by 2030, by expanding economic opportunity for all by:

- Investing in and improving infrastructure, as well as supporting industries such as mining and agriculture;
- Diversifying exports;
- Strengthening links to faster-growing economies;
- Enacting reforms to lower the cost of doing business;
- Reducing constraints to growth in various sectors;
- Moving to more efficient and climate-friendly production systems; and
- Encouraging entrepreneurship and innovation.

One of the most important elements of economic growth in the country is a green economy. UNEP defines a green economy as one that results in "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities"[20]. In 2011, the South African government entered into the Green Economic Accord, which aims to create 300 000 jobs in the next 10 years through investment in the green economy[21].

[19] The Presidency (2013). National Development Plan 2030. Our Future-make it work. National Planning Commission, South Africa.
[20] United Nations Environment Programme (2011). Green Economy. Introduction. [Online]. Available: http://www.unep.org/greeneconomy/Portals/88/documents/ger/1.0_Introduction.pdf
[21] Available: http://www.economic.gov.za/communications/publications/green-economy-accord

1.1.4 The Biodiversity Economy as a Key Driver of Economic Transformation

Economic transformation is easier to achieve in sectors where market demand is strong and growing, and where supply constraints are not prohibitive.

The biodiversity economy is an ideal development and transformation sector in the South African context. There are several reasons for this:

- There exists a strong and growing domestic and international demand for the products and services produced by this sector;
- It realises the economic value of our indigenous species, and, in many cases therefore, indigenous/traditional knowledge;
- It facilitates rural economic development;
- It has very high value added potential;
- It has a high potential to earn foreign currency;
- It enables the development of new product markets.

Realising the full developmental and transformational potential of the biodiversity economy, however, requires a well-considered and strategic approach, which has a number of strategic considerations.

1.2 An Evolutionary And Strategic Approach To Supporting The Biodiversity Economy

The biodiversity economy is currently limited to two sub-sectors within the biodiversity economy:

- The bioprospecting sub-sector; and
- The wildlife sub-sector.

It is common cause that the scope of biodiversity economy is much wider than these two sectors, and encompasses other sectors and ecosystem services as envisaged in the sections above. However, for the purposes of this document and for strategic planning practicality, this document focuses on the two sectors that have demonstrated remarkable growth, development and economic transformation potential for South Africa.

This strategic document is further envisaged to be expanded on in future, by including additional biodiversity economy sectors.

1.2.1 Bioprospecting sub-sector profile

The South African bioprospecting sub-sector encompasses 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[11], or derivatives[12] and genetic material thereof for commercial or industrial purposes.

Commercial and industrial products which fall under the ambit of the bioprospecting sub-sector include (but are not limited to) drugs, industrial enzymes, food flavours, fragrances, cosmetics, emulsifiers, oleoresins, extracts or essential oils which contain these indigenous species.

Communities and organisations that utilise or modify any information on the traditional uses of indigenous biological/ genetic resources also form part of the bioprospecting sub-sector of the country. Cultivation of indigenous biological/genetic plant resources or the trade in raw material in its original form may also be bioprospecting, depending on the intended use of the resource.

The bioprospecting sub-sector in the country has a formal, commercialised market and an informal market, dominated largely by traditional medicines.

The formal, commercialised bioprospecting market, although fledgling, is growing rapidly, in line with international market trends. This market can be delineated into three value adding segments, the resources segment, the biotrade segment and the final market segment (Fig 1).

In 2012/2013, the biotrade segment (of indigenous plant and bee products) was estimated to include 225 biotraders, that traded 24 indigenous plant species and bee products[22&23]. Categories of biotraders include those which trade in raw materials (Category 1); those that develop intermediary products (Category 2) and those that handle the final product (Category 3). The estimated size of this middle segment shown in Fig 1, i.e., the biotrade market segment, as measured by the total revenue generated by this segment in 2013, was R580 million[24]. The bulk of this, an estimated R410 million, was exported as raw or semi-processed products, i.e., dried whole, chopped, powdered plant material or extracted gel, crystal or powder products[24]. The remainder was sold onto the value-added bio-products which were sold within the domestic retail market.

[22] *Aloe ferox; Apis - Honey, Propolis or Wax; Aspalathus linearis; Pelargonium sidoides; Agathosma species; Adansonia digitata; Sutherlandia frutescens; Harpagophytum procumbens; Pelargonium graveolens; Bulbine frutescens; Cyclopia spp.; Marine - Kelp, Cape seaweed, seaweed, sea bamboo; Hypoxis hemerocallidea; Kigelia Africana; Hoodia gordonii; Sclerocarya birrea; Sceletium tortuosum; Siphonochilus aethiopicus; Warburgia salutaris; Dioscorea dregeana; Aloe arborescens; Eriocephalus africanus; Hypoxis rooperi; Citrullus lanatus*

[23] DEA (undated). A Study of the Scope and Extent of the Utilisation of Indigenous Resources by Bioprospecting Industries in South Africa. Unpublished report.

[24] DEA (undated) Situation analysis of four selected sub-sectors of the biodiversity and conservation sector in South Africa. Unpublished report.

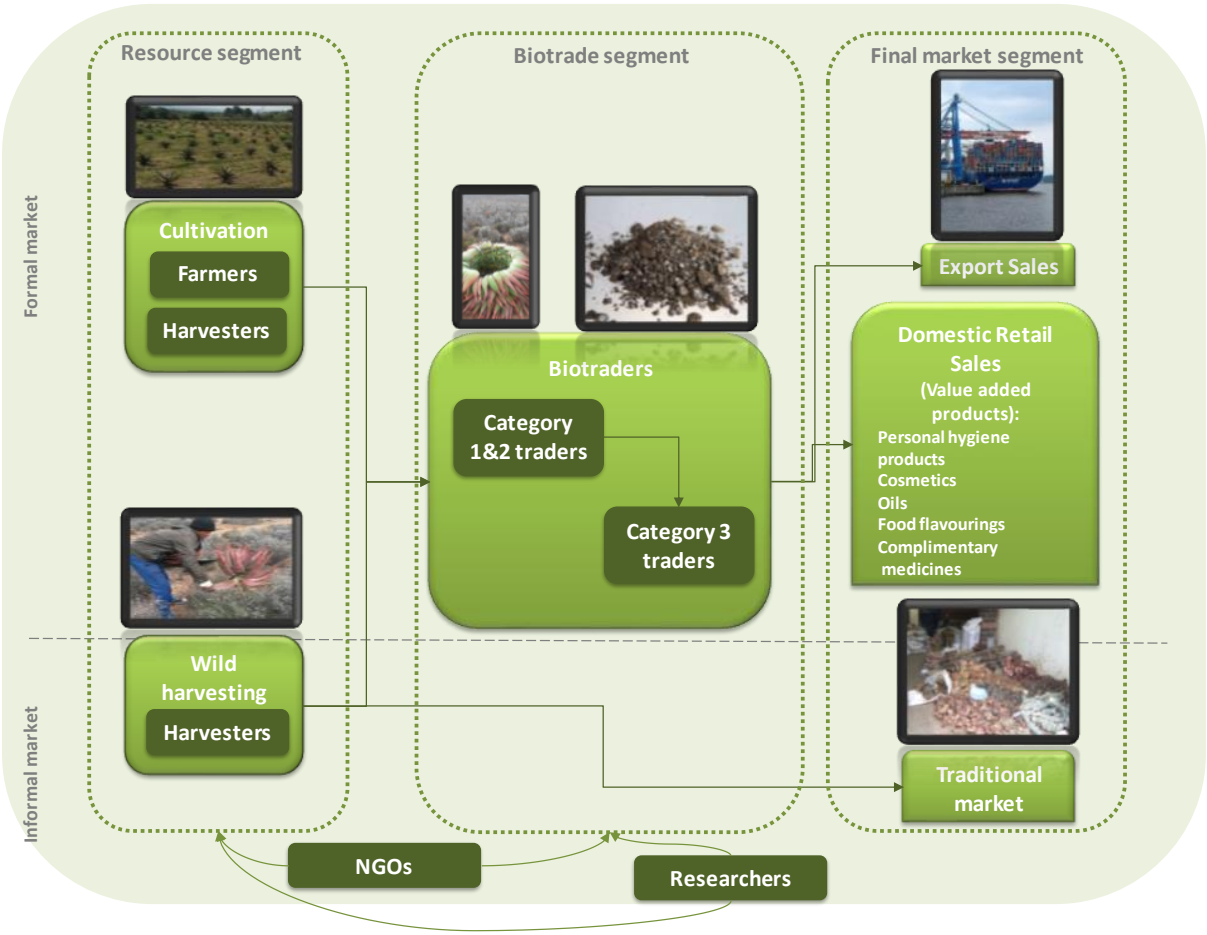


Figure 1: Bioprospecting market segments and role players in South Africa (traditional market picture taken from http://www.southafrica.net/za/en/articles/entry/article-southafrica.net-faraday-muti-market)

The formal domestic retail market in South Africa in 2012/2013 had 549 products containing indigenous plant and bee products on the shelves[23]. The total revenue produced from value-added bio-products in the domestic retail market was approximately R1, 5 billion in 2013[24]. The majority of these products used *Aloe ferox*, *Apis* spp. (bee products), *Aspalathus* spp. (Rooibos) or *Pelargonium sidoides* as active indigenous ingredient. These local value-added products fell into five product categories[24]:

- Personal hygiene products (R620 million or 40 % of products)
- Cosmetics (R590 million or 38 % of products)
- Complimentary medicines (R170 million or 11 % of products)
- Food flavourings (R120 million or 8 % of products)
- Oils (R50 million or 3 % of products).

The importance of indigenous plant resources and bee products as an ingredient in these value-added bioprospecting products is revealed by the comparative values of retail sales of products with and without indigenous resources. Products containing indigenous plant resources and bee products sell between 50 %-100 % more by retail value[23]. This is evidence of a strong consumer demand for products containing an indigenous

resource as an ingredient. This demand enables bioprospectors to adopt a variety of marketing strategies to differentiate their products. In some instances bioprospectors can increase revenue through asking premium prices, and in other instances they may increase revenue by keeping prices constant and relying on increased stock turn[23].

The indigenous plant and bee products make up a large portion of the South African bioprospecting market. The indigenous animal, derivatives and marine market is even less recognised and developed, with very little information available on these formal, commercial market segments. Examples of indigenous animal bioprospecting products from South Africa include snake and spider anti-venom and crocodile oils.

This value chain holds significant growth potential for South Africa. This growth potential in NBES is measured in the biotrade segment of the value chain as this segment is wholly reliant on domestic production of indigenous species. The lower bound growth potential, also the business as usual (BAU) case is determined by historical biotrade market growth. The biotrade market showed an average annualised 6 % growth per year from 2001 to 2011. The high growth projection assumes a 20 % per year growth, which is based on the international industry growth over the period 2001-2011[25]. Figure 2 projects the potential future growth of the biotrade segment based on these low (BAU) and high (international benchmark) projections. This figure demonstrates that a range of possible futures are possible, which are for the most part determined by the extent to which NBES is successful. The figure also depicts a 10% per year annualised growth as envisaged by the NBES goal (see below).

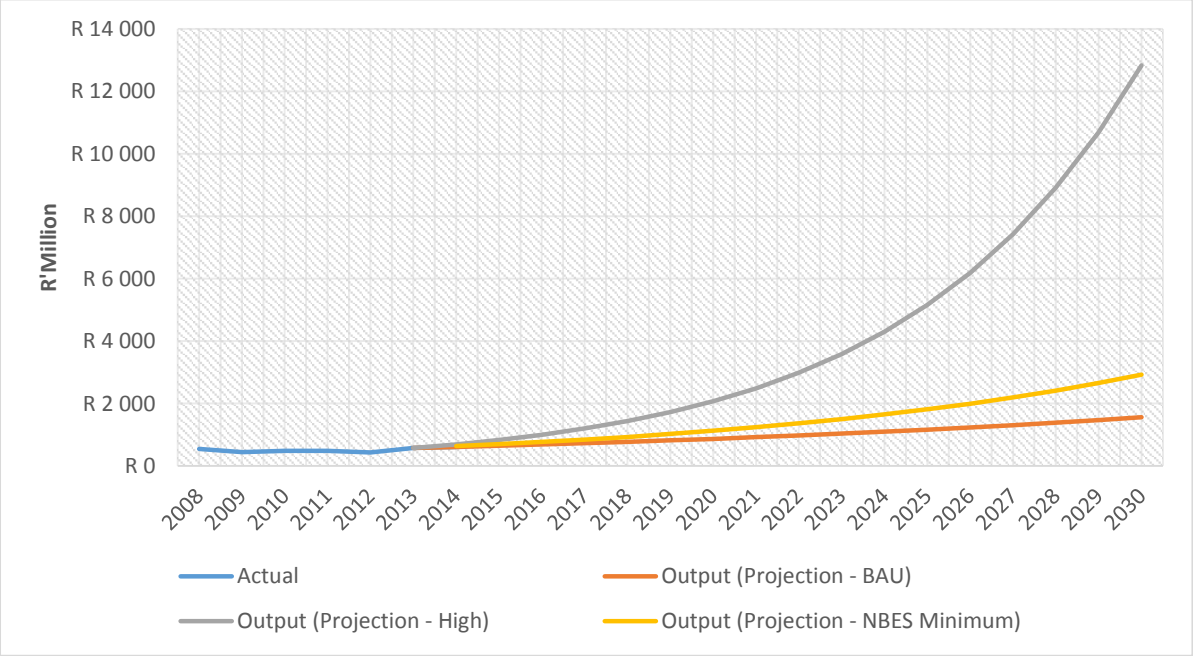


Figure 2: *Possible futures for the biotrade market size as measured by output in the biotrade market segment. In the BAU (business as usual) scenario growth continues at 6% per year, following the trend of the past 14 years. In the most optimistic High scenario, an annualised*

[25] Own analysis – data sourced from World Trade Centre.

growth of 20% per year is achieved as in international markets over the past 14 years. A minimum NBES goal of an annualised growth of 10% per year would move the sector into a targeted growth situation.

1.2.2 Wildlife sub-sector profile

The Wildlife Industry value chain is centred on game and wildlife farming/ranching activities that relate to the stocking, trading, breeding, and hunting of game, and all the services and goods required to support this value chain.

The key drivers of this value chain include domestic hunters, international hunters and a growing retail market demand for wildlife products such as game meat and taxidermy products. This sector is therefore characterised by an interesting combination of agriculture, eco-tourism and conservation characteristics.

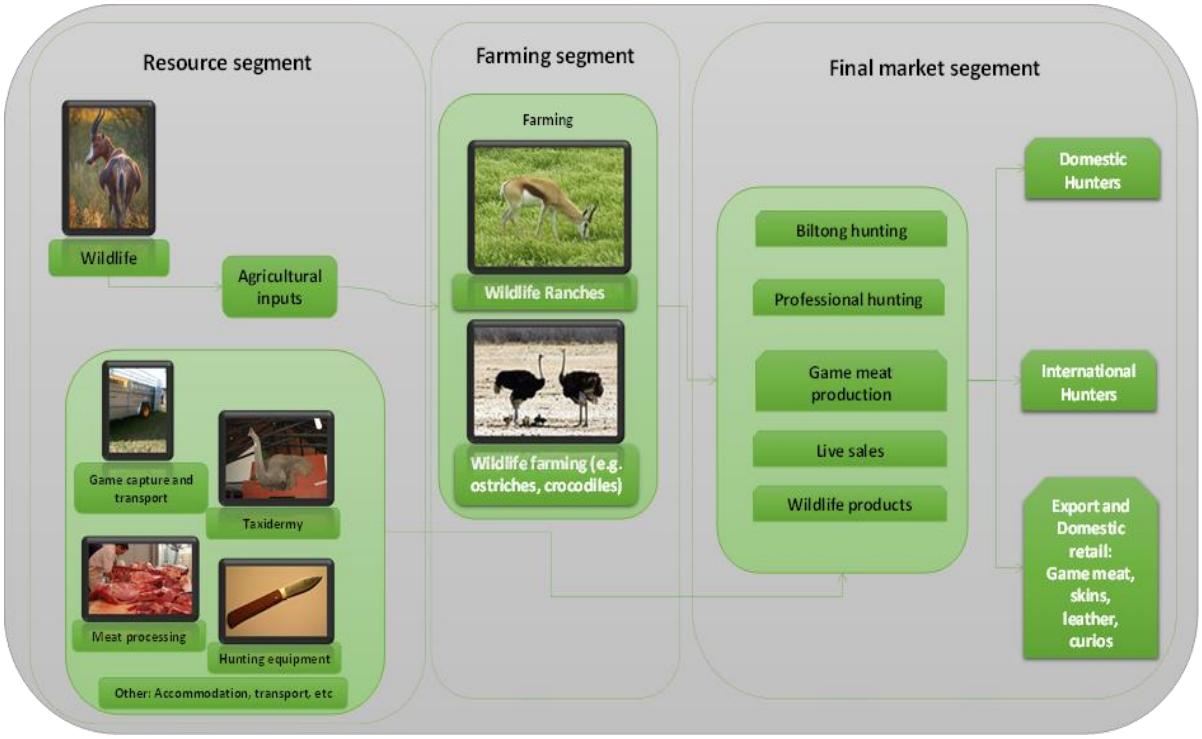


Figure 3: Sector segments and role players in the wildlife market of the South African biodiversity economy

The 2013 Absa Agriculture Outlook[26] shows that the farming segment of the wildlife game market encompasses more than 9000[27] wildlife ranches (from about 3 500 in the year 1992), utilising more than 20 million hectares of land. Commercial wildlife ranches cover 16.8 % of the country's landmass, with about 50 % of the wildlife ranches found in the Limpopo Province[28]. The Northern Cape housed approximately 19.5 % of South Africa's wildlife ranches, while the Eastern Cape is home to 12.3 %[28]. South Africa hosts 20 million game animals, 16 million of

[26] Absa (2013). Absa Agric Outlook Report (2013). [Online]. Available: http://www.agriconnect.co.za/agricultural-outlook/absa-agricultural-outlook/agricultural-outlook-digital-edition/book/29-absa-outlook-2013/7-agricultural-outlook.html
[27] Van der Merwe, P, Saayman, M. and Rossouw, R. (2014). The Economic Impact of Hunting: A regional approach. SAJEMS NS, 17 (4): 379-295.
[28] Dry (2011). Commerical wildlife ranching's contribution to a resource efficient, low carbon, pro-employment economy. Presentation to the 7th International Wildlife Ranching Symposium, Kimberley, South Africa.

which can be found on private land and the remaining 4 million on state-owned land. More than sixty indigenous animal species are traded in the ranching/framing wildlife market of the country[24].

One of the major contributors to wildlife tourism and the South African economy, is wildlife hunting[29]. Wildlife hunting is defined as the consumptive use of wildlife that is found in their natural habitat or under farmed conditions[30].

The domestic hunting market was approximately R6.4 billion in 2013[24]. This includes the following key expenditure items[24]:

- Animals hunted = R3 billion (46 %)
- Accommodation and day fees = R0.9 billion (14 %)
- Other expenses on transport, equipment, butchery and others = R3 billion (40 %).

International hunters primarily engage in hunting as a form of eco-tourism activity. They wish to experience the South African natural landscape and desire to hunt a variety of animals unique to Southern Africa of which they then take home as trophies in various forms, i.e., horns, skin and photos. Approximately 7,600 of these trophy hunters visit South Africa every year, largely from the USA and Europe. The domestic hunting market segment is product price driven, whereas the international hunting market segment is service price driven. The international hunting market was approximately R1.4 billion in 2013[24]. This includes the following key expenditure items[24]:

- Animals hunted = R0.5 billion (40 %)
- Accommodation and day fees = R0.2 billion (13 %)
- Other expenses on services provided locally = R0.7 billion (48 %).

In addition to hunting, game farmers can generate income from the sale of game meat, wildlife products and live game.

The retail and export game meat market is estimated at R230 million in 2013[24]. Game meat is mainly sourced from seven species, namely springbok (*Antidorcas marsupialis*), kudu (*Tragelaphus strepsiceros*), gemsbok (*Oryx gazella*), impala (*Aepyceros melampus*), eland (*Tragelaphus oryx*), wildebeest (*Connochaetes species*) and ostrich (*Struthio camelus*). Game meat is particularly important in South Africa as it can contribute to the countries effort to achieve food security and encouraging health alternatives to domestic meat consumption. In addition to a growing local game meat retail market, South Africa also exports game meat, mainly to Europe. The local retail and export market are estimated to be between 15 million and slightly over 19 million tonnes per annum[32], mostly

[29] Van der Merwe, P. and Saayman, M. (2003). Determining the economic value of game farm tourism. Koedoe, 46 (2): 103–112.

[30] Reynolds and Braithwaite (2001). Towards a conceptual framework for wildlife tourism. Journal of Tourism Management, 22: 31-42.

in the months of April – September. [31]. Most of the game meat exports originate from the Eastern Cape (35 %), Northern Cape (34 %) and Free State (23 %)[32]provinces.

Although the exact size of the wildlife product market is not certain, it exceeded R580 million in 2013[24] while taxidermy and tannery services to domestic and international hunters are estimated at R580 million per year[24]. Sales of hides, leather and other wildlife products are therefore expected to exceed this value.

In recent years, a thriving market has developed in the trade and sales of live indigenous wildlife species. Trading of species, particularly surplus stock off wildlife farms, wildlife ranches and state conservations areas, occur largely through wildlife auctions. Five methods are used in South Africa for trading with wildlife, namely[33]:

1. Private sales negotiated between the buyer and the seller (Professional wildlife catchers play an important role in the translocation of the animals.)
2. Public live wildlife auctions
3. Public wildlife catalogue auctions
4. A tender system (This method is used mainly by SANParks, provinces and municipalities that own wildlife and nature reserves.)
5. Electronic auctions

A large number of animals are traded directly from the seller to the buyer with the assistance of wildlife capturers and translocations. The size of this market, including auction sales, private sales and translocation services was estimated at R1.7 billion in 2013[24]. An increasing trade is especially taking place at auctions, and 2013 was an exceptional year for the live trade of game animals in South Africa (Fig. 4). Not only did the official game auctions' turnover reach the billion rand mark for the first time in history but the highest number of record prices for a number of species were also achieved. Live trade in game animals showed a gentle growth between 1991 and 2006, after which the income increased almost exponentially[24]. The number of animals sold during this growth period was almost double the initial figure (1991). SWOT

[31] OBEREM, P. (2011). Wildlife Ranching: Game for food security [Online] Available at: http://www.agriconnect.co.za/wildlife-ranching/wildlife-ranching-magazine/wrsa-knowledge-library/wrsa-management-production/202-game-for-food-security.html

[32] DAFF. (2010). Game industry market value chain profile. Republic of South Africa: Department of Agriculture, Forestry & Fisheries. Available at: http://www.daff.gov.za/docs/AMCP/GameMVCP2009-2010.pdf

[33] National Agricultural Marketing Council, (NAMC) (2006). Report on the investigation to identify problems for sustainable growth and development in South African wildlife ranching. NAMC: Pretoria.

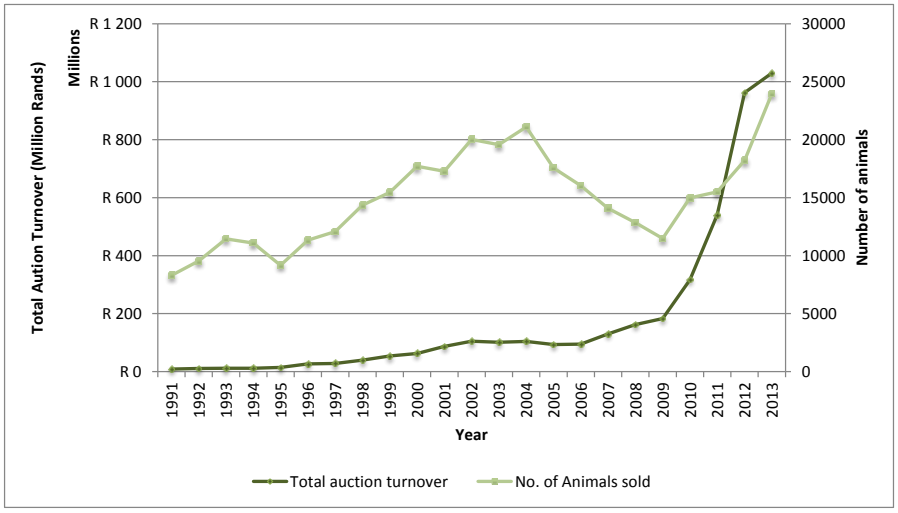


***Figure 4**: Annual national turnover generated through formal game auctions and number of animals sold between 1991 and 2013*[34]

Fig 5 summarises the final demand segment of the game market in South Africa, measured by total expenditure, which was approximately R 10 billion in 2013[24]. This money was expended as follows:

- Domestic hunters expenditure = R6.4 billion or 64 % of Farming segment revenue
- International hunters expenditure = R1.4 billion or 14 % of Farming segment revenue
- Live game sales including auction sales, direct sales and translocation services = R1.7 billion 17 % of Farming segment revenue
- In addition, the value chain generated at least an additional R540 million in 2013 through sales of game meat, wildlife products and non-hunting accommodation.

Over the period 2008-2013, the total Wildlife Industry market has grown by more than 14 % per year. To understand the future growth potential of this sector, it is important to first understand how this growth was comprised. This growth comprised an average annual growth exceeding 6 % in domestic hunting, a decrease in international hunting, and an exponential growth in live auction sales. It is likely that the increase in the domestic hunting market would continue. International hunting has reduced since 2008, evidently as a result of the global economic crisis, and thus holds a very significant growth potential as the international economy stabilises and grows, at least on par with domestic hunting. The growth in live auction sales has experienced unprecedented growth over the past 5 years, most likely driven by new investments in the Wildlife Industry. It is likely that this market segment will stabilise and that annual growth will thus also stabilize at normal levels. Based on these figures, it is likely that the consolidated Wildlife Industry has the potential to experience a weighted average annual growth rate between 4 %-14 % per year over the next 14 years (Figure 5).

[34] Based on Cloete, F. (2014). Veilingsstatistiek. (Personal Communication, 12 May 2014)

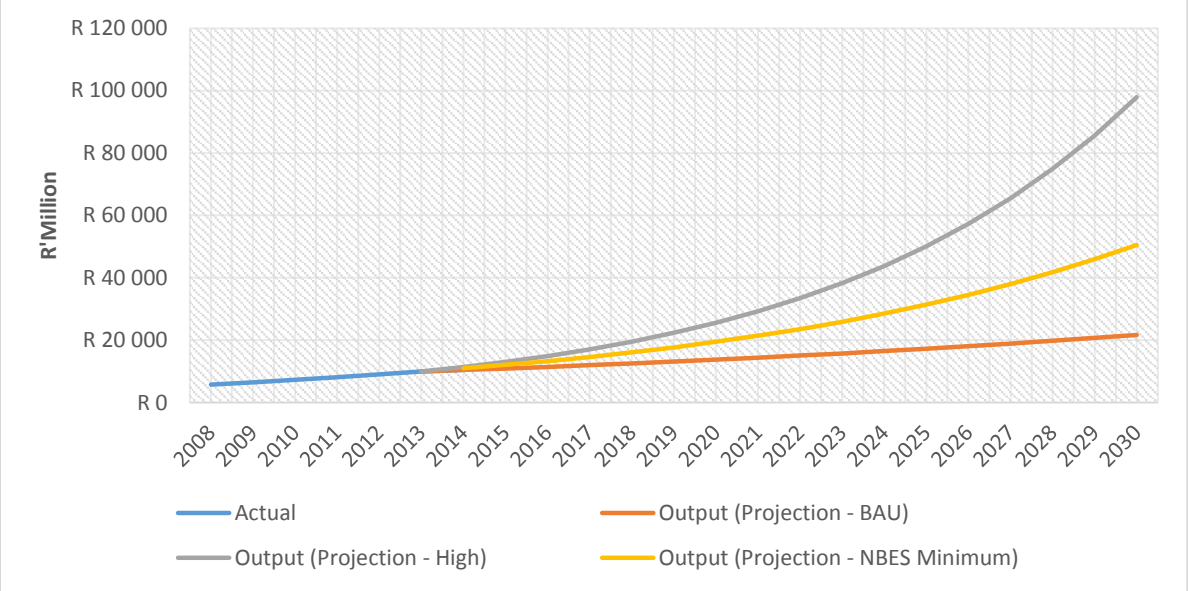


Figure 5: *Possible futures for the wildlife market size as measured in the final demand segments. In the BAU (business as usual) scenario growth continues at 4% per year, the lower growth rate of the past 5 years. In the most optimistic High scenario, an annualised growth of 14% per year is achieved, the higher growth rate of the past 5 years. A minimum NBES goal of an annualised growth of 10% per year would move the sector into a targeted growth situation.*

While economic development is very difficult to achieve in sectors with saturated growth potential, it is far easier to achieve in sectors with high growth potential. Evidence from various biodiversity economy sectors has shown that growth can be expected to increase by between 4-14 % per year. In the case of the wildlife sub-sector this may result in a market size that may vary between R17and R50 billion by year 2030.

The challenge for the sub-sector is to maximise these growth potentials, through dealing with the economic development constraints that may exist, while ensuring sustainable management and use of wildlife resources.

2 NBES: A STRATEGIC PLAN FOR THE BIODIVERSITY ECONOMY

2.1 A NEED FOR A STRATEGY

Both the wildlife and bioprospecting sub-sectors of the biodiversity economy demonstrate a potential to contribute significantly to the future economic development and growth, which is of great benefit to the economy of South Africa.

The contribution of the consumptive biodiversity economy to the national economy can be measured in terms of the Gross Domestic Product (GDP). The GDP calculated in a situational analysis study commissioned by the DEA, the biodiversity economy was estimated to be approximately R3 billion in 2013. This comprised:

- Bioprospecting sub-sector GDP ~ R0.1 billion
- Wildlife sub-sector GDP ~ R2.9 billion

The GDP figures above demonstrate two significant characteristics. Firstly, the absolute numbers are significant. These are large sectors that make a significant impact on the national economy. The biodiversity economy is therefore also a significant job creator, especially in the wildlife and bioprospecting sub-sectors.

Moreover, the sustainable growth of these two sub-sectors requires private sector, government and community partnerships if it is to be successful.

A National Biodiversity Economy Strategy (NBES) is required to guide the sustainable growth of these sub-sectors and to provide a basis for addressing constraints, ensure sustainable utilisation of biodiversity, and identify responsibilities and monitoring progress.

2.2 BACKGROUND TO STRATEGIC PLANNING

A strategy is a high level plan which directs the actions of key role players so that a variety of goals may be achieved. The key feature of strategic planning, which sets it apart from tactical and operational planning, is its risk setting. Strategic planning sets goals under conditions of uncertainty, where resources are often limited.

Strategic planning starts with an assessment of the status quo, complemented by appropriate medium and long term goal-setting. Thereafter, the strategic plan determines the transformation enabling interventions required to achieve these goals, and to mobilise the available resources to execute the required actions.

A smart strategic plan therefore sets appropriate risk minimising development goals, intermediate objectives, time-frames and roles and responsibilities, all of which can be monitored for progress. But it does this with an intent to identify and auction strategic leverage points.

2.3 SITUATION ANALYSIS

Cascading a core strategic goal into intermediate objectives and its accompanying transformation enabling interventions, requires an assessment of the current situation and in particular the key Strengths, Weaknesses, Opportunities and Threats (SWOT).

The SWOT analysis below lists salient short, medium and long term challenges of the biodiversity economy which a strategic action plan would seek to address.

The strengths listed below demonstrates the key benefits of the strategy and, importantly, demonstrates why this is a low risk strategy to implement. The threats summarises the risks of not achieving economic transformation. The opportunities and weaknesses give rise to the transformation enabling interventions that need to be addressed in the short, medium and long term. The identified transformation enabling interventions need to be addressed in order to achieve the set core strategic goal.

2.4 A NBES GOAL FOR THE WILDLIFE AND BIOPROSPECTING SUB-SECTORS

GOAL: By 2030, the South African biodiversity economy will achieve an average annualised GDP growth rate of 10% per annum.

This growth will be achieved through cooperation between the private sector, government and communities; through realising opportunities in various market segments; through addressing development and growth constraints; and through managing both sectors in an environmentally sustainable manner. This growth will not only support returns on investment for existing investors but also enable new investments in support of South Africa's economic transformation.

South Africa's GDP in 2013 was R3, 4 trillion, of which 2, 1 % was contributed by agricultural GDP (R72, 400 million). Of interest is that:

- The wildlife sub-sector's contribution to GDP was R3 million which was 4.0 % of agricultural GDP or 0.085 % of national GDP.
- The bioprospecting sub-sector on the other hand contributed R101 million to GDP, which was 0.1 % of agricultural GDP or 0.003 % of national GDP.

3 THE NATIONAL BIODIVERSITY ECONOMY STRATEGY

3.1 VISION

The **Vision** of the National Biodiversity Economy Strategy (NBES) is to optimise economic benefits from the sustainable use of South Africa's biodiversity.

This vision supports the vision of the environmental sector of the country which is:

"To create a prosperous and equitable society that lives in harmony with our environment"

3.2 MISSION

The **Mission** of the strategy is to enhance and create new and inclusive opportunities for economic growth through biodiversity based initiatives.

3.3 NBES SCOPE

NBES has the scope of:

3.3.1 Coordination of the sector

The Biodiversity Economy is a dynamic and complex market. This strategy provides direction and structural coordination to an array of stakeholders and role players that need to interact meaningfully with this dynamic and complex environment.

The Department of Environmental Affairs, as the regulator of the biodiversity economy, will primarily ensure effective coordination and regulation of the biodiversity economy market and the stakeholders, i.e., individuals, communities, academia, government departments, industries and businesses therein. This coordination will be to guide the Enabling Actions outlined in NBES and monitor progress in achieving these. DEA will also conduct periodic review of NBES to address challenges, gaps and to expand the strategy in future.

Coordination of the Biodiversity Economy sector will be through the establishment or transformation of platforms such as the Wildlife Forum and a Bioprospecting Forum, represented by all stakeholders in the sub-sectors. Oversight of the Forums will be the responsibility of DEA.

Coordination of African BioTrade efforts could be through the establishment of an African BioTrade/Biodiversity Economy Forum or regional specific fora such as a SADC Forum for BioTrade and Biodiversity Economy. These will allow for coordinated efforts across the continent and within regions.

3.3.2 Leadership

Leadership in the development and growth of the Biodiversity Economy is the responsibility of DEA. DEA has a number of mechanisms available to them to provide this leadership, thus providing strategic direction to the sector.

NBES provides one of these leadership mechanisms to guide the growth of the Biodiversity Economy of South Africa. Other leadership mechanisms available to DEA should include:

- The development of the environmental policy and guidelines on trade in genetic and biological resources
- Development of guidelines and models for the fair and equitable sharing of benefits which arise from the Biodiversity Economy sectors
- Enforcing regulations while supporting other mechanisms to encourage participation in the biodiversity economy
- Monitor progress in the implementation of the strategy.

3.3.3 Transformation

The South African Biodiversity Economy has historically been driven by exporting natural resources, with minimal beneficiation. To successfully transform this economy, it needs to move from a resource-based market to a product-based economy. This transformation needs to be underpinned by the markets being more inclusive and welcoming to all stakeholders, focussed on including and supporting rural and marginalised participants, developing a highly skilled labour force, investment in technology infrastructure and the growth of high-technology industries. Successfully implementing this strategy will fundamentally transform the local Biodiversity Economy and create new niche markets which sustainably utilise South Africa's indigenous biological/genetic resources for economic development and poverty alleviation.

A key imperative of NBES will be to provide an enabling environment for the transformation of the biodiversity economy in the country.

A transformed biodiversity economy is a growing economy which has fair beneficiation across the market, is one which addresses South Africa's transformation and developmental imperatives, has the capacity, education and skills to manage and maintain the market and is welcoming to new entrants into the market.

3.4 NBES PRINCIPLES

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

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

To address these transformation imperatives of NBES, the principles NBES are:

- Conservation of biodiversity and ecological infrastructure
- Sustainable use of indigenous resources
- Fair and equitable beneficiation
- Socio-economic sustainability
- Incentive driven compliance to regulation
- Ethical practices
- Improving quality and standards of products

3.4.1 Conservation of biodiversity and ecological infrastructure

NBES has the principle that the biodiversity economy will be developed and grown while maintaining the biological diversity, at all scales (genetic, species and ecosystem) in the country. This will require that the biodiversity economy ensures that ecological conditions of ecosystems from which indigenous resources are utilised, are maintained and the economic activities do not change the status of these species. The biodiversity economy will also need to be underpinned by the principle of protecting and maintaining genetic variability of indigenous resources and the ecological processes of the ecosystems in which these indigenous resources are utilised.

The NBES will be implemented with consideration of current national and provincial biodiversity protection and conservation objectives and activities.

3.4.2 Sustainable use of indigenous resources

Sustainable use of indigenous resources is a key principle of NBES and the biodiversity economy. The biodiversity economy aims to grow while assuring the sustainability of the indigenous biological/genetic resources which are exploited and the conservation of the ecosystem within which the resources are found.

Use of indigenous biological/ genetic resources within the biodiversity economy should not exceed the regenerative and/or productive capacity of the resource. This will require the regenerative and/or productive capacity of each indigenous biological/ genetic resource exploited in the biodiversity economy is known to ensure sustainable harvesting and extraction rates. Management and monitoring plans will be required to ensure these capacities and extraction rates are managed and adhered to in future. Knowledge and information on the sustainable use of indigenous biological/genetic resources and the management thereof should also be disseminated and shared.

Cultivation, farming and ranching of indigenous biological/genetic resources in the biodiversity economy will need to ensure that these practices are conducted in a biodiversity-friendly manner, i.e., does not pose a threat to biodiversity.

Practices which encourage regeneration of natural ecosystems in which indigenous biological/genetic resources are found will be favoured.

3.4.3 Fair and equitable beneficiation

A crucial principle of the NBES is that of fair and equitable beneficiation across the market segments in the biodiversity economy, to indigenous biological/genetic resources and/or the traditional knowledge associated with the use of the indigenous biological/genetic resources. This requires that the biodiversity economy grow with consideration of all stakeholders within market segments.

NBES encourages and facilitates the sharing and dissemination of information and dialogues at all levels in the biodiversity economy to ensure balanced negotiations with communities and traditional knowledge holders. Access to information is crucial for balanced negotiations as stakeholders need to be well-informed about the production and commercialisation process to assess their contribution to the value chain and market. To ensure equitable beneficiation in the biodiversity economy, all levels of the value chains should have access to the necessary information and knowledge on target markets for products.

3.4.4 Socio-economic sustainability

The biodiversity economy and the products from the markets within this economy need to be socio-economically sustainable. NBES is further underpinned by the principle that the benefits realised from this economy should

contribute to the South African socio-economic and development imperative of job creation, poverty alleviation, improved quality of life and sustainable livelihoods. Development and growth of the biodiversity economy will be focussed on markets and activities which address these national socio-economic imperatives, especially in the rural areas.

At the same time, the biodiversity economy needs to be a self-sustaining market, which is driven by markets for the goods and services.

3.4.5 Incentive driven compliance to regulation

The biodiversity economy addressed by NBES is a legal and regulated economy. NBES requires compliance of all stakeholders and products in the sector to relevant legislation and regulations.

The principles of NBES will be to encourage compliance and participation of stakeholders in the sector, where possible, through innovative incentives balanced with application of regulation conditions. Participants in the NBES will need to ensure that they comply with international and national legislative requirements.

3.4.6 Ethical practices

The NBES has a principle of ethical activities and business practices in the biodiversity economy. Growing and developing the biodiversity economy should be based on sound conservation science and on the ethical business practices of South Africa.

3.4.7 Improving quality and standards of products

NBES has the principles of growing this economic sector through the production of excellent quality products which adhere to national and international product standards such as South African National Standards (SANS); South African Complementary and Alternative Medicines Guidelines.

The value chains that make up the Biodiversity Economy provide an opportunity to introduce quality standards and certification schemes at various stages in the value chain, including certification schemes such as sustainable harvesting certification schemes; organic product certification schemes; chain of custody certification schemes and product quality certification schemes. Product quality certification should ensure that products are handled correctly during the entire production process, i.e., chain of custody certification.

Products in the biodiversity economy should have industry trade marks to show affiliation to the national body and its principles.

3.5 NBES TARGETS

Targets of the strategy are aligned in achieving the goal of the strategy, which is transformation focused, and are centred on, job creation, conservation area expansion, ownership of equity, and sustainable use. The projections in the targets are based on findings from the situational analysis commissioned by the DEA, for the wildlife and bioprospecting sectors.

Wildlife sub-sector	Bioprospecting sub-sector
Jobs: 60 000 additional jobs created across the value chain.	**Jobs:** 30-50% of RSA bioprospecting products must have community involvement in the supply chain.
Conservation Area Expansion: 2 million ha of private owned, communal and reform land improved and developed for conservation and commercial game ranching.	**Bioprospecting sub-sector Expansion:** Contribute towards increasing the number of products in the domestic and international markets, through growing cultivation of natural ingredients by at least 500 hectares per annum.
R7 billion Equity: R4 billion in game and R3 billion on fixed assets and infrastructure resulting in improved rural income, skills development, institutional capacity building, entrepreneurship and food and environmental security.	**R500 million national Equity:** R250 million product development and sales from SMME and R250 million on fixed assets and infrastructure resulting in improved income, skills development, institutional capacity building, entrepreneurship and food and environmental security.
Empowerment and Ownership: 300 000 heads of wildlife under black empowered and owned ranches.	**Sustainable Use:** Develop a national mechanism for the repository of natural product compounds.

3.6 ROLE PLAYERS IN THE BIODIVERSITY ECONOMY

The biodiversity economy of South Africa, like any other market in the country, is regulated by the public sector and operationalised largely by the private sector with support from academic and research organisations. For the

NBES to be successful in developing and growing the biodiversity economy all stakeholders in the sector need to play a role. These role players need to cooperate and collaborate to ensure success of NBES and to expand the biodiversity economy in the country.

The role players in the biodiversity economy in South Africa include:

- Communities
- Industry
- Academia
- Science councils
- Non-governmental organisation
- Community-based organisation and cooperatives
- Local, Provincial and National government
- National and Provincial conservation agencies and entities

The roles of different stakeholders in the biodiversity economy are demonstrated in Fig 6.

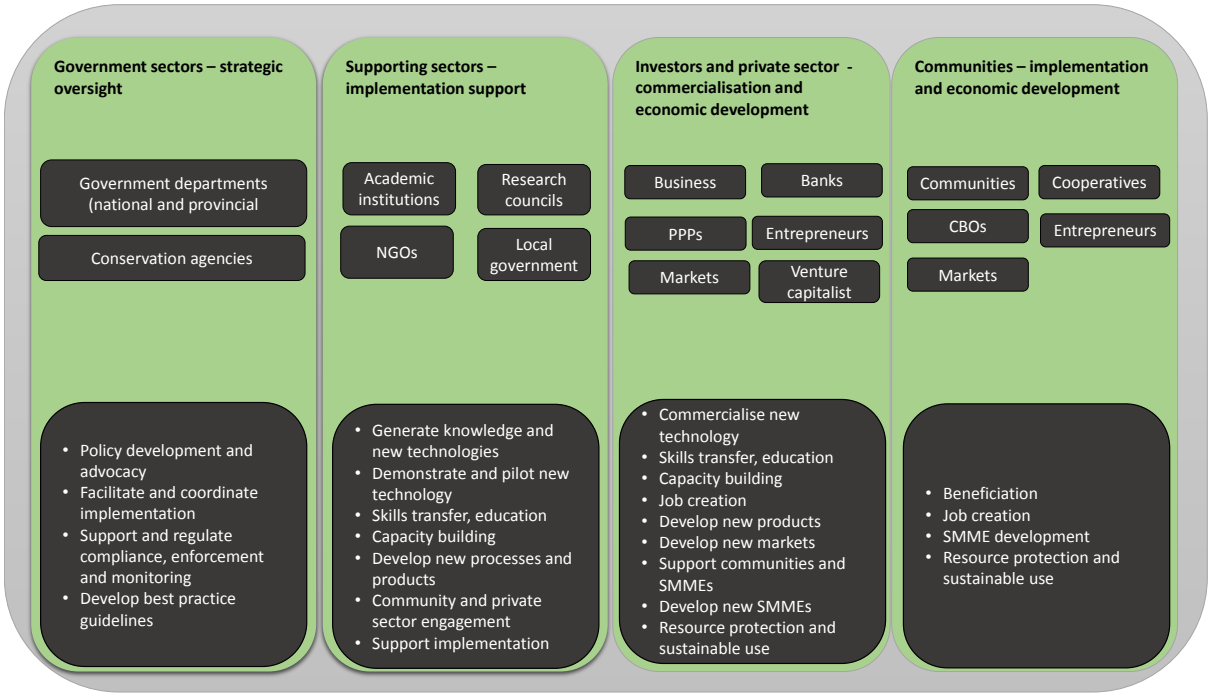


Figure 6: Roles of different local stakeholders in the biodiversity economy

Fig 7 below shows the various phases within the biodiversity economy value chains. Within these phases, various stakeholders can play a role.

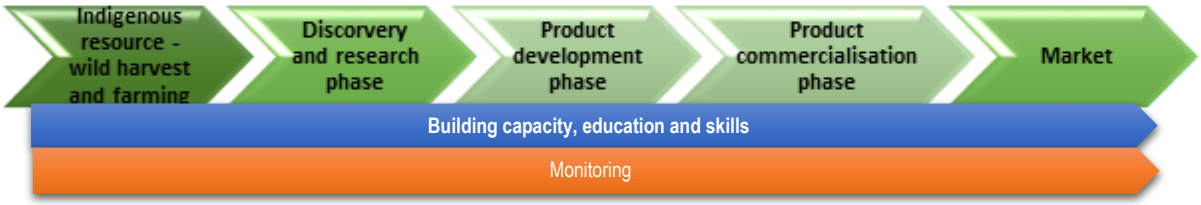


Figure 7: Phases in the biodiversity economy value chain – from resource to market.

The role of the various national departments in the biodiversity economy value chains are shown in Table 1. While the NBES is developed and led by the Department of Environmental Affairs, successful implementation of the strategy will require the inputs, cooperation and collaboration with a number of national government departments. Collaboration between all the stakeholders in the biodiversity economy will be through national forums, where an implementation framework and its action plans for the biodiversity economies will be monitored.

Table 1: Proposed national department roles in developing and growing the biodiversity economy value chains

National Departments	Sustainable resource management and conservation	Discovery and research	Product development	Product commercialisation	Market	Building capacity, education and skills	Monitoring
Agriculture, Forestry and Fisheries	√	√		√	√	√	
Energy	√						
Environmental Affairs	√ Regulatory role	√ Coordinating / Regulatory	√ Coordinating/Regulatory	√ Regulatory Role	√ Coordinating / Regulatory	√ Coordinating	√ Cootrdinating
Rural Development and Land Reform	√					√	
Water and sanitation	√						
Economic Development		√	√	√	√		
National Treasury	√	√	√		√	√	
Public Enterprises		√		√	√		
Small Business Development		√	√	√	√	√	
South African Revenue Services		√	√		√		
Trade and Industry		√	√	√	√		
Basic Education						√	
Health		√	√				

Higher education and training						√	
Labour	√	√	√			√	
Women	√	√	√			√	
Planning, Monitoring and Environmental	√	√	√		√	√	√
Statistics South Africa	√	√	√		√	√	√
Science and Technology	√	√	√		√	√	
Public Works			√				

The role of DEA in the National Biodiversity Economy Strategy is to:

- Coordinate role players and stakeholders
- Provide leadership and strategic direction
- Ensure implementation of the strategy remains within the mandate of the DEA to ensure sustainable use and conservation of biodiversity
- Enforce regulations while supporting other mechanism to encourage participation in the biodiversity economy
- Monitor progress in implementation of the strategy.

As indicated by efforts such as the AU *Guidelines for the Coordinated Implementation of the Nagoya Protocol on ABS,* African states need to coordinate their BioTrade efforts to protect indigenous biodiversity and the products which emanate from the sustainable use of these indigenous biological/ genetic resources

3.7 ENABLING POLICY AND LEGISLATIVE ENVIRONMENT

South Africa has, since November 1995, been a signatory to the Convention on Biological Diversity. This convention aims for:

↳ the conservation of biological diversity;
↳ the sustainable use of biological resources; and
↳ fair and equitable sharing of benefits arising from the use of genetic resources.

Apart from the CBD providing the 12 principles for conservation including the 14 Addis Ababa principles for sustainable use of biological resources, the CBD has adopted the *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity (Nagoya Protocol)* for the fair and equitable sharing of the benefits derived from the utilisation of genetic resources. The Nagoya Protocol include fair and equitable sharing of benefits by appropriate access to

genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

South Africa in their commitment to the CBD, has adopted and is currently implementing the Nagoya Protocol, largely through current environmental legislation and regulations (Fig 7).

South Africa has also been a signatory to CITES since July 1975[35]. This convention serves the purpose of regulating the trade of endangered species to conserve them. Species are differentiated into the various Appendices of the threat which determines the type and level of trade which is allowed. CITES has a crucial role to play in the biodiversity economy of South Africa as it dictates, through the gazetted CITES list regulations, the trade in a number of our biological resources in the wildlife and bioprospecting sub-sectors.

The South African Government has recently raised the notion of South Africa becoming a developmental state as a means for achieving economic transformation. This is also consistent with South Africa's Constitution, which, in paragraph 195, states that "Public administration must be development-oriented." A development state is one where government which has the capacity to deploy its authority, credibility and legitimacy in a binding manner to design and implement development policies and programmes for promoting development, growth and transformation, as well as for expanding human capabilities. A Developmental State takes as its overall socio-economic goals, the long-term growth and structural transformation of the economy.

A Developmental State approach, as envisaged in South Africa's National Development Plan, is an approach where Government and the private sector forms partnerships that support various segments of the biodiversity sector to develop, grow and transform.

Key issues which have been highlighted for consideration in the environmental and biodiversity sector are (1) implementation of sustainable development, (2) developing appropriate responses to the challenges of climate change and (3) to pursue and explore the concept of green jobs and promote the green economy[36]. These issues have implications for social and economic development. The environmental sector and the NBES is underpinned by strong policy and legislative instruments (Fig. 6).

The 1997 White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity[9] provides the vision and principles for the sustainable use of the countries resources, where human and the natural environment coexist in harmony and people derive lasting benefits from the conservation and sustainable use of the country's rich biodiversity. This vision is legitimised in three pieces of legislation, the National Environmental

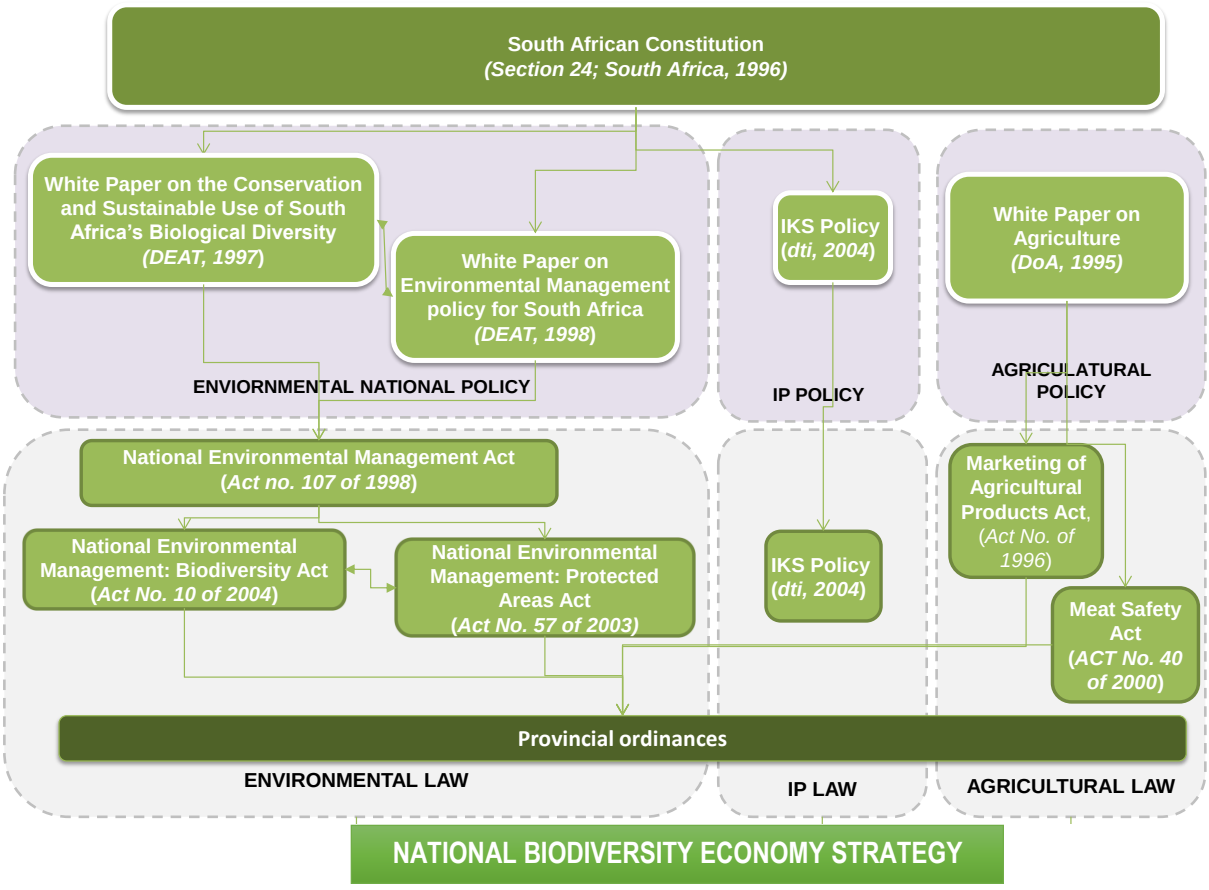
[35] Kidd, M. (2011). Environmental Law. JUTA, Cape Town, South Africa.

[36] DEA (2009). Strategic Plan for the Environmental Sector, 2009-2014. [Online]. Available: https://www.environment.gov.za/sites/default/files/strategic_plans/2009_2014.pdf

Management Act (Act no 107 of 1998)[37] (NEMA), the National Environment Management: Biodiversity Act (Act no. 10 of 2004)[1] (NEMBA) and the National Environmental Management: Protected Areas Act (Act no. 57 of 2003)[38] (NEMPAA) Implementation of this policy instruments fall within the ambit of DEA and provide the regulatory framework for implementation of NBES. The NEMBA is the chief policy instrument regulating the bioprospecting sub-sector of the biodiversity economy, while the wildlife sub-sector is regulated through NEMPAA; NEMBA and a suite of agricultural legislation.

Other relevant policies and legislation administered by various departments in the country, will also guide the growth and development of the biodiversity economy. These policies and legislation included those which regulate:

- intellectual property rights in the country (Intellectual Property Law Amendment Act (2013);
- national quality standards such as SABS (Standards Act 2008 (Act No. 8 of 2008); and
- small and medium enterprise (Companies Act 2008 (Act No. 71 of 2008; Consumer Protection Act 2008 (Act No. 68 of 2008); International Trade Administration Act 2002 (Act No.71 of 2002))



[37] South Africa (1998). National Environmental Management Act (Act no 107 of 1998). Government Printer: Pretoria.
[38] South Africa (2003). National Environmental Management: Protected Areas Act (Act no. 57 of 2003). Government Printer: Pretoria.

Figure 8: Key national policy and legislative environmental underpinning the NBES

The implementation of NBES will not be hampered by the lack of policies or legislation, but rather by the regulation of its implementation. A means of facilitating implementation and the regulation thereof will be crucial in the implementation process of NBES.

Furthermore, South Africa has recently adopted a BioEconomy Strategy[39] to create a world-class biotechnological system of innovation, including biotechnological activities and processes. Being a South African strategy coordinated by the Department of Science and Technology, it has a strong focus on research, development and innovation in the use of natural resources, namely new and innovative technology and products development using natural resources. This strategy differs from the NBES, in that NBES addresses two key economic sub-sectors, the indigenous wildlife and bioprospecting NBES, as well as both the current markets and new innovative markets. The BioEconomy Strategy thus can contribute significantly to addressing certain objectives of the NBES.

[39] Department of Science and Technology (2013). The Bio-economy Strategy. Department of Science and Technology, Pretoria.

4 NBES - A RURAL TRANSFORMATION PATHWAY

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

NBES provides the opportunity to redistribute South Africa's indigenous biological/ genetic resources in an equitable manner, across various income categories and settlement areas of the country. Development and growth of the biodiversity economy focuses on markets and activities which address national socio-economic imperatives, especially in the rural areas. Working collaboratively and cooperatively, NBES provides the opportunity to develop the rural economy of the country and address environmental and rural development imperatives of government.

The NBES has priority nodes in the country for biodiversity economy transformation, referred to as BET nodes. These nodes have been prioritised based on the following criteria:

- Resource availability: developing wildlife and bioprospecting cultivation, harvesting and production enterprises and community initiatives in the BET nodes will require access to indigenous biological/genetic resources.
- Manufacturing potential: development of wildlife and bioprospecting manufacturing enterprises in the BET nodes will require facilities, infrastructure and access to markets.
- National priorities: South Africa has already prioritised Presidential Poverty Nodes for government action, while the Department of Rural Development and Land Reform has prioritised areas in the country for interventions. These and other national priorities were utilised to prioritise the BET nodes of South Africa.
- Land tenure: land tenure is a crucial determinant of the success of enterprise development in the BET nodes.
- Projects prioritised by Municipalities and Provincial Government: local and provincial government have local economic development (LED) imperatives which can guide and contribute to successful biodiversity economy transformation in the prioritised nodes.
- Availability of supporting infrastructure of which are crucial to enterprise development.
- Potential of participation of rural communities: there is a need to develop the poorer, rural areas of the country. Hence, prioritising the BET nodes in the areas shown in Figure 9 below ensures that development can occur close to these communities and maximise participation of the rural poor sector of the country.

Based on the criteria, Figure 9 shows the 18 BET nodes which are the focus of the National Biodiversity Economy Strategy.

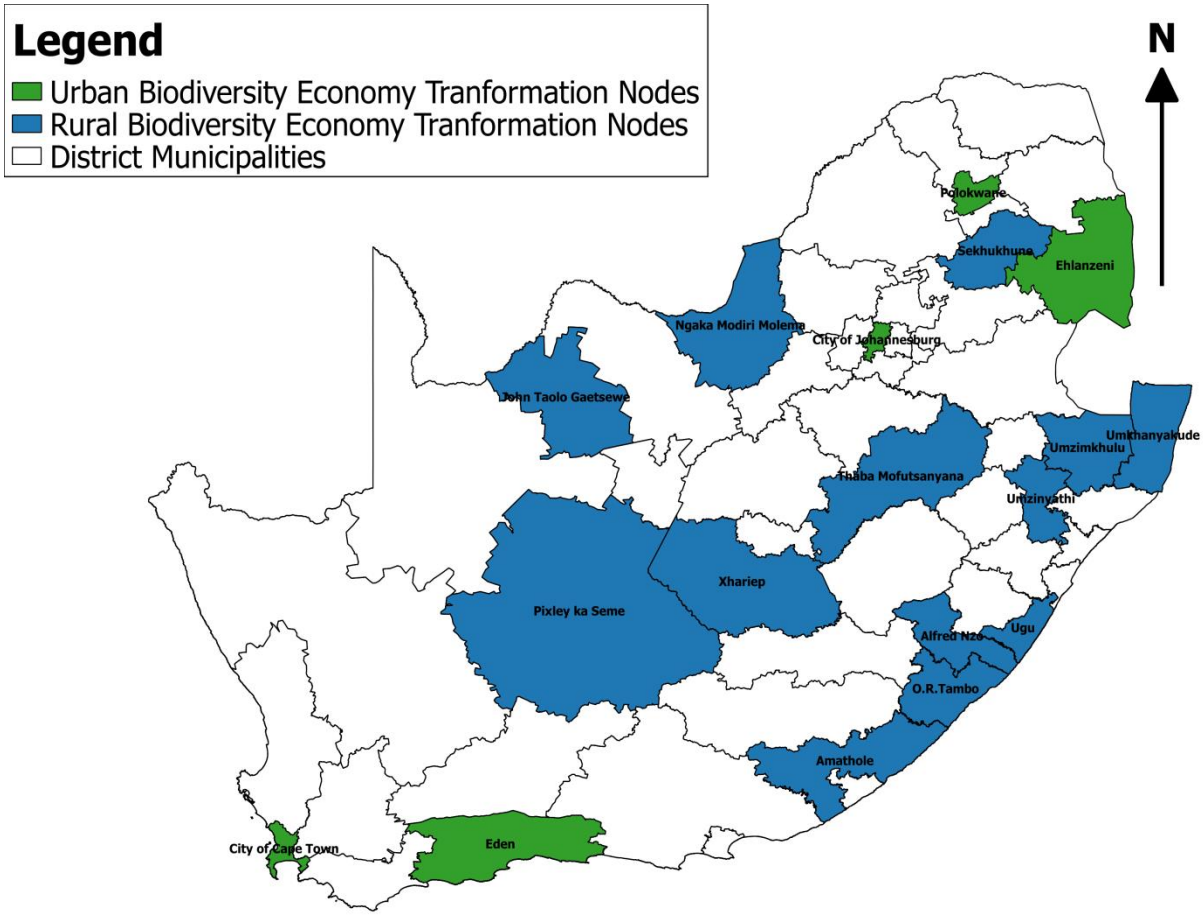


Figure 9: Map of the Biodiversity Economy Transformation (BET) nodes which are the transformation priorities of the NBES

The BET nodes comprise of 13 rural and 5 urban districts across the nine provinces of the country. Within these rural and urban districts, communities have been prioritised for development of small and medium size enterprises and community-based initiatives which sustainably use indigenous biological and/or genetic resources. In these BET nodes, the community priority areas will be reviewed annually, for additional prioritisation during the implementation of NBES.

Table 2: District and communities prioritised by NBES for development small and medium size local businesses

18 BIODIVERSITY ECONOMY TRANSFORMATION NODES			
RURAL BIODIVERSITY ECONOMY TRANSFORMATION NODES			
Province	**District**	**Communities**	**Priority**
Eastern Cape (3 Nodes)	Alfred Nzo Amathole OR Tambo	Mbizana Peddie Mhlontlo	Medium-Long term
KwaZulu-Natal (4 Nodes)	Ugu Umkhanyakude UmzinyathiSisonke	uMzumbe, Vulamehlo, Umdoni, Hibiscus Coast, Ezinqoleni, Umuziwabantu Umhlabuyalinga and Tembe Umzimkhulu	Medium-Long term
Free-State (2 Node)	Xhariep Thabo Mofutsanyane	Letsemeng Mohokare Batlokwa	Medium-Long term
Limpopo (1 Node)	Sekhukhune	Potlake Ephraim Mohale	Medium-Long term
Northern Cape (2 Node)	John Taolo Gaetsewe Pixley ka Seme	Kuruman Douglas	Medium-Long term
North-West (1 Node)	Ngaka Modiri Molema	Baralong Ba Ratlou	Medium-Long term
URBAN BIODIVERSITY ECONOMY TRANSFORMATION NODES			
Gauteng (1 Node)	City of Johannesburg	Alexandra	Medium-Long term
Limpopo (1 Node)	Capricorn	Polokwane	Medium-Long term
Western Cape (2 Node)	City of Cape Town Eden	Khayelitsha-Mfuleni Keurbooms / Avontuur	Medium-Long term
Mpumalanga (1 Node)	Ehlanzeni	Andover Lamington Injaka And Sisonke Mlambongwane Community Mjindindini EMcakwini/Babango Bushbuckridge	Medium-Long term

5 TRANSFORMATIVE ENABLING INTERVENTIONS FOR THE WILDLIFE SUB-SECTOR

5.1 OPPORTUNITIES AND CHALLENGES IDENTIFIED THROUGH A CONSULTATIVE PROCESS

South Africa has a rich history of hunting across all race groups. In the early history of South Africa, hunting played a very important role as subsistence (meat) and for wildlife products (skins). By 1964, hunting pressure had reduced wildlife numbers to significantly low levels. However, in the last 50 years, hunting and its associated activities have created a demand for game meat, wildlife products and eco-tourism. This in turn has created an increase in the economic value, of game farming which has increased to an estimated 20 million animals (with 16 million of these animals on private land and the remaining 4 million on state-owned land[40] measured by total expenditure of approximately R10,000 million in 2013.

While economic development is very difficult to achieve in economic sectors with saturated growth potential, it is far easier to achieve in sectors with high growth potential. Evidence from various wildlife value chain segments have shown that growth can be expected to increase by between 6-14 % per year. In the case of the wildlife sub-sector this may result in a market size that may vary between R17 and R37 billion by year 2030.

The challenge for the wildlife industry is to maximise these growth potentials through dealing with the economic development constraints that exist.

To this end, South Africa has many enabling resources: land, knowledge, biodiversity, access to markets and financial resources. Our challenge is that we need to mobilise these resources to achieve the industry development and growth potential.

The wildlife industry has many strengths and opportunities associated with it. This stems from the fact that it has the characteristics of an agricultural sector, a conservation sector and an eco-tourism sector. Thus, the industry plays a very important role in ensuring food security, conserving biodiversity and in securing ecological infrastructure and ecosystem services.

[40] 2014 Absa Agricultural Outlook Report

The table below lists a summary of the strengths, weaknesses, opportunities and threats listed by the wildlife industry during intensive stakeholder consultation sessions during 2014.

Strengths	Weaknesses
- South Africa has a rich, internationally renowned wildlife biodiversity - Wildlife market is well established with physical infrastructure in place - Well established and professional institutions - Access to international markets - South Africa has willing Government and Private sector partners - International demand for wildlife products exceeds the local supply – i.e. there are untapped markets - Large expanse of land available - The industry support conservation, food security and development of the eco-tourism sector	- Sector lacks identity by legislation (agriculture versus environment) - Regulatory inefficiencies (in regulations and in capacity to implement them) - Low budgeted priority and insufficient investment in the sector - Low levels of entrepreneurship and insufficient support (i.e. mentorship, financial) for new entrants - Barriers to entry (e.g. monopolies, low recognition of value of sector, access to markets) - Lack of access by potential entrepreneurs to land, information, technology and other resources - Limited transformation in the sector - Education, skills and capacity limitations in the wildlife sub-sector - Limited research institutions involved in the wildlife sub-sector - Insufficient communication between industry and Government - Various economic transformation barriers: capital costs, lack of mentorship or transfer of skills - Increasing international hunting tourism: Lack of Government support to industry in marketing SA internationally - Inadequate planning data and threats - Limited research institutions involved in the wildlife sector - Inadequate monitoring and enforcement.
Opportunities	**Threats**
- Establishment of new institutional infrastructure - Establishment of innovative partnerships and funding models - Share and transfer skills and knowledge in the sector - Enter the large “untapped” local and international market - Create job opportunities across the value chains - Fast-track new entrants and entrepreneurs into the wildlife sub-sector to transform the sector - Involve marginalised communities and individuals - Institutionalise the wildlife sub-sector into the broader biodiversity activities of the country (i.e. inclusion of wildlife in conservation agencies) - Large economic transformation potential - Large job creation potential - Increased land given over to biodiversity conservation	- Risk of unsustainable use of species - Risk of losing early-mover advantage in the International Market - Risk of other countries exploiting SA biodiversity benefits - Risk of under-recovery of resource rents - Socio-political risk of not achieving economic transformation - Risk of loss of skills and institutional memory - Land tenure - Risk of unintended consequences as a result of growing market e.g. demand for a resource may lead to unsustainable and illegal market for species - Risk of not growing the sector’s capacity and skills - Risk of hybridisation of species due to market activities - Risk to local beneficiation - Inadequate ethics, monitoring and enforcement - Poor public perception resulting from canned hunting - The translocation of species could result in competition with indigenous species - Unregulated translocations pose a serious biosecurity risk to both game farmers and livestock breeders.

	- **The estimates for potential future growth of the industry may create expectations among communities that are too high.**

5.2 TRANSFORMATIVE ENABLING INTERVENTIONS

This section lists 10 Transformative Enabling Interventions for the Wildlife industry, which is instrumental for the successful implementation of the NBES.

There is a logical order to these actions. However, within this logical flow there are short term (3-5 year); medium term (5-8 years) and long term (8-14 years) intermediate objectives that need to be achieved. The rest of this section discusses these Transformative Enabling Interventions and their intermediate objectives.

5.2.1 Transformative Enabling Intervention 1 – Lead collective ownership of NBES

5.2.1.1 Problem statement

Although DEA is the ultimately responsible for leading the NBES initiative, NBES is foremost a government-led implementation strategy for an industry consisting of various government departments, public entities, private sector investors and communities.

Thus, although DEA is responsible for the NBES strategy, NBES needs to create a platform for partnership between these role players. This platform is required because all these roles players have both individual and shared risks and responsibilities. Such an ownership platform would ensure an appropriate cascading of responsibilities for enabling objectives, and would also ensure collective accountability for all the role players.

5.2.1.2 Enabling Actions

The existing Wildlife Forum, chaired by DEA, is an appropriate vehicle through which to institutionalise this ownership platform. The Transformative Enabling Interventions relating to the Wildlife Industry within NBES, are therefore envisaged to become the mandate of the Wildlife Forum. This means that this Forum will be constituted to represent all the key role players in the Wildlife Industry value chain. The Forum would be required to function at both National and Provincial levels, and may appoint sub-committees to deal with particular assignments.

In addition to overseeing and monitoring the implementation of NBES, the Wildlife Forum is envisaged to become a form for lobbying, networking and problem solving.

It is recognised however that the current structure of the Wildlife Forum is neither adequate nor sufficient for the purposes expressed above, and enhancements to the Wildlife Forum is required. A particular gap exists through the fact that there is no formal representative body for emerging farmers, especially communities.

Enabling objectives	Enabling Actions	Lead	Support	Timeframe
a) Expand the scope and membership of the Wildlife Forum	• Establish an over-arching national structure representing Government and Wildlife Private Sector • NBES to form the core of the Wildlife Forum (WF) • Within the over-arching national structure, establish an inter-governmental and public entity structure that represents all relevant government departments and public entities • Within the over-arching national structure, establish provincial sub-committees • Review membership of the forum to include all relevant national and provincial departments and entities • Review the Wildlife Forum TOR to extend to providing a platform for innovation in the BE. • Agree on the Wildlife Forum mandate • Establish a research function in the Wildlife Forum • Utilise the forum to facilitate the fast tracking of actions which stimulate industry activities and growth.	DEA	DAFF; DRDLR; The dti; Provincial Conservation Entities; Wildlife Private Sector, SANBI	Short term
b) Facilitate Innovative partnerships	• Include communities in wildlife sub-sector activities (game ownership by communities) • Include multiple stakeholders to develop innovative partnerships	Wildlife Forum	Local and International Wildlife Pvt Sector; Local Communities	Short to medium term
c) Develop a monitoring and evaluation system	• Agree on the strategic goal for the Wildlife sub-sector component of NBES • Agree on prioritised enabling objectives flowing from NBES • Develop a monitoring and evaluation system for measuring NBES implementation progress • Establish/Improve a baseline for better ownership • Review the institutional arrangements required to meet NBES wildlife goals and Transformative Enabling Interventions	Wildlife Forum	DEA; Stats SA	Short to medium term

5.2.2 Transformative Enabling Interventions 2 – Streamlining the Regulatory Environment

5.2.2.1 Problem statement

The Wildlife sub-sector exhibits characteristics of the agricultural, eco-tourism and conservation sectors. This creates governance and regulatory challenges as multiple instruments of law may govern wildlife sub-sector activities. In some cases these instruments may be contradictory, and in other cases these instruments may lead to overly complicated permitting requirements.

Most stakeholders have identified a range of regulatory gaps, inefficiencies and capacity constraints that limit the industry, and these need to be addressed.

At the same time, stakeholders have provided examples of regulatory successes upon which NBES can build, by improving the administration of the regulatory process.

5.2.2.2 Enabling Actions

There is a need to create an enabling legislation and rationalise the regulations to stimulate growth of the wildlife sub-sector. The unlocking of the biodiversity economy requires a regulatory environment that (1) supports economic transformation objectives, (2) promotes development objectives, and (3) ensures environmental sustainability. Streamlining the regulatory environment enables the sector to create, operate, manage, and if necessary, adapt within a context that complies with the rule of law. The regulatory environment should encourage people to set up their wildlife businesses, to try new business ideas and to take on calculated risks, keeping administrative burdens to the minimum required to support public policy and sustainable development.

Regulatory optimisation would include the review of NEMBA; consideration of the wildlife industry as a contributor to agricultural activity; review of the provincial conservation regulations relating to game farming, game translocation and hunting; setting of product standards (e.g. meat classification) to support the industry and protect consumers; and the use of technology to deal with administrative inefficiencies.

During the design of regulatory interventions it is important to consider the potential impact of the regulations on the industry and thus ensure relevance, effectiveness and cost-effectiveness.

Enabling objectives	Enabling Actions	Lead	Support	Timeframe
d) Improve the administration of permitting systems through technology	• Assess the opportunity for rolling out electronic permitting systems (Some provinces are already issuing hunting licences, nationally, through the Post Office, and others have an on-line game translocation permit system. These systems may be rolled out to other provinces.) • Implement a national electronic permitting system. • Harmonising the regulatory environment	DEA	Wildlife forum	Short to medium term
e) Examine and review the current wildlife legislative environment	• Review the national biodiversity legislation to consider development of national biodiversity "trade" legislation which will govern the commercialization of indigenous biological and genetic resources. • Propose new innovative enabling wildlife policy at provincial level (e.g. provincial/parks game donation policy) • Encourage the review of provincial conservation ordinances • Ensure good governance • Make legislative compliance and enforcement, easier and faster • Establish industry friendly and consistent norms and standards (e.g. translocation)	DEA	Wildlife forum Provincial Agencies	Medium term

Enabling objectives	Enabling Actions	Lead	Support	Timeframe
f) **Create an enabling regulatory environment for business**	• Benchmark sector- and region-specific regulations • Set up public-private dialogue on regulatory costs and benefits • Balance regulation and standards with sustainable development objectives • Establish conflict resolution mechanisms • Review and, where appropriate, minimise regulatory requirements (e.g. provincial permits, licenses, procedures, administrative fees) • Introduce a streamline rapid mechanism for wildlife regulation • Improve procedures for wildlife business registration and reporting • Identify interim measures to manage wildlife issues (e.g. translocation permits)	DEA	Wildlife forum	Medium to long term
g) **Encourage incentive-based regulatory environment**	• Enable regulatory compliance through developing and supporting practical standards (e.g. Product certification) • Develop innovative incentives to encourage participation and investment in the wildlife sub-sector property rates incentives • Explore innovative incentive-based regulations which improve access to finance, raising levels of investment, and increasing net exports	DEA	Wildlife Forum DEA, DAFF, THE DTI, DOT, National Treasury	Medium term
h) **Build confidence in the regulatory environment**	• Carry out information campaigns on wildlife regulatory requirements • Make explicit the link between the wildlife regulatory requirements and public services, including business support services • Assist wildlife business in meeting regulatory requirements	Wildlife Forum	Wildlife Private Sector and Local Communities	Short term
i) **Effective enforcement of legislation**	• Prioritise legislative requirements for implementation • Develop resources (i.e. human, financial, procedural) to enforce legislation • Monitor implementation, compliance and enforcement	DEA	Wildlife Forum	Short term

5.2.3 Transformative Enabling Interventions 3 – Optimise Supporting Institutional Arrangements

5.2.3.1 Problem statement

The NBES is fundamentally dependent upon a number of Government Departments for its success. A developmental state poses particular challenges to various spheres of government to do joint planning and operations. Inter-governmental liaison is key to this and therefore NBES envisages a special inter-governmental sub-committee of the Wildlife Forum. To ensure efficiency, this committee would be cross-cutting with the equivalent Bioprospecting Forum. Included in the membership of this committee would be DAFF, DRDLR, DOT, SAPS, SARS/Customs, National Treasury, Statistics South Africa, the Land Bank, and the IDC.

5.2.3.2 Enabling Actions

Effective inter-governmental partnerships are crucial to the success of NBES. Such partnerships in particular can assist in technology transfer, capacity development and can promote investment. Partnerships can be an effective tool to assist new entrants into the wildlife sub-sector.

Enabling objectives	Enabling Actions	Lead	Support	Timeframe
j) **Develop an effective and efficient government supporting institution for the wildlife industry**	• Explore how existing national arrangements can better support the managing of industry requests from the 9 provinces and sufficiently conduct the national government function. • Identify points in the wildlife value chain where State resources can provide maximum leverage • Review and benchmark requirements for an effective and efficient institution • Identify State resources that can be mobilised • Design suitable wildlife institution around these State resources • Develop business cases and MOUs for institutional arrangements. • Identify Government Departments and Public entities with the mandates and resources to support the wildlife economy • Engage these entities in their planning processes to ensure institutional alignment.	Sub-committees on inter-governmental liaison, SANBI, SANParks	DEA and Wildlife Forum	Short to Medium term

5.2.4 Transformative Enabling Interventions 4 – Enhance Research and Development

5.2.4.1 Problem statement

Research and development in the wildlife sub-sector is currently insufficient. Although there are a fair number of academic institutions engaged in research on the sector, and research capacity is available, research budgets are limited and very little new data is collected. More-over research efforts are uncoordinated. Access to research outputs are also limited.

5.2.4.2 Enabling Actions

Official statistics and supporting research are required for quantifying the relevant industry baselines, appropriate target setting and short, medium and long term planning of a variety of intermediate objectives within the NBES. Statistical and other research outputs are required also for quarterly monitoring, answering various policy questions and tracking trends.

The first requirement as part of this Transformative Enabling Intervention is to develop a research strategy for the wildlife sub-sector. The strategy should prioritise research requirements, identify existing research capacity and

new capacity requirements, data and data sources and funding requirements. Furthermore, in the consumptive segment of the wildlife sector, substantive and ongoing research efforts are needed on the sustainability of ecological infrastructure, which could be achieved through a variety of methods and collaborations.

Enabling objectives	Enabling Actions	Lead	Support	Timeframe
k) **Investigate official data sources**	• Engage with Statistics SA on the development of a Wildlife Industry Environmental Economic Account	DEA	Statistic SA Wildlife Forum	Short term
l) **Investigate sustainability of ecological infrastructure**	• Conduct resource assessments of indigenous biodiversity • Non-detriment finding reports from the scientific authority • Habitat suitability assessments • Norms and standards for the management of species. • Certification schemes for sustainable international trade. • Develop knowledge of the extent of harvesting and limits to sustainable extractive use. • Science- and evidence-based management and adaptive management practices for game ranchers in terms of herbivores.	DEA, Scientific Authority, SANBI	Wildlife forum	Short term
m) **Develop a R&D strategy**	• The R&D strategy should identify and prioritise: - R&D requirements, - set baselines, - identify R&D capacity, - propose liaison mechanisms between R&D service providers and set out budgets and R&D funding mechanisms. • The strategy should be consultative and should address both private sector requirements and government requirements (e.g. provincial baseline wildlife market, sustaining and value of wildlife resources, impacts of wildlife businesses, feasibility of new business ventures, potential markets and new products) • Identify research needs for the sector. In the research space there must be private-public interaction/multi-sectoral partnership-ease in access funding	Wildlife Forum	DEA	Short term
n) **Build R&D capacity**	• Encourage tertiary institutions and research councils to build wildlife R&D capacity • Build partnerships with sector aligned departments	DEA	The dti; DST; DoH; Tertiary Institutions	Medium to long term

5.2.5 Transformative Enabling Interventions 5 – Enhancing Education, Skills and Capacity

5.2.5.1 Problem statement

Sufficient education and skills development is fundamental for the growth of any sector. Current education systems, primary and secondary, has limited recognition of the wildlife business – leads too few entrants at tertiary level; limited/small pool of professional capacity within limited skills sets.

5.2.5.2 Enabling Actions

Wildlife business skills centre around attitudes (also referred to as soft skills), such as persistence, networking and self-confidence on the one hand and enabling skills (also referred to as hard skills) on the other hand, including basic start-up knowledge, business planning, financial literacy and managerial skills. Effective education policies and programmes focus on developing these competencies and skills, which are transferable and beneficial in many work contexts. The aim would be not only to strengthen the capacity and desire of more individuals to participate in the wildlife sub-sector, but also to develop a wildlife business sector culture in society.

Enabling objectives	Enabling Actions	Lead	Support	Timeframe
o) Establish an education and training sub-committee within the Wildlife Forum	• Develop a strategic plan for education and training in the Wildlife Industry	DEA	Wildlife Forum	Short Term
p) Wildlife business forms part of the school curriculum	• Review the curriculum to include the wildlife business sector	DEA	DoE – basic and tertiary	Medium term
q) Develop effective training material or sources of training	• Review and benchmark wildlife business training material • Prepare basic wildlife sub-sector business skills educational material • Encourage tailored local material, case studies and role models • Foster interactive and on-line educational tools • Promote experiential and learning- by- doing methodologies • Develop a database of training institutions and courses • Organize information and career fairs, forums and summits on business opportunities, including in specific economic sectors or on specific business models such as micro-franchising	Wildlife Forum	DEA; SETA; DoE; Tertiary institutions; Pvt Sector Training Institutions	Short term
r) Training/ Establish a SETA for the	• Ensure engagement with the Wildlife Private Sector and with entrepreneurs on the establishment of the biodiversity SETA	DEA	Wildlife Forum; SETA	Medium term

biodiversity-biodiversity sector	• Encourage wildlife sub-sector business training for all including communities • Promote wildlife business training networks for all including communities • Establish sector generating body to create relevant material and SETA			

5.2.6 Transformative Enabling Interventions 6 – Fostering and supporting entrepreneurship

5.2.6.1 Problem statement

Any business benefits from elevated levels of entrepreneurship. Entrepreneurship requires resilience from the individual responsible for the business or business unit and is strengthened by improved know-how, technology and innovation. In the Wildlife sub-sector, there is no formal support system for this and every investor has to rely on his/her own resources for this.

5.2.6.2 Enabling Actions

Business, mentorship, technology and innovation are mutually supportive. Technology provides the wildlife sub-sector with new tools to improve the efficiency and productivity of their business, or with new platforms on which to build their ventures. In turn, business fuel technological innovation by developing new or improving existing products, services or processes and ensuring commercialization. In South Africa, both angles are important, taking into account the two-way relationship between technology/innovation and the growth of the wildlife sub-sector. Fostering a wildlife sub-sector culture that positively values business in the biodiversity sector is a key determinant of the success of the framework and it is also a crucial factor to overcome any potential culture of dependency on the State.

Strategic objectives	Transformation enabling interventions	Lead	Supporting	Timeframe
s) Establish a mentorship programme	• Encourage Wildlife Private Sector sponsorship for training and skill development • Develop a formal mentoring programme	DEA, Wildlife Forum	Wildlife Pvt Sector	Short term
t) Build partnerships to develop technologies and new innovations	• Identify joint research activities with clearly designated participants and beneficiaries • Promote CPPPs and mixed public/private structures to diffuse innovation • Develop market friendly university-industry collaboration • Build bridges between public bodies, research institutions, universities and the Wildlife Private Sector	DEA, Wildlife Forum	Tertiary Institutions; Research Parastatals (MRC; CSIR; HSRC etc.) Pvt Wildlife sub-sector	Medium term
u) Support high-technology businesses	• Establish high-technology business incubators, knowledge hubs, especially in the value-adding activities of the wildlife sub-sector value chain	DEA, Wildlife Forum	The dti, DST	Medium to Long term

Strategic objectives	Transformation enabling interventions	Lead	Supporting	Timeframe
within the wildlife sub-sector	• Provide extension services particularly to new entrants into the wildlife sub-sector	DAFF		
v) Increase competitiveness	• Ensure and guarantee product and service quality through certification and rating systems • Ensure service quality through training on standards • Conduct price benchmarking to ensure price competitiveness • Pursue technology and product innovation • Launch business excellence competitions	DEA, Wildlife Forum		Medium term
w) Develop innovative models for new entrants into the wildlife sub-sector	• Targeting established small, medium, large scale wildlife business to support/mentor new entrants • Explore innovative models for new entrants, continuing, already existing wildlife businesses and for those which are establishing new wildlife businesses	DEA, Wildlife forum,	Wildlife Pvt Sector	Medium to long term
x) Food production - entrepreneurship (Wildlife (Game) meat production for food security)	• Explore the established ostrich industry and crocodile industry model to guide new market development such as the game meat production industry. • Market these models to areas of new market potential in the wildlife sub-sector	DEA, Wildlife forum	Wildlife Private Sector	Medium term

5.2.7 Transformative Enabling Interventions 7 – Marketing and public relations

5.2.7.1 Problem statement

Tremendous new market potential exists in the wildlife industry among international hunters, domestic hunters (especially previously disadvantaged individuals) and in the wildlife products markets such as game meat and taxidermy products. South Africa currently does not have a consolidated marketing strategy for promoting, advertising and selling to these markets. Various Wildlife Private Sector industry bodies and role players do have marketing strategies, but these are entirely driven and funded by private investors themselves with little support for government.

5.2.7.2 Enabling Actions

For NBES to be successful, a consolidated marketing and public relations strategy is required to develop and promote a unique South African wildlife industry brand. Marketing and promotion should be targeted at international and domestic markets, and international and domestic government and non-governmental organisations.

An important part of branding is in ensuring a consistent, high quality product that consistently makes South Africa a preferred destination and preferred supplier of wildlife products and services for international markets. To this end, various forms of product and service certification and/or membership may be beneficial, and over-regulation

and bureaucracy need to be limited (e.g. ease of travelling for international hunters). Much can also be done to promote the industry to domestic markets, for local hunters, new game farming entrants and local consumers of wildlife products. The marketing strategy should also consider the full value chain (e.g. marketing taxidermy or tannery products).

It is also important for private investors, communities and government organisations to market the South African wildlife industry together, in partnership and as a national effort. This requires joint marketing strategies, and harmonised marketing budgets and initiatives (e.g. international trade shows). The marketing strategy is ideally accompanied by an advocacy lobby.

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
y) Develop a sector-wide marketing strategy	• Develop a dual international and national marketing strategy identifying target markets, marketing initiatives and budgets. Identify roles for the Wildlife Private Sector and government. • Review and update the strategy annually. • Facilitate business exchange platforms, business portals, fairs, business associations and clubs • Promote development of shooting clubs • Marketing strategy for international market developments Industry to provide annual marketing opportunity submissions for the wildlife sub-sector	DEA, Wildlife Forum,	The dti; DAFF; Wildlife Pvt Sector	Short term Medium term Medium term Medium term
z) Develop a wildlife branding strategy	• Identify measures to develop and improve the brand and image of the SA Wildlife industry through certification, registration and membership programmes. • Develop Game meat branding tools	DEA, Wildlife Forum	The dti; DAFF; Wildlife Pvt Sector	Short term
aa) Improve access to markets	• Develop market access mechanisms, such as sponsorships to international trade shows, hosting of local trade shows, sponsored market intelligence studies. • Adopt a Team-South Africa approach – branding and marketing of products as a collective sector	DEA, Wildlife Forum	The dti	Medium term

5.2.8 Transformative Enabling Interventions 8 - Improving access to finance, raising levels of investment and increasing net exports

5.2.8.1 Problem statement

Inadequate access to finance remains a major obstacle for many aspiring sectors, particularly in developing countries. As recent studies confirm, the global financing gap for micro, small and medium sized enterprises

remains enormous. The single largest commercial challenge for the biodiversity economy is to attract investment. A number of objectives need to be achieved to create a healthy investment climate (after OECD 2006)[41].

In turn, investment becomes more attractive if market opportunities are promoted. International hunting has declined since 2008 and exports of wildlife products are limited (game meat) in spite of the fact that demand outstrips our current supply. Much can be done to remedy this situation.

5.2.8.2 Enabling Actions

Businesses of all types and sizes require a variety of financial services, including facilities for making deposits and payments as well as accessing credit, equity and guarantees.

The greatest impact on South African transformation is likely to be generated through three key channels namely: trade, investment and development assistance. Foreign investment and development assistance are factors that go hand-in-hand in aiding economic growth within a country. Foreign investment in itself is a factor that helps to stimulate an economy, and often external input into an economy improves existing infrastructure, skill sets, and employment. Development assistance acts as a more direct input into the country, and is often sourced from developed countries with the intention to spur the development of the South African economy for myriad reasons.

Measures need to be pursued to lower the costs of investment. These are the costs of doing business in, other words, the costs of complying with the policy, legal and regulatory frameworks in which the wildlife private sector operates, including the extra costs created by inadequate infrastructure, crime and excessive bureaucracy. High costs of doing business reduce profits and discourage investment. They also create disincentives for firms in the informal sector to formalise, with a resultant loss of benefits to the economy. Similarly, measures need to be pursued to reduce risks. This involves policy and institutional reforms that improve the stability of the investment climate and the predictability, real and perceived, of returns on investment.

Furthermore, exports play an important role in any economy as it influences the level of economic growth, employment and the balance of payments. Growth in exports can create employment. Traditionally export jobs have been in manufacturing and service sector industries which are both fundamental in the respective biodiversity economy value chains, and therefore can become an important source of full-time employment, especially in rural regions.

BRICS countries are playing an increasingly prominent role in global trade, investment, finance and governance. The BRICS have already become a major force in the global economic arena, with China and India set to overhaul the United States as the world's largest economies. The relationship between Africa and BRICS has the potential

[41] Promoting private investment for development: The role of ODA – © OECD 2006

to become a key source of economic transformation and sustainable development in the continent. As mentioned, one of the greatest impacts on South African transformation is likely to be generated through trade. Foreign trade will have a significant positive effect on economic transformation and growth within South Africa (United Nations, 2013). International trade is an important source of foreign income for South Africa, and boosts the domestic market by enabling imports of goods and improving domestic economic activity. Foreign trade alone creates employment and allows for infrastructure development as access to foreign resources and technologies are improved. This helps to forge strategic partnerships between countries and acts as a catalyst for international trade, ultimately benefiting both countries if managed correctly, with South Africa experiencing a significant step forward in terms of economic transformation.

Enabling objectives	Enabling Actions	Lead	Support	Timeframe
bb) Promote funding for innovation	• Engage National Treasury to develop a business case for wildlife sub-sector investment • Develop a potential funding matrix comprising government and private sector funders and funding mechanisms • Establish a Wildlife Forum sub-committee on investment promotion, comprising representatives of funding organisations, and provide this sub-committee with an appropriate mandate • Wildlife Forum sub-committee develops suitable funding mechanisms to promote investment • Identify easy access to funding for entrant farmers (NDP special purpose vehicle/ Land Bank/SBV) • Explore funding mechanisms (10*10 funding) (include provincial treasury departments)	DEA; Wildlife Forum; Wildlife Forum Sub-committee	National Treasury; Provincial Treasury; Wildlife Pvt Sector; Tertiary and Research Institutions	Short to Medium Term
cc) Value added exports	• Promote branding of South African products • Develop fiscal and other incentives to promote value-added exports, and reduction of unnecessary tariff barriers • Develop quality standards for wildlife sub-sector supply chains	Wildlife Forum	National Treasury; SARS	Long term
dd) Incentive- based participation/support	• Develop innovative incentives to encourage participation and investment in the wildlife sub-sector tax incentives; green point; offsets	DEA	Wildlife Forum DEA, DAFF, THE DTI, DOT, National Treasury	Medium term

5.2.9 Transformative Enabling Interventions 9 – An economic transformation initiative

5.2.9.1 Problem statement

The Economic Report on Africa 2011[42] (UNECA, 2011), published in March 2011 by the African Union Commission and the United Nations Economic Commission for Africa, presents a comprehensive and authoritative overview of the purpose and benefits of economic transformation. At the core of economic transformation is a structural transformation of the economy which may be defined as the change, over time, in the sectoral composition of output (or GDP) and that of the sectoral pattern of the employment of labour as an economy develops. When such transformation takes place, it occurs over a long-term period (i.e. 5-10 years).

A country is regarded as having achieved transformation when the respective GDP shares of the major economic sectors and subsectors ensures that the real per capita income of an economy increases over the long term; and that the shares of industry and its manufacturing and services subsectors rises.

For many African countries this means a transition from an agriculture-dominated economy, towards a more industrialised, and manufacturing-based economy. In South Africa, economic transformation has an additional meaning. Economic transformation in South Africa is also defined, by the Broad-Based Black Economic Empowerment Act (2003) (BBBEE Act), as the empowerment of African, Indian and Coloured people, as well as women, workers, the youth, people with disabilities and people living in rural areas through: increasing the number of black people that manage, own and control enterprises and productive assets; facilitating ownership and management of enterprises and productive assets by communities, workers, cooperatives and other collective enterprises; human-resource and skills development; achieving equitable representation in all occupational categories and levels in the workforce; preferential procurement; and investment in enterprises that are owned or managed by black people.

Economic transformation will however not be successful if the preceding 8 Transformative Enabling Interventions are not met. In addition, NBES envisages the development of a revolutionary economic transformation strategy for the Wildlife Industry.

5.2.9.2 Enabling Actions

This strategy is based on rehabilitating vast areas of degraded land in communal and State ownership and thus to provide access to the enabling resources for new entrepreneurs in the wildlife sub-sector. These are crucial inputs

[42] Economic Report on Africa 2011 - Governing development in Africa - the role of the state in economic transformation. United Nations Economic Commission for Africa, 2011

into the wildlife business and lack of access to these can completely inhibit the start-up of such business. The particular difficulty with these inputs are that supply is constrained (i.e. in the case of land and water), or knowledge and know-how are of a proprietary nature (i.e. in specialist breeding).

Such a transformation strategy will not only address South Africa's unique transformation targets, but will also energise and stimulate the whole value chain, and thus economic transformation would become an enabler and a driver of growth.

Many opportunities exist here, as identified by various stakeholders. It is clear that innovative land reform business models that seek partnerships and enabling financing mechanisms are important.

Mixed farming and bird hunting are vastly under-utilised opportunities and needs to be explored for wildlife industry development.

Enabling objectives	Detailed actions	Lead	Supporting	Timeframe
ee) Formalise and cost a community wildlife industry development plan	• Identify suitable land through a land cover assessment project • Cost the development of viable farming units • Pilot projects in partnership with existing investors	DEA, Wildlife forum	DRDLR; DAFF; Surveyor General; SANBI	Medium term
ff) Improve access to relevant natural resources	• Promote wildlife industry on mixed farms • Promote bird hunting	Wildlife forum	DAFF	Short term
gg) Develop a BBBEE Scorecard and Charter	• Develop a BBBEE Scorecard for the wildlife industry • Develop a Charter for the Wildlife Industry	DEA	Stats SA	Short term

hh) Explore innovative land reform models	• Develop wildlife-linked land reform models, namely:
	  ◦ Empowerment of community land owners and beneficiaries through Fair Access and Equitable Sharing of benefits arising from wildlife economy.
	  ◦ Expansion of conservation areas through incorporation of community unproductive land and game reserves with a view to stimulating sustainable local economic growth and conservation.
	  ◦ Development and Restoration of the degraded environment and improvement of infrastructure and land use for community benefit and advancement.
	• Align innovative models with (NDP) National Planning Commission
		Wildlife Forum sub-committee NPC	DRDLR; National Planning Commission	Medium term

ii) Development of a national biodiversity transformation fund	• Facilitate development of a transformation fund through legislation • Explore and develop options of a national biodiversity transformation fund	DEA	Wildlife forum	Medium Term

5.2.10 Transformative Enabling Interventions 10: Advocacy for the Wildlife sub-sector

Moreover, various negative socio-cultural perceptions about wildlife sub-sector can act as significant barriers to business creation and can undermine the impact of intervention in support of these businesses.

South Africa has a strong focus on conservation of genetic and biological resources, regulated through a number of environmental policies and legislation. Although these instruments outline the need for sustainable use of genetic and biological resources in the country, this is little understanding in the country of the value and opportunity of sustainably utilising genetic and biological resources to grow markets and the economy of the country.

5.2.10.1 Enabling Actions

The wildlife sub-sector needs to address these negative perceptions to allow for growth and increased participation in the sector. Similarly, addressing negative perceptions of the sector will facilitate investment in the sector, ease access to sources of funding and encourage participation within the sector.

Advocacy of the sustainable use of genetic and biological resources is needed to support the growth of local and international markets and to encourage participation of communities in these markets. Sustainable use of genetic and biological resources to develop small and medium size local businesses can make a significant contribution to sustainable livelihoods and rural development of the country.

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
jj) Development of innovative avenues for advocacy of the wildlife sub-sector	• Explore the use of conferences as coordinating platforms for wildlife industry advocacy • Incorporate wildlife products for trade to officers in all RSA embassies in the world. Industry must update these embassies about products with market demand. • Wildlife sub-sector promoted as a tourism activity in Dept. of Tourism initiatives nationally and internationally.	DEA	Department of Tourism/SA Tourism	
kk) Consider various public relation initiatives	• Launch outreach and awareness campaigns at national, regional and local levels in collaboration with all stakeholders. • Utilise the media and spaces for dialogue, speeches, addresses and reports to communicate support for wildlife business. • Disseminate information about the wildlife sub-sector, including its impact on the economy. • Publicly celebrate role models through awards and other initiatives. • Involve wildlife sub-sector in policy dialogue processes to sensitize government and vice versa. • Develop a wildlife communication strategy	DEA, Wildlife Forum		Medium term

II) Lobbying and Advocacy work to harness national and international efforts to support the implementation of the Biodiversity Economy	• Establish a network to support the implementation of the Biodiversity Economy	Wildlife Forum	DEA	Short term

6 TRANSFORMATIVE ENABLING INTERVENTIONS FOR THE BIOPROSPECTING SUB-SECTOR

6.1 OPPORTUNITIES AND CHALLENGES IDENTIFIED THROUGH A CONSULTATIVE PROCESS

While economic development is very difficult to achieve in sectors with saturated growth potential, it is far easier to achieve in sectors with high growth potential. This is particularly true in the bioprospecting sub-sector of the biodiversity economy which is largely under-developed and has demonstrated abundant potential for growth in future. The biotrade market in South Africa is currently estimated to be growing at 6 % per annum, but international markets have shown this sector has the potential to grow by 20 % per annum.

In the year 2013, the size of the biotrade market in the country, measured as total output, was estimated to be R580 million. Indications are that this market size may vary between R 1,000 and R 5,000 million by year 2030. The opportunity for transformation of the biotrade sub-sector lies between the business-as-usual 6% per annum growth of the market to reach R1, 000 million in 2030 and the 20 % per annum growth market to reach R5, 000 million in 14 years.

The challenge for the sub-sector is to maximise these growth potentials through dealing with the economic development constraints that may exist.

Strengths	Weaknesses
- South Africa has a rich, internationally renowned biodiversity and diversity of habitats - Access to international markets - South Africa has willing Government and Private sector partners - Manufacturing infrastructure available to expand the market - Established research institutions to support the market - Rich traditional knowledge linked to our biodiversity - Land suitable for expansion of cultivation - Local demand for traditional products - Legislation in place to govern bioprospecting - Success stories to guide future bioprospecting efforts (i.e. rooibos, *Aloe ferox*)	- Low budgeted priority and insufficient investment in the sector - Low levels of entrepreneurship and insufficient support (i.e. mentorship, financial) for new entrants - Barriers to entry (e.g. low recognition of value of sector, access to markets) - Lack of access by potential entrepreneurs to land, information, technology and other resources - Very limited transformation across the value-chain i.e. marginalised individuals limited to low value resource segment of the value chain - Education, skills and capacity limitations in the bioprospecting sub-sector - Established institutions are resource-specific (e.g. associations, forums) - Poor knowledge of resources with bioprospecting potential and sustainable harvesting practices - Limited capacity to monitor and enforce regulations - No central information-sharing hub of resources with bioprospecting potential, research, markets and current activities in the sector - Many bioprospecting resources are found on communal land – limits entrepreneurial access to funding - Bulk of resources exported as raw products – limited value addition done in South Africa
Opportunities	**Threats**
- Establishment of new institutional infrastructure - Establishment of innovative partnerships and funding models - Share and transfer skills and knowledge in the sector - Enter the large “untapped” local and international market - Create job opportunities across the value chains - Fast-track new entrants and entrepreneurs into the bioprospecting sub-sector to transform the sector - Involve marginalised communities and individuals - Institutionalise the bioprospecting sub-sector into the broader biodiversity activities into the country (i.e. inclusion of bioprospecting in conservation agencies) - Utilise the existing traditional knowledge to develop new products - Utilise the bioprospecting market to increase profile of the value of biodiversity	- Risk of unsustainable use of species - Risk of losing early-mover advantage in the International Market - Risk of other countries exploiting SA biodiversity benefits - Risk of under-recovery of resource rents - Socio-political risk of not achieving economic transformation - Risk of loss of skills and institutional memory - Land tenure - Risk of unintended consequences as a result of growing market eg. demand for a resource may lead to unsustainable and illegal market for species - Risk of not growing the sector’s capacity and skills - Risk to local and community beneficiation and negative impacts on livelihoods - Inadequate ethics, monitoring and enforcement

6.2 TRANSFORMATIVE ENABLING INTERVENTIONS (TEIS)

This section lists 10 Transformative Enabling Interventions for the Bioprospecting industry, which is instrumental for the successful implementation of the NBES over the 14-year period.

There is a logical order to these actions. However, within this logical flow there are short term (3-5 year); medium term (5-8 years) and long term (8-14 years) intermediate objectives that need to be achieved. The rest of this section discusses these Transformative Enabling Interventions and their intermediate objectives.

6.2.1 Transformative Enabling Interventions 1 – Streamlining the Regulatory Environment

6.2.1.1 Problem statement

The Bioprospecting market is regulated through conservation legislation and the sector has agricultural characteristics. This creates governance and regulatory challenges as conservation legislation have the purpose of regulating the protection and sustainable use of biodiversity and ecological infrastructure in the country. This legislation is not designed to regulate trade and economic activity in the bioprospecting sub-sector.

Stakeholders are concerned regarding the application of these regulatory instruments to the bioprospecting industry, as current conservation and sustainable use regulations can be a constraint to the growth of the bioprospecting market in the country.

6.2.1.2 Enabling Actions and prioritisations

There is a need to create enabling legislation and rationalise the regulations to stimulate growth of the bioprospecting sub-sector. The unlocking of the biodiversity economy requires a regulatory environment that (1) supports economic transformation objectives, (2) promotes development objectives, and (3) ensures environmental sustainability. Streamlining the regulatory environment enables the sector to create, operate, manage, and if necessary, adapt within a context that complies with the rule of law. The regulatory environment should encourage people to establish bioprospecting businesses, to develop new business ideas and to take calculated risks, while keeping the administrative burden to the minimum.

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
a) Examine and review the bioprospecting legislative environment	• Review and align the national biodiversity legislation where appropriate; consider national biodiversity "trade" legislation • Encourage the review of provincial conservation ordnances • Propose new innovative enabling bioprospecting policy at provincial level	DEA	Provincial Conservation Agencies	Medium to Long term
b) Create an enabling regulatory environment for bioprospecting/biotrade business	• Benchmark sector- and region-specific regulations • Set up public-private dialogue on regulatory costs and benefits • Balance regulation and standards with sustainable development objectives • Establish conflict resolution mechanisms • Review and, where appropriate, minimise (where possible) regulatory requirements (e.g. permits, licenses, procedures, administrative fees) • Introduce transparent procedures and fast-track mechanisms for bioprospecting regulation • Improve procedures for bioprospecting business registration and reporting	DEA	Bioprospecting Forum	Medium to long term

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
	• Harmonising the bioprospecting regulatory and policy environment • Ensure legislative compliance enforcement is easier and faster			
c) **Encourage incentive-based regulatory environment**	• Enable regulatory compliance through developing and supporting practical standards (e.g. Product certification) • Ensure good governance • Clarify 'property' issues • Develop innovative incentives to encourage participation in the bioprospecting sub-sector (i.e. tax rebates, property rates incentives)	DEA	Bioprospecting Forum; Communities; DEA; DAFF; The dti; DOT; National Treasury	Medium term
d) **Build confidence in the regulatory environment**	• Carry out information campaigns on bioprospecting regulatory requirements • Make explicit, the link between the bioprospecting regulatory requirements and public services, including business support services • Assist bioprospecting business in meeting regulatory requirements • Develop a professional case for the BE (e.g. SACNASP accreditation within the sector)	DEA;	Bioprospecting Forum; SACNASP	Short term
e) **Transparent implementation and enforcement of legislation**	• Prioritise legislative requirements for implementation • Develop resources (i.e. human, financial, procedural.) to enforce legislation • Monitor implementation, compliance and enforcement	DEA	Bioprospecting Forum	Medium term
f) **Improve the administration of permitting systems through technology**	• Assess the opportunity for an electronic permitting system for the bioprospecting sub-sector. • Implement a national electronic permitting sector • Harmonise the regulatory environment	DEA	Bioprospecting Forum	Medium term

6.2.2 Transformative Enabling Interventions 2 –Optimise Supporting Institutional Arrangements

6.2.2.1 Problem statement

The development and structuring of the most appropriate supporting institution for management of sustainable use of genetic and biological resources in the country is crucial for the formulation and implementation of NBES. A number of factors determine what an appropriate institution is in a given context. For example, stage of development; financial and human resources needed and available, and traditional norms.

The bioprospecting sub-sector institutional arrangements are currently not optimised due to a lack of collaboration between stakeholders, both private and public, along the bioprospecting value chain and several gaps which exist in the institution. Fora which do exist in the bioprospecting sub-sector are generally focused on a specific indigenous genetic and biological resource or species. There is a lack of a central bioprospecting forum and no formal representative body for emerging participants in the sector.

There is also fragmentation and poor communication across the sub-sector which often results in duplication of efforts. The body of bioprospecting knowledge and information in South Africa remains largely 'hidden' from the sector, public and markets due to the lack of a central hub to store and manage this knowledge and information.

In addition, the bioprospecting sub-sector is fundamentally dependent upon a number of government departments for its success.

6.2.2.2 Enabling Actions

Fundamental to this strategy, an objective of NBES is the establishment of a National Compound Library (NCL) to store and share genetic and biological resource material which can or has been explored for their potential commercialisation. The NCL has the potential to also act as a central hub for data and information required by the bioprospecting sub-sector.

State resources provide a tremendous opportunity for leveraging the biodiversity economy. Numerous examples exist, for instance, the establishment of a National Compounds facility would enable quick investment access, a solution to benefit-sharing agreement issues and an effective permitting system.

There is a need to strengthen and coordinate institutions having conflict and overlapping of roles and activities, in terms of their mandates, functions and activities in respect of biodiversity/bioprospecting economy-related issues.

Effective partnerships are also crucial throughout the bioprospecting economy. Innovative partnerships in particular can assist in technology transfer, capacity development and can promote private investment. Partnerships can be an effective tool to assist new entrants into the bioprospecting sub-sector.

Such arrangements will have to be equipped with the national system of innovation performance to assure development of the biodiversity/bioprospecting economy. Institutional collaboration should also be encouraged at all government departments.

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
g) Establish a National repository of biodiversity extracts and compounds	• Develop a business case for a National Compound Library • Conduct a feasibility study for NCL • Review competitiveness and competence of current compound libraries • Explore the option of Economic Development Zone based libraries operating at regional levels	DEA	DST; Bioprospecting Pvt Sector; Communities	Medium to Long term
h) Create means to link TK associated with use of IBR	• Develop a library which links Traditional Knowledge associated with IBR use • Develop best practices/standards for TK identification (as an interim measure until the national recordal system is launched and accessible to all stakeholders).	DEA	DST	Medium to Long term

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
i) **Develop an effective and efficient supporting institution for the bioprospecting economy**	• Establish a Bioprospecting Forum (BF) • Establish a Bioprospecting Trading Advisory Committee as a sub-group of the BF • Identify points in the bioprospecting value chain where State resources can provide maximum leverage • Review and benchmark requirements for an effective and efficient institution • Identify State resources that can be mobilised • Design a suitable bioprospecting institution around these State resources • Develop business cases and MOUs for developing new institutional mechanisms	DEA	Bioprospecting Forum	Short to medium term
j) **Develop inter-governmental partnerships**	• Identify Government Departments and Public entities with the mandates and resources to support the bioprospecting economy • Engage these entities in their planning processes to ensure institutional alignment • Establish an inter-governmental forum (Can be a group of the Bioprospecting forum)	DEA	DAFF, DRDLR, The dti; DST; DoHE; Provincial Conservation Agencies; Bioprospecting Pvt Sector; Communities	Short term
k) **Provide mechanisms for innovative partnerships**	• Identify and standardise partnership mechanisms for the bioprospecting sub-sector • Engage with entities in the development of the partnership mechanisms • Support implementation of partnership mechanisms (where possible)	DEA	DAFF, DRDLR, The dti; DST; DoHE; Provincial Conservation Agencies; Bioprospecting Pvt Sector; Communities	Short term
l) **BBBEE Scorecard and Charter**	• Develop a BBBEE Scorecard and Charter for the bioprospecting industry	DEA	Stats SA	Short term
m) **Measure performance of the institution**	• Agree on the strategic goal for the Bioprospecting sub-sector of NBES • Agree on prioritised transformation enabling interventions flowing from NBES • Finalise the monitoring system to measure progress in implementation of NBES • Establish baselines for the various indicators of the monitoring system • Engage with Statistics SA on the development of a Bioprospecting Industry Environmental Economic Account • Develop bioprospecting business ethics code of practice	DEA,	Stats SA	Short term to medium term

6.2.3 Transformative Enabling Interventions 3 – Enhancing Education, Skills and Capacity

6.2.3.1 Problem statement

Sufficient education and skills development is fundamental to the growth of any sector. Current education system primary and secondary has limited recognition of the bioprospecting business and market. This has led to few

entrants at tertiary level; a limited bioprospecting professional capacity in the country with a focussed, limited skills sets.

6.2.3.2 Enabling Actions

Bioprospecting business skills centre need to be established around attitudes (also referred to as soft skills), such as persistence, networking and self-confidence on the one hand and enabling skills (also referred to as hard skills) on the other hand, including basic start-up knowledge, business planning, financial literacy and managerial skills.

Effective education policies and programmes which focus on developing bioprospecting competencies and skills, which are transferable and beneficial in many work contexts, need to be developed and implemented. The aim would not only be to strengthen the desire of more individuals to participate in the bioprospecting sub-sector, but also to develop a bioprospecting business culture in society.

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
n) **Establish an education and training sub-committee in the forum**	• Develop a strategic plan for education and training in the Bioprospecting sub-sector	DEA	DoHE	Short term
o) **Bioprospecting business forms part of the curriculum**	• Review the curriculum to include the bioprospecting business sector • Establish a biodiversity SETA	DEA	DoBE and DoHE	Medium to long term
p) **Develop effective training material or sources of training**	• Review and benchmark bioprospecting business training material • Prepare basic bioprospecting sub-sector business skills educational material • Encourage tailored local material, case studies and role models • Foster interactive and on-line educational tools • Promote experiential and learning- by- doing methodologies • Develop a database of training institutions and courses	DEA	DoBE and DoHE	Short term
q) **Training/Establish a biodiversity SETA**	• Ensure engagement with the private sector and with entrepreneurs • Encourage bioprospecting sub-sector business training for all, including communities • Promote bioprospecting business training networks for all, including communities • Establish Continuous Development Programme for the sector • Establish sector generating body to create relevant material and SETA.	DEA	SETA	Medium term
r) **Develop and encourage education and training partnerships**	• Partner with private sector sponsorship for training and skill development. (encourages learner-ship) • Link up business with entrepreneurship education networks • Develop mentoring programmes.	DEA	Bioprospecting Pvt Sector;	Short term

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
s) Explore means of Professional recognition	• Establish database of experts in the industry (researchers, bio-processors, product developers) • Awards for top performers in the industry	DEA and forum		Short term

6.2.4 Transformative Enabling Interventions 4 - Facilitating Know-how, Technology Exchange and Innovation

6.2.4.1 Problem statement

Any business benefits from improved, know-how, technology and innovation. In the bioprospecting sub-sector, there is no formal support system for this and every investor has to rely on his/her own resources for this.

6.2.4.2 Enabling Actions

Business, technology and innovation are mutually supportive. Technology provides the bioprospecting sub-sector with new tools to improve the efficiency and productivity of their business, or with new platforms on which to build their ventures. In turn, businesses fuel technological innovation by developing new or improving existing products, services or processes and ensuring commercialisation. In South Africa, both angles are important, taking into account the two-way relationship between technology/innovation and the growth of the bioprospecting sub-sector.

The National Recordal System (NRS) being developed by the DST for capturing the Traditional Knowledge (TK) and Indigenous Knowledge (IK) is essential within the bioprospecting industry, to facilitate the technology exchange and innovation. Hence, TK and IK should be part of the modern knowledge economy. The NRS further enables communities holding the knowledge to secure and transform it into economic and social benefits, while at the same time saving it for future generations.

Strategic objectives	Transformation enabling interventions	Lead	Supporting	Timeframe
o) Support greater diffusion of ICTs (information communication technology) to the bioprospecting sub-sector	• Review ICT applicable to the bioprospecting sub-sector • Launch awareness and capacity-building campaigns on ICT use • Stimulate the introduction of ICT into the bioprospecting business • Support the development of on-line and mobile market information platforms • Provide training on ICTs to target groups such as women and rural business entrepreneurs	DEA	Pvt Sector including ICT sector	Medium term
p) Promote inter-firm networks that help spread	• Provide assistance for standardization and quality certification of technologies to networks of local businesses (including social and environmental standards)	DEA	Bioprospecting Pvt Sector	Short term

Strategic objectives	Transformation enabling interventions	Lead	Supporting	Timeframe
Technology and innovation	• Promote business linkages through supplier development			
q) Build partnerships to develop technologies and new innovations	• Identify joint research activities with clearly designated participants and beneficiaries • Promote CPPPs and mixed public/private structures to diffuse innovation • Develop market friendly university-industry collaboration • Build bridges between public bodies, research institutions, universities and the private sector	DEA	Tertiary Institutions; Research Parastatals; Bioprospecting Pvt Sector	Medium term
r) Support high-tech businesses within the bioprospecting sub-sector	• Establish high-tech business incubators, knowledge hubs and science parks, especially in the value-adding activities of the bioprospecting sub-sector value chain • Facilitate start-ups that commercialize innovation • Build networks in knowledge intensive segments of the bioprospecting sub-sector with leading science experts and academics • Give researchers and innovators streamlined access to cost-effective patent protection	DEA	The dti; Tertiary Institutions; Research Parastatals; Bioprospecting Pvt Sector	Medium to long term
s) Improve access to relevant technologies	• Set up equipment access support programmes • Develop raw material (cultivation access support programmes • Set up and make available appropriate extension services	DAFF-DEA	Communities; Bioprospecting Pvt Sector	Medium to Long term

6.2.5 Transformative Enabling Interventions 5 - Improving access to finance and raising levels of investment

6.2.5.1 Problem statement

Inadequate access to finance remains a major obstacle for many aspiring sectors, particularly in developing countries. As recent studies confirm, the global financing gap for micro, small and medium sized enterprises remains enormous. The single largest commercial challenge for the biodiversity economy is to attract investment. A number of objectives need to be achieved to create a healthy investment climate (after OECD 2006)[43].

The bioprospecting sub-sector has not been identified as a valuable contributor to South African economy. Also the products are not marketed due to funding constraints. That is, the correct use of state funding is not happening. Instead, co-operatives are set up to access funding rather than to create a sustainable industry.

[43] Promoting private investment for development: The Role of ODA – © OECD 2006

6.2.5.2 Enabling Actions

Businesses of all types and sizes require a variety of financial services, including facilities for making deposits and payments as well as accessing credit, equity and guarantees.

The greatest impact on South African transformation is likely to be generated through three key channels, these being trade, investment and development assistance. Foreign investment and development assistance are factors that go hand-in-hand in aiding economic growth within a country. Foreign investment in itself is a factor that helps to stimulate an economy, and often external input into an economy improves existing infrastructure, skill sets, and employment. Development assistance acts as a more direct input into the country, and is often sourced from developed countries with the intention to spur the development of the South African economy for myriad reasons.

Measures need to be pursued to lower the costs of investment. These are the costs of doing business in other words, the costs of complying with the policy, legal and regulatory frameworks in which the private sector operates, including the extra costs created by inadequate infrastructure, crime and excessive bureaucracy. High costs of doing business reduce profits and discourage investment. They also create disincentives for firms in the informal sector to formalise, with a resultant loss of benefits to the economy. Similarly, measures need to be pursued to reduce risks**.** This involves policy and institutional reforms that improve the stability of the investment climate and the predictability, real and perceived, of returns on investment.

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
t) Improve access to relevant financial services on appropriate terms	• Develop public credit guarantee schemes • Stimulate the creation of private mutual guarantees • Promote FDI (Financially Disadvantaged Individuals) in financial services, supply chain finance ("factoring") and leasing • Facilitate collateral-free loan screening mechanisms • Improve partnerships with the banking sector	DEA	The dti; Banking Sector; National Treasury	Short to Medium-term
u) Promote funding for innovation	• Engagement National Treasury to develop a business case for bioprospecting sub-sector investment • Develop a potential funding matrix comprising government and private sector funders and funding mechanisms • Provide incentives to attract venture capital investors and business "angels" • Encourage equity and "risk capital" financing modalities • Provide performance-based loans and incentives for innovation and green growth • Facilitate the use of intellectual property as collateral • Explore funding mechanisms (10*10)	DEA	National Treasury; Provincial Treasury; Bioprospecting Pvt Sector; Tertiary and Research institutions	Medium term

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
v) Build the capacity of the financial sector to serve emerging enterprises	• Establish a national financial charter for the biodiversity sector • Promote public-private sector "access to finance partnerships" for specific groups (rural, women, BBBEE) • Provide capacity-building grants and technical assistance to expand lending activities (e.g. financial service provision through post offices and other "proximity lenders"; use of new banking technologies to reach rural areas) • Financial institutions should be included for raising awareness to understand sector	DEA	National Treasury; Banking and Financial sectors	Medium term
w) Provide financial literacy training to BBBEE, rural and start-up business	• Set up financial and accounting literacy training • Undertake appropriate supervision of financial products offered to social and micro-entrepreneurs • Expand private credit bureau and public credit registry coverage	DEA	National Treasury; Tertiary Institutions	Short term
x) Create an investor-friendly environment	• Reduce the costs of doing business • Reduce investment risks	DEA	The dti; National Treasury	Short term
y) Create an environment that promotes transformation of informal bioprospecting activities to formal sector activities	• Create incentives for informal bioprospecting market sector transformation • Explore policy of investment [capital] decisions that allow for investment in the entire value chain to investment	DEA	Communities; Information Bioprospecting Market Players	Medium term
z) Establish a national biodiversity transformation fund	• Explore options of a biodiversity transformation fund	DEA		Medium term

6.2.6 Transformative Enabling Interventions 6 - Increasing net exports and improving access to markets

6.2.6.1 Problem statement

Transformation in the bioprospecting value chain is currently inequitable. Economically challenged participants in the sector are largely limited to the resource segment of the market, limiting the benefits realised by these individuals.

The size of the resource segment (wild harvesting and cultivation) of the commercial bioprospecting market is estimated at between 2,000 and 2,800 tons per year at a weighted average price of approximately R50/kg. This equates to an estimated wild harvesting and cultivation revenue of between R60 million and R70 million per year. This suggests that the economically challenged participants in the sector currently have access to only 6 % of the

actual bioprospecting market in the country. There is significant potential for significantly higher involvement of these participants in this market, in all the market segments.

Tappers of biological resource tend to move in and out of the industry depending on factors such as the current demand, price and availability of the resources (i.e. aloe sap) at any given time; and the prevailing climatic conditions. As a result, the maintenance of indirect benefit sharing scheme where benefit flows back to the initial (and direct) producers is quite difficult because currently there is no incentive for the tappers to formalize their trade or keep any form of record of their contribution to the total production in a region.

6.2.6.2 Enabling Actions

Exports play an important role in any economy as it influences the level of economic growth, employment and the balance of payments. Growth in exports can create employment. Traditionally export jobs have been in manufacturing and service sector industries which are both fundamental in the respective biodiversity economy value chains, and therefore can become an important source of full-time employment, especially in rural regions.

The bioprospecting markets (domestic and industrial) are driven by retail markets both domestically and internationally. Retail sales in the retail category "Pharmaceuticals and medical goods, cosmetics and Toiletries" (as defined by Stats SA) has grown by 6 % over the period April 2012-April 2013 and this strong growth is consistent with the general retail industry growth trend over the past 5 years (StatsSA, year). The global economic performance of the industry over the past 10 years has been very impressive, with a growth average of 20 % per year for the period 2001-2011. This is in spite of the global recession of 2008/9. The USA, Europe and Japan dominate these global consumer world markets. This is likely due to the large consumer market demands in these countries. The largest exporters of bioprospecting products are China, India, the USA, Germany and Argentina. These countries, together, produce 45 % of the bio-traded products globally. South Africa is the 26th largest exporter of these products globally and contributes 0.4 % to global production.

Despite the traditional informal bioprospecting market being widely recognised in South Africa, with 72 % of South African's from all income levels utilising these products, the traditional medicine, cosmetic and natural product industry continues to escape large-scale commercialisation. There is a demand for these products which means that the success of entry of new commercialised equivalents of traditional products should not be limited by consumer demand.

The marketing and consumer awareness programs are needed to help differentiate the bioprospecting industry and increase the industry competitiveness in the marketplace. These include registration of trademarks.

The marketing and consumer value of the mark will differentiate raw materials or products on the basis of its "organic" status.

Fair and equitable trade is a valuable initiative that could stop short of drawing communities in as primary participants in the value chain. That is, as the consumer value and consumer demand for the resource increase, the new mark will also increase. This will naturally incentivise traditional tappers, land owners and biotraders to formally participate in the bioprospecting value chain.

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
aa) Increase competitiveness of the bioprospecting/ biotrade sector	• Ensure and guarantee product and service quality through certification and rating systems • Ensure service quality through training and standards • Conduct price benchmarking to ensure price competitiveness • Pursue technology and product innovation • Launch business excellence competitions	DEA	The dti;	Medium term
bb) Value added exports	• Adopt value adding strategies to ensure high value added component in exported products • Promote branding of South African products • Develop fiscal and other incentives to promote value-added exports, and reduction of unnecessary tariff barriers	DEA	National Treasury; SARS	Short term
cc) Promote and market products internationally	• Support new international marketing and advertising campaigns • Use existing international marketing and advertising campaigns to promote biodiversity • Develop a marketing strategy.	DEA	DoT; The dti	Medium term
dd) Identify potential markets both local and international	• Conduct a market analysis – cradle to grave markets • Conduct awareness campaigns with businesses on markets •	DEA	The dti	Short-term
ee) Improve access to markets (domestic and international market)	• Explore interventions to expand and service domestic markets. • Develop market access mechanisms, such as sponsorships to international trade shows, hosting of local trade shows, sponsored market intelligence studies • Adopt a Team-SA approach • Develop marketing platform for the sector • Mainstreaming traditional medicines (i.e. complimentary to other medicines) into formal markets • Foster collaboration and cooperation between traditional and commercial market to expand the sector • Reduce regulatory hurdles to new product entry into the market • Develop a consumer product development programme • Develop a database of value added natural ingredients.	DEA	DoT; The dti; Communities; Informal Market; Pvt Sector	Medium term
ff) Explore potential for centralised facility for quality	• Explore facilities for testing of raw materials, processed items and products.	DEA	DoT; The dti; Communities; Informal	Medium to long term

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
assurance/ toxicity testing/allergen testing facilities	• Ensure testing is aligned to international standards. • Explore existing facilities to conduct this function. • Establish standards for quality, toxicity/allergen for a resource (minimum to extensive standards)		Market; Pvt Sector	
gg) Standardise branding of products	• Investigate standardising/branding of products for potential markets *"e.g. Brand South Africa"*	SANS/SABS	DEA	Short to medium term

6.2.7 Transformative Enabling Interventions 7 - Promoting Participation and Awareness

6.2.7.1 Problem statement

Negative socio-cultural perceptions about bioprospecting sub-sector can act as significant barriers to business creation and can undermine the impact of intervention in support of these businesses. The impact of regulatory reforms in support of bioprospecting sub-sector or to facilitate access to finance will be less than optimal if large sections of the population do not consider this sector as a viable and rewarding business option.

Participation in the bioprospecting and biodiversity sector should include a wide range of groups such as relevant government departments, researchers, land owners, traditional knowledge holders, NGO's, harvesters. However, this is not the case. Currently there is a lack of participation of key role players (including community involvement) within the process of bioprospecting. The traditional knowledge and all it entails further limits participation within the industry.

6.2.7.2 Enabling Actions

Fostering a bioprospecting sub-sector culture that positively values business in the biodiversity sector is a key determinant of the success of the framework and it is also a crucial factor to overcome the culture of dependency.

Bioprospecting stakeholder forums, with particular attention to securing the participation of harvesters/tappers are essential so that they have a voice in planning and management of bioprospecting and biodiversity industry. These forums will also serve as a platform to raise issues and problems related to the industry.

Communities/tappers of the biological resources need to be empowered on sustainable measures to be considered when harvesting/cultivating indigenous resources to ensure sustainable growth of the resource.

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
hh) Highlight the value of bioprospecting sub-sector to society and address negative cultural biases	• Launch outreach and awareness campaigns at national, regional and local levels in collaboration with all stakeholders • Utilise the media and spaces for dialogue, speeches, addresses and reports to communicate support for bioprospecting business • Disseminate information about the bioprospecting sub-sector, including its impact on the economy • Publicly celebrate role models through awards and other initiatives • Involve bioprospecting sub-sector in policy dialogue processes to sensitise government and vice versa • Develop a bioprospecting communication strategy	DEA	Media; Communities; Pvt Sector	Short term
ii) Investigate sustainability of ecological infrastructure	• Conduct resource assessments of indigenous biodiversity • Non-detriment finding reports from the scientific authority • Habitat suitability assessments	DEA, Scientific Authority	Bioprospecting forum	Short term
jj) Raise awareness about bioprospecting opportunities	• Advertise business opportunities linked to national sustainable development strategies, and related incentive schemes • Organise information and career fairs, forums and summits on business opportunities, including in specific economic sectors or on specific business models such as micro-franchising	DEA	The dti	Short term
kk) Stimulate private sector-led awareness initiatives and strengthen networks among bioprospecting businesses	• Support private sector-led awareness campaigns • Facilitate business exchange platforms, business portals, fairs, business associations and clubs • Expand bioprospecting forum to be more inclusive of the bioprospecting sub-sector	DEA	Bioprospecting Pvt Sector	Short term

6.2.8 Transformative Enabling Interventions 8 – Enhance Research and Development

6.2.8.1 Problem statement

Research and Development (R&D) is limited to a few institutions in the country or only focuses on specific segments of the market.

Academics are also protective of their research knowledge and this further limits the access to this research to the only few selected institutions.

6.2.8.2 Enabling Actions

Growth of the bioprospecting/biotrade sector of the country is fundamentally linked to a strong R&D focus to the sector. The sector requires future research and development of resources which are currently being utilised in the market, but also to expand this market through opportunities offered by new genetic and biological resource

utilisation and product development. The entire bioprospecting/biotrade value chain could benefit from a strong and growing R&D sector in the country. Furthermore, in a sector directly dependent on biodiversity, substantive and ongoing research efforts are needed on the sustainability of ecological infrastructure, which could be achieved through a variety of methods and collaborations.

Enabling objectives	Enabling Actions	Lead	Supporting	Timeframe
ll) **Encourage R&D on all value chain market segments**	• Support R&D focussed on: - provincial baseline bioprospecting markets, - the sustaining and value of bioprospecting resources, - the impacts of bioprospecting businesses, - the feasibility of new business ventures, - the potential markets and new products • Encourage research on new aromatics (Action Plan) • Advocate the development of a research agenda of untapped Bioprospecting sub-sectors.	DEA	Research institutions	Medium term
mm) **Investigate sustainability of ecological infrastructure**	• Conduct resource assessments of indigenous biodiversity • Non-detriment finding reports from the scientific authority • Habitat suitability assessments • Norms and standards for the management of species. • Certification schemes for sustainable international trade. • Develop knowledge of the extent of harvesting and limits to sustainable extractive use.	DEA, Scientific Authority, SANBI	Bioprospecting forum	Short term
nn) **Build R&D capacity**	• Encourage tertiary institutions and research councils to build R&D capacity. • Build partnerships with sector aligned departments • Develop research capacity at the NGO level and community level.	DEA	The dti; DST; DoHE; Tertiary Institutions; Research Institutions; NGOs	Medium term
oo) **Develop a National Compound Library (NCL)**	• Develop a National Compound Library (see (g) above) • Develop a policy framework for accessing the NCL • Encourage focused product development research	DEA		Medium to Long Term
pp) **Encourage collaborative research**	• Develop models for collaborative research (i.e. standards, toxicology, stability) • Explore mechanisms for academia to provide research services industry.	DEA	Tertiary and Research Institutions; Pvt Sector	Short to medium term

6.2.9 Transformative Enabling Interventions 9 - An economic transformation initiative

6.2.9.1 Problem statement

An economically transformed bioprospecting sub-sector is one which has inclusive economic opportunities, reflected by a sector which is equitable - equitable access to resource, equitable and fair process and procedures and equitable in distribution of resources (i.e. business, human, financial, indigenous species, land, water.) in the market.

There are currently a number of challenges with transformation of the bioprospecting sub-sector. Inadequate access to resources, water, land, electricity, sanitation and biodiversity are major obstacles for many new entrepreneurs in the bioprospecting sub-sector. These are crucial inputs into the bioprospecting business and lack of access to these can inhibit the start-up of such businesses. The particular difficulty with these inputs are that supply is constrained (i.e. in the case of land and water), or knowledge and know-how are of a proprietary nature (i.e. in specialist breeding of plants).

Cultivation within communities can be difficult due to high international standards and market requirements, this can limit the growth of the bioprospecting/biotrade markets in the country and thus needs to be address in the NBES.

Economic transformation of the bioprospecting/biotrade sector will however not be successful if the NBES Transformative Enabling Interventions are not met.

6.2.9.2 Enabling Actions

Access to resources is a fundamental input into bioprospecting value chain. Providing access to genetic and biological resources must be through the development of innovative resource models to support economic transformation. These models should include:

- an online system providing information about abundance and availability of resources for bioprospecting activities (linked to the permitting application system).
- an online permitting system for efficient access to resource by national, regional and international traders.

Innovative models for bioprospecting markets on community land and land reform initiatives must be developed and implemented.

Enabling objectives	Detailed actions	Lead	Supporting	Timeframe
qq) Improve access to relevant natural resources	• Develop land and water availability identification mechanisms for the bioprospecting sub-sector • Set up a liaison function with the resource sector departments	DEA	DWS; DRDLR; DAFF	Medium term
rr) Explore innovative land reform models	• Develop bioprospecting-linked land reform models • Align innovative models with National Planning Commission (NDP)	DEA	DRDLR; National Planning Commission	Medium term
ss) Build business capacity/entrepreneurship for marginalised communities and traditional knowledge holders who are engaging in business.	• Develop private sector mentorship programme • Conduct business training	DEA	Pvt Training Institutions; DAFF	Medium to long term
tt) Introduce state-sponsored cultivation of bio-resources destined for the biodiversity economy.	• Determine what should be grown, how much and where, and find sponsors. Initiate mass cultivation.	DEA, SANBI	Bioprospecting Forum	Short to Medium term
uu) Examine and review customary law and procedures for resource access by communities.	• Develop innovative models that facilitate sustainable resource extraction by the poor.	DEA, SANBI, DRDLR	Bioprospecting Forum	Short to Medium term

6.2.10 Transformative Enabling Interventions 10 – Advocate the value of biodiversity in the bioprospecting/biotrade sector

6.2.10.1 Problem statement

Thousands of species are under threat from overuse, loss of habitat and environmental pollution. The loss of biodiversity in particular genetic resources and medicinal plants threatens large number of goods and services that sustains the livelihoods of people.

Biodiversity degradation is caused by human activities such as high human population growth and density, land tenure system, deforestation, inappropriate resource use, poor economic policy, market failure, and unplanned urbanization, among others.

6.2.10.2 Enabling Actions

The land or resource tenure system determines the long-term investment in biodiversity conservation and its sustainable use. Therefore, it is essential to advocate the value of biodiversity because biological resources are regarded as the pillars upon which civilisations are built.

Enabling objectives	Enabling Actions	Roles	Supporting	Timeframe
vv) Mainstreaming of biodiversity as a means of addressing the biodiversity and ecosystem service goals.	• Highlighting the value of bioprospecting as a tool for biodiversity conservation and sustainable management • Promote the extent to which bioprospecting contribute to human development	DEA	Public	Medium term

APPENDIX 1: PERFORMANCE-BASED MONITORING FRAMEWORK AND INDICATORS

Performance-based monitoring is a powerful management tool that can be used to help decision-makers track progress and demonstrate the impact of a policy, strategy, programme or project. Where traditional monitoring frameworks designed to answer the ”did we do it” question, the performance-based framework is designed to also address the “so what if we did it” question of implementing a policy, strategy, programme or project.

Performance-based monitoring differs from traditional implementation-focused monitoring in that it moves beyond an emphasis on inputs (i.e. financial contributions and human resources used) and outputs (i.e. events organised, people trained, people employed) to a greater focus on outcomes (i.e. increase in wildlife and bioprospecting businesses) and impacts (% growth of the Biodiversity Economy annually) of the strategy. It provides feedback on the actual outcomes and goals and through continuous collecting and analysing of information, itcompares how well the strategy is being implemented against expected results. A monitoring system designed to provide feedback with respect to outcomes and consequences of actions can guide future interventions.

Performance-based monitoring usually makes use of four types of indicators; input, output, outcome and impact indicators (see Fig 10). Figure 10 shows the performance-based management pyramid, which has the logic chain of activities resulting in outputs, these resulting in outcomes being achieved and finally impacts. For example, achieving the outcomes of more biodiversity economy businesses in South Africa, increased levels of access to financial and business services must occur, and contribute to, the intended final impact of 10 % growth annual of the Biodiversity Economy in South Africa. The distinction between outcomes and impacts can be relative, and depends on the stated objectives of a policy or strategy (The Presidency, 2014).

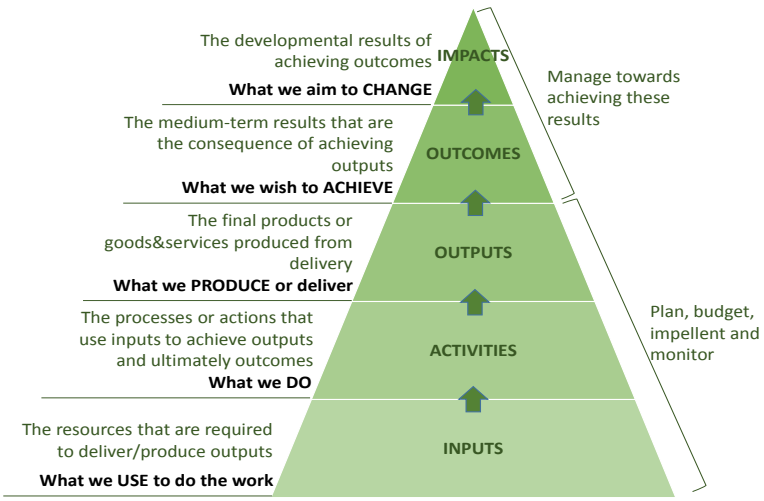
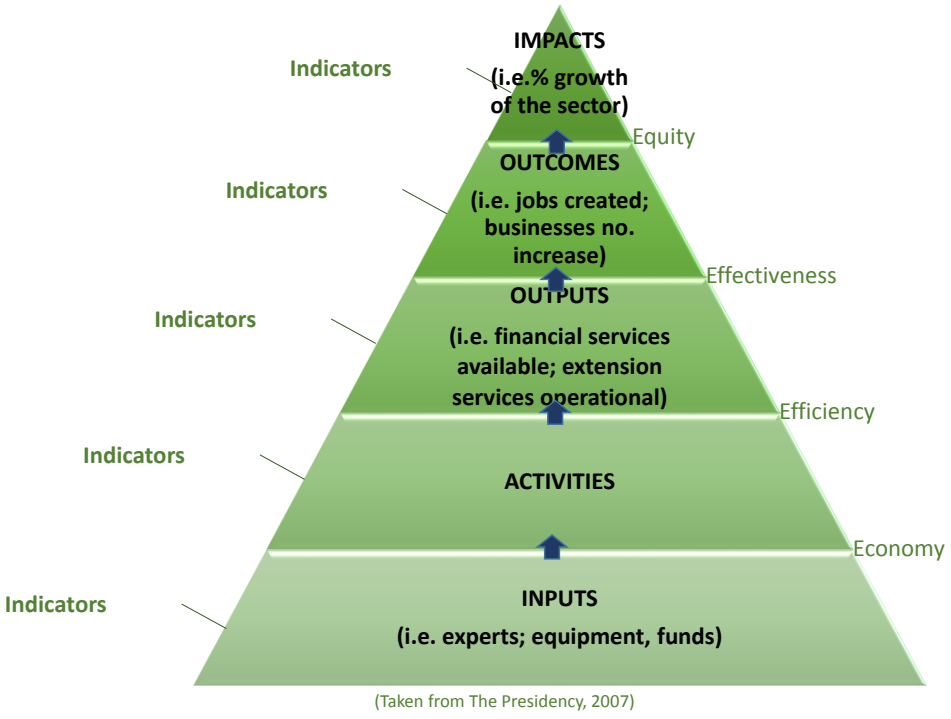


Figure 10: The performance-based management pyramid (taken from The Presidency, 2011)

Any implementation evaluation is required to consider indicators of input, output, outcome and impacts to understand if the NBES is having the required impacts as designed or if there are important links in the causal pathway that are not being realised (uptake, behaviour change, adoption, delivery of inputs.) (The Presidency, 2014). Monitoring of the implementation of the NBES should thus include a range of indicators, including economic, efficiency, effectiveness and equity indicators (Figure 11). These types of indicators are utilised at each level of performance monitoring, namely:

- **Economy indicators:** report specific inputs, usually financial
- **Efficiency indicators:** explore how productively inputs are translated into outputs- usually measured by an input:output ratio or an output:input ratio.
- **Effectiveness indicators:** explore the extent to which the outputs achieve the desired outcomes - changes in effectiveness indicators are only likely to take place over a period of years
- **Equity indicators:** explore whether services are being provided impartially, fairly and equitably



(Taken from The Presidency, 2007)

Figure 11: Monitoring of NBES should include a range of indicators, including economic, efficiency, effectiveness and equity indicators.

Thus, the implementation of monitoring should report the effectiveness of NBES (does it work?), the efficiency of resources (value for money) and adaptability – indicating when and how to modify the strategy and its interventions.

By measuring performance-based indicators on a regular basis decision-makers can determine whether the NBES is on track, off track, or even doing better than expected against the targets set for each Transformative Enabling

Interventions in the monitoring framework. This provides an opportunity to make adjustments, correct course, and gain valuable experience and knowledge of implementation of a policy, strategy, programme or project[44].

The monitoring Framework is the hierarchical model which structures and links programme goals, Transformative Enabling Interventions and indicators in a logical manner. The Framework provides the 'logic' of the monitoring system in that it links indicators to specific Transformative Enabling Interventions and ensures that Transformative Enabling Interventions address the specific need of the programme goal.

NBES Performance Monitoring Framework and Indicators

The implementation monitoring system for NBES has to report, at a high level, the impacts of the strategy against its intended goal. With the goals of the strategy being *by 2030, the South African biodiversity economy will achieve an average annualised GDP growth rate of 10% per annum.*

A number of higher impact level indicators, which reflected the impacts of NBES, will need to be monitored, including:

- Changes in ecosystem functioning, and changes in the conservation status of biodiversity utilised or impacted by the NBES.
- % (in R) contribution of the wildlife and bioprospecting/biotrade sector to GDP: DEA will need to engage Stats SA to determine the means of reporting this indicator on an annual basis.
- % transformation of the wildlife and bioprospecting/biotrade sector: DEA will explore means of reporting this indicator. Sub-indicators that will contribute to this indicator, include:
    - % of business (from farms to value added business) which are new entrants into the wildlife and bioprospecting/biotrade sector;
    - % of wildlife and bioprospecting/biotrade business (from farms to value added business) which are black owned
    - Area of community owned land under wildlife and bioprospecting/biotrade business
    - Area of land reform and land under wildlife and bioprospecting/biotrade business
    - Level of education, skills and training emanating from the sector
- Number of jobs created in the wildlife and bioprospecting/biotrade sector
- Number of new local R&D innovations and technologies which are new entries to the wildlife and bioprospecting/biotrade sector (patents, products)

[44] Palmer Development Group (2004). Development of a Core Set of Environmental Performance Indicators. Final Report and Set of Indicators. [Online] Available: http://www.environment.gov.za/soer/indicator/docs/local_level/EPI%20Final%20Report.pdf

- Area of land under sustainable use of genetic and biological resources (or percentage change in area of land under sustainable use – will require estimation of area of land from which wild harvesting is occurring in the country)

6.3 INDICATORS OF TRANSFORMATIVE ENABLING INTERVENTIONS AND INTERVENTIONS OF NBES

The NBES have 10 Transformative Enabling Interventions (TEIs) for the wildlife and bioprospecting/biotrade respectively. These TEIs have emanated from the stakeholder engagement during the development of NBES. These TEIs are outlined in the monitoring framework shown in Figure 10 below. Since many of the TEIs are applicable to both sub-sectors, the framework shows these as well as TEIs specific to each of the subsectors. Recommended Enabling Actions required to address the TEIs shown in Figure 12.

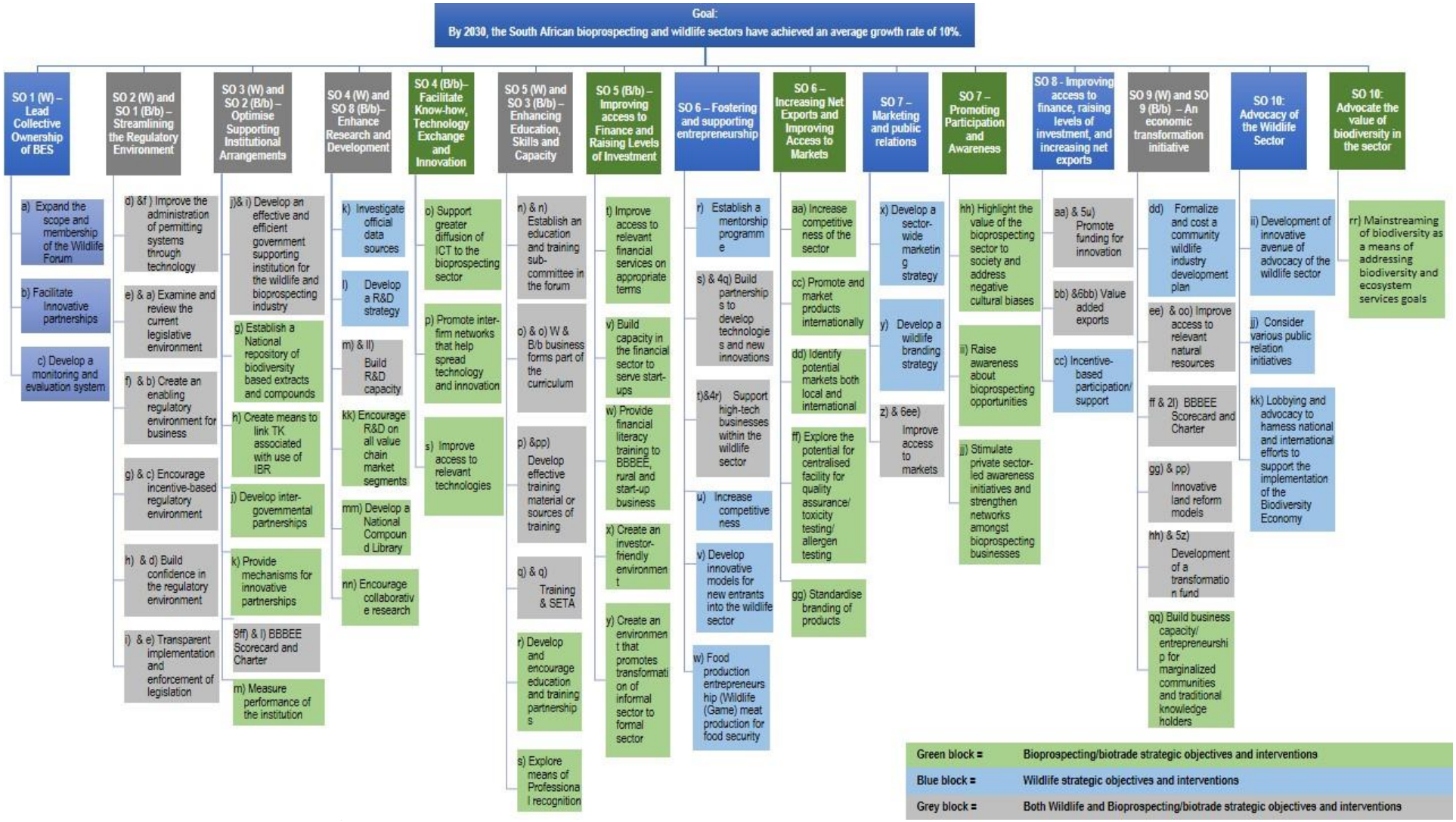


Figure 12: Monitoring Framework for the NBES Transformative Enabling Interventions and Interventions

Table 3 – Table 5 provides details of the TEIs linked to input indictors – which represent the immediate actions or inputs which are required to initiate the Enabling Actions for each TEI. Similarly the table shows the output and outcome indicators which can be monitored for the Enabling Actions. These indicators do require further refinement once the inputs (immediate actions) have been outlined in more details in the implementation plan for the NBES. Reviewing the output, outcome and impact indicator in Table 2 – Table 4, the key Enabling Actions which could be initiated by DEA in the immediate future is the re-constituting of the Wildlife Forum and the formation of the and Bioprospecting/biotrade Forum. This is the key Fora to carry NBES forward and to guide and support the key interventions shown in NBES.

Table 2 demonstrates those Transformative Enabling Interventions and Interventions which are common to both the Wildlife and Bioprospecting/biotrade sub-sectors. Indicators for these were therefore be similar. Table 3 shows the TEI and interventions which are specific to the Wildlife sub-sector and Table 4 shows those which are specific to the Bioprospecting /biotrade sub-sector.

NOTE: it is only possible to finalise the performance monitoring system once the DEA has given approval that the content of NBES is final and accepted. It is only at this point that the indicators for the TEIs and Interventions can be finalised.

Table 3: Performance-based monitoring requirements for the Wildlife and Bioprospecting/biotrade NBES interventions. Input indicators shown are effectively the 'immediate actions' which are required to address the interventions. These should be expanded in the full NBES Implementation Plan. W= refers to Wildlife; B/b = refers to Biodiversity/biotrade. ST=short term; MT=med term LT=long term

Transformative Enabling Interventions	Intermediate Objectives	Input Indicator	Output Indicator ST -yr 3-5 MT = yr 5-8	Outcome Indicator MT = yr 5-8 LT= yr 8-10
TEI 2 (W) and TEI 1 (B/b) – Streamlining the Regulatory Environment	d) & f) Improve the administration of permitting systems through technology	• Sub-committee for permit systems has been established and a review of current systems has been done • Funding is available for the electronic permitting systems	Study of electronic permitting options has been completed and most effective and efficient system has been selected and implemented.	% of permits which are issued electronically, per province
	e)&a) Examine and review the current legislative environment	Sub-committee to review the legislation has been established	Biodiversity 'trade' legislation developed	Legislation gazetted
		Provincial sub-committees initiated review of policies and ordinances	% of provinces with enabling policy	% of provincial enabling policies gazetted
			% of provinces with reviewed ordinances	% of provincial with ordinances gazetted
		Sub-committee established to review and streamline compliance and enforcement processes	Compliance and enforcement mechanism have been reviewed	% of new mechanisms being implemented
	f)&b) Create an enabling regulatory environment for business	Sub-committee established to review regulations	Regulations have been reviewed against benchmarks	
			Dialogue mechanism are established	Number of dialogue process being implemented
			Conflict mechanisms have been developed	Number of conflict mechanisms have been implemented
			A review of the regulatory environment has been completed	Number of regulations
	g)&c) Encourage incentive-based regulatory environment	Sub-committe is established to review certification and standards options for sector	Guidelines for standards and certification options have been developed	
		Financial sub-committee is established	Innovative incentive mechanisms have been developed	Number of innovative incentives being implemented

Transformative Enabling Interventions	Intermediate Objectives	Input Indicator	Output Indicator ST -yr 3-5 MT = yr 5-8	Outcome Indicator MT = yr 5-8 LT= yr 8-10
	h)&d) Build confidence in the regulatory environment	Sub-committee established to review regulations	Regulations have been reviewed against benchmarks	
			Regulations have been reviewed against benchmarks	
			Mechanism to assist business in meeting reg requirements have been developed	Number of mechanisms to assist business in meeting reg requirements being implemented
	i)&e) Transparent implementation and enforcement of legislation		Legislative requirements have been prioritised	
			Resource plan for enforcement has been developed	Resource plan for enforcement is implemented
		Develop plan for monitoring system	% completion of monitoring system development	% completion of monitoring system implementation
TEI 3 (W) and TEI 2 (B/b) – Optimise Supporting Institutional Arrangements	j)&i) Develop an effective and efficient government supporting institution for the industry	Prioritisation of state leverage points in value chains have been completed	% of prioritised points of maximum leverage have been implemented	% of points of maximum leverage complete
		Sub-committee on supporting institution has been established	State resources have been identified and allocated	
			Effective and efficient institution has been determined and benchmarked	
			Business case for institution has been developed	
			Dept. and public entities have been identified	
			Dept. and public entities have been identified	Dept. and public entities have been engaged
	9ff)&l) BBBEE Scorecard and Charter	Engagement with relevant stakeholders has occurred	BBBEE Scorecard and Charter has been completed	BBBEE Scorecard and Charter is being monitored and reported
TEI 4 (W) and TEI 8 (B/b)– Enhance Research and Development	m)&ll) Build R&D capacity	Engage with tertiary institutions and councils on building capacity of the sector	This is a medium term to long term objective hence the indicators will develop as the sector moves to implement this Intermediate objective	
TEI 5 (W) and TEI 3 (B/b) – Enhancing Education, Skills and Capacity	n)&n) Establish an education and training sub-committee	Sub-committee has been established and has funding to perform relevant functions		
	o)&o) W& B/b business forms part of the curriculum	Education Dept. has been engaged on curriculum	This is a medium term to long term objective hence the indicators will develop as the sector moves to implement this Intermediate objective	

Transformative Enabling Interventions	Intermediate Objectives	Input Indicator	Output Indicator ST -yr 3-5 MT = yr 5-8	Outcome Indicator MT = yr 5-8 LT= yr 8-10
	p)&pp) Develop effective training material or sources of training	Sub-committee has been established and has funding to perform relevant functions	Collation of training material has been completed	Database of benchmarked material is available to sector
				Database of Business skills educational material is available to the sector
				Database of local materials, training institutions, case studies and role models are available to sector
				Database of interactive and on-line tools are available to the sector
				Methodologies have been identified and are available to the sector
			Develop database of institutions and courses	Increased number of individuals completing training and courses
			Develop plan of communication of business opportunities	% increase in business opportunities in the sub-sectors
	q)&q) Training/SETA	Engage with private sector and entrepreneurs on training	This is a medium term objective hence the indicators will develop as the sector move to implement this Intermediate objective	
		Develop plan of communication of training opportunities		
		Develop plan of communication of training opportunities		
Transformative Enabling Interventions 6 – Fostering and supporting entrepreneurship	s)&4q) Build partnerships to develop technologies and new innovations	Review mechanism of market friendly collaborations	This is a medium term to long term objective hence the indicators will develop as the sector moves to implement this Intermediate objective	
		Review means of building bridges between these stakeholders		
	t)&4r) Support high-tech businesses within the sector	Review extension services options for the sector	This is a medium term to long term objective hence the indicators will develop as the sector moves to implement this Intermediate objective	

Transformative Enabling Interventions	Intermediate Objectives	Input Indicator	Output Indicator ST -yr 3-5 MT = yr 5-8	Outcome Indicator MT = yr 5-8 LT= yr 8-10
Transformative Enabling Interventions 7 – Marketing and public relations	z)&6ee) Improve access to markets	Explore mechanisms to facilitate market access	Marketing Strategy has been developed	
		Review branding options and provide recommendations		
Transformative Enabling Interventions 8 - Improving access to finance, raising levels of investment, and increasing net exports	aa)&5u) Promote funding for innovation	Financial sub-committee has been established	Indicators to be determined by the sub-committee	
	Bb0&6bb) Value added exports	Review branding options and provide recommendations	This is a medium term to long term objective hence the indicators will develop as the sector move to implement this Intermediate objective	
		Financial sub-committee has been established	Stakeholders have been engaged and agree to incentive mechanisms	Sector has been engaged and are aware of incentive mechanisms
		Review certification and standards options for sector	Guidelines for standards and certification options have been developed	% implementation of standards
Transformative Enabling Interventions 9 – An economic transformation initiative	ee)&oo)) Improve access to relevant natural resources	Conduct land cover assessment for suitable land	Suitable land for expansion has been identified	
		Conduct a cost-benefit assessment of farming unit options	Recommendations on farming unit costs have been provided	
		Identify potential pilot project		
	gg)&pp) Innovative land reform models	Review and identify -linked land reform models		
		Development communication strategy which includes access and benefit sharing options arising from the sector		
		Review community unproductive land and game reserves available for inclusion	A plan has been developed to incorporate these lands into the sector	The plan is being implemented
		Review of degraded environments and infrastructure requirement on community lands		

Transformative Interventions	Enabling	Intermediate Objectives	Input Indicator	Output Indicator ST -yr 3-5 MT = yr 5-8	Outcome Indicator MT = yr 5-8 LT= yr 8-10
		hh)&5z) Development of a national biodiversity transformation fund	Options for a national biodiversity transformation fund have been identified		

Table 4: Performance-based monitoring requirements for the Wildlife interventions. Input indicators shown are effectively the 'immediate actions' which are required to address the interventions. These should be expanded in the full NBES Implementation Plan. ST=short term; MT=med term LT=long term

Transformative Enabling Interventions	Intermediate Objectives	Input Indicator	Output Indicator ST -yr 3-5 MT = yr 5-8	Outcome Indicator MT = yr 5-8 LT= yr 8-10
Transformative Enabling Interventions 1 – Taking ownership	a) Expand the scope and membership of the Wildlife Forum	Funding is available for the structure Review the WF mandate/ constitution	% Completion of interventions required to reconstitute the Wildlife Forum (currently 8 or 0% complete)	% of minute action points of the WF which have been complete
		Funding is available for the sub-committees	% of required sub-committees which are active (holding meetings and auctioning minutes)	
	b) Develop a monitoring and evaluation system	Wildlife Forum has adopted a goal for the sector		
		Actions for implementation of the wildlife interventions have been developed	Actions have been adopted by the WF	
		% of required funding allocated for M&E System	% completion of development of the M&E System	% implementation of M&E System (based on number of indicators operational in system)
	c) Facilitate innovative partnerships			
Transformative Enabling Interventions 4 – Enhance Research and Development	k) Investigate official data sources	Meeting with Statistic SA has been held		Wildlife Industry EEA has been developed
	l) Develop a R&D strategy		R&D Strategy developed	% implementation of R&D Strategy
Transformative Enabling Interventions 6 – Fostering and supporting entrepreneurship	r) Establish a mentorship programme	Engage with private sector on training sponsorship opts	Number of sponsorship mechanisms have been developed	% of sponsorship mechanism implemented
		Mentoring mechanisms have been reviewed and identified	% completion of development of mentoring programme plan	% implementation of mentoring programme plan
	u) Increase competitiveness	Review and expand on options for systems	Provide guideline/ recommendations for certification and rating systems	

	v) Develop innovative models for new entrants into the sector	Explore innovations and share with sector		
	w) Food production entrepreneurships	Explore options of new food production using current models		
Transformative Enabling Interventions 7 – Marketing and public relations	x) Develop a sector-wide marketing strategy	Explore potential markets	Marketing Strategy has been developed	
		Annual review of strategy is complete		
		Explore business exchange platforms, business portals, fairs, business association and clubs		
	y) Develop a wildlife branding strategy	Review branding options and provide recommendations		
		Explore potential markets	Marketing Strategy has been developed	
Transformative Enabling Interventions 8 - Improving access to finance, raising levels of investment, and increasing net exports	cc) Incentive based participation/support	Explore potential incentives to encourage participation in the sector	Implement incentives to encourage participation in the sector	
Transformative Enabling Interventions 9 – An economic transformation initiative	dd)) Formalise and cost a community wildlife industry development plan	Conduct land cover assessment for suitable land	Suitable land for expansion has been identified	
		Conduct a cost-benefit assessment of farming unit options	Recommendations on farming unit costs have been provided	
		Identify potential pilot project		

Table 5: Performance-based monitoring requirements for the Bioprospecting/biotrade NBES interventions. Input indicators shown are effectively the 'immediate actions' which are required to address the interventions. These should be expanded in the full NBES Implementation Plan. ST=short term; MT=med term LT=long term

Transformative Enabling Interventions	Intermediate Objectives	Input Indicator ST -yr 3-5 MT = yr 5-8 LT= yr 8-10	Output Indicator ST -yr 3-5 MT = yr 5-8 LT= yr 8-10	Outcome Indicator ST -yr 3-5 MT = yr 5-8 LT= yr 8-10
Transformative Enabling Interventions 2 – Optimise Supporting Institutional Arrangement	g) Establish a National repository of biodiversity based extracts and compounds	Business case has been developed	NCL has been established	
	i) Develop inter-governmental partnerships		Dept. and public entities have been identified	
			Dept. and public entities have been identified	Dept. and public entities have been engaged
	k)Provide mechanisms for innovative partnerships	Priority areas have been identified		
	m)Measure performance of institution	Meeting with Statistic SA has been held		Bioprospecting Industry EEA has been developed
Transformative Enabling Interventions 4 – Facilitating know-how, technology exchange and innovation	o) Support greater diffusion of ICTs to the bioprospecting sub-sector	Establish ICT sub-committee to conduct/guide the review		
		Awareness and capacity campaign has been designed		
	p)Promote inter-firm networks that help spread technology and innovation	Review and expand on options for certification and rating systems	Provide guideline/ recommendations for certification	

			and rating systems	
	a) Improve access to relevant technologies			
		Programme has been developed		% uptake of the support programme
		Review extension services options for the sector	Sector has been engaged on extension service options	% of Extension service options have been implemented