Western Cape Government

EcoInvest III: Biodiversity economy strategy

22 March 2016

“Biodiversity underpins the functioning of the ecosystems on which we depend for food and fresh water, health and recreation, and protection from natural disasters. Its loss also affects us culturally and spiritually. This may be more difficult to quantify, but is nonetheless integral to our well-being”

(Ban Ki-moon, Secretary-General United Nations in Global Biodiversity Outlook – 3, 2010)

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Acronyms

ABI	**:**	Agulhas Biodiversity Initiative
BIOFIN	**:**	Biodiversity Finance Initiative
CAGR	**:**	Compounded Annual Growth Rate
CAPE	**:**	Cape Action Plan for the Environment
CBA	:	Critical Biodiversity Area
CBD	:	Convention on Biological Diversity
CEPF	:	Critical Ecosystems Partnership Fund
CFR	**:**	Cape Floristic Region
CI	**:**	Conservation International
COP	:	Conference of the Parties
DBSA	:	Development Bank of Southern Africa
DEA	**:**	National Department of Environmental Affairs
DEADP	**:**	Western Cape Provincial Government Department of Environmental Affairs and Development Planning
DST	:	Department of Science and Technology
EIA	:	Environmental Impact Assessment
EMF	**:**	Environmental Management Framework
FEPA	:	Freshwater Ecosystem Priority Area
GDP	:	Gross domestic product
GVA	**:**	Geographical value add
ICT	**:**	Information and communication technologies
IDPs	**:**	Integrated Development Plans
IPAP2	**:**	The 2nd Industrial Policy Action Plan
GDP	:	Gross Domestic Product
GEF	:	Global Environment Facility
LAB	**:**	Local Action Plans on Biodiversity
LUPA	**:**	Land Use Planning Act of the Western Cape Provincial Government
MAB	:	Man and Biosphere
MEAs	**:**	Multilateral Environment Agreements
MOAs	**:**	Memoranda of Agreements
METT	:	Management Effectiveness Tracking Tool
NBA	**:**	National Biodiversity Assessment
NBSAP	:	National Biodiversity Strategy and Action Plan
NDP	**:**	South Africa's National Development Plan, Vision 2030
NGOs	**:**	Nongovernmental organisations
NRM	**:**	Natural Resources Management
NWRS	**:**	National Water Resources Strategy
PBSAP	:	Provincial Biodiversity Strategy and Action Plan
PPP	:	Public Private Partnership
PSDF	**:**	Provincial Spatial Development Framework
PSOs	**:**	Provincial Strategic Objectives
ROD	:	EIA Record of Decision
SANBI	:	South African National Biodiversity Institute
SANPARKS	:	South African National Parks
SDFs	:	Spatial Development Frameworks
SKEP	:	Succulent Karoo Ecosystems Programme
SO	:	Strategic Objective
SPLUMA	:	Spatial Planning and Land Use Management Act (Act No 16 of 2013)
STEP	:	Subtropical Thicket Ecosystem Programme
TMF	**:**	Table Mountain Fund
UNDP	**:**	United Nations Development Programme
UNCCD	:	United Nations Convention to Combat Desertification
UNCED	**:**	United Nations Conference on Environment and Development

UNEP	**:**	United Nations Environment Programme
UNFCC	:	United Nations Framework Convention on Climate Change
WMA	:	Water Management Area

Definition of terms

Aichi Targets – A set of 20 targets agreed by Contracting Parties to the Convention on Biological Diversity at their Conference of the Parties in Aichi, Japan in 2010 and are set out in the CBD 2011-2020 Strategic Plan.

Biodiversity – this refers to the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and all the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Biodiversity-based economy – this refers to the part of the economy that is based on commercial or saleable products and services directly derived from ecosystems, habitats, species and genes. Included in this concept are also products derived from the by-products or waste streams from biodiversity management activities such as from alien clearing. Examples of the biodiversity economy include ecotourism, flower industry, fishing industry, various rooibos or honey-bush products, and any biotechnology products based on genetic resources found in the province.

Biodiversity hotspot – refers to areas with high levels of endemism that are also highly threatened.

Biome – a biome is defined in terms of climate and dominant growth forms in the vegetation.

Bioprospecting – refers to the search for plant and animal species from which commercially valuable compounds can be obtained.

Capability - this refers to the ability that exists in an organisation and which hinges on skills, expertise, technology, tools or systems and business processes that enable successful undertaking of a particular function.

Competence – this is the quantity and quality of skills and expertise in an organisation that enable successful undertaking of a particular function.

Conservation Areas – This refers to areas in the Western Cape Province that are classified in the Western Cape State of Biodiversity Report of 2012 as follows:

Conservation Category 1, these are protected areas with strong legislative security. These include National Parks, World Heritage Sites, Wilderness Areas, Provincial Nature Reserves, State Forest Nature Reserves, Marine Protected Areas, Island Nature Reserves, Contract Nature Reserves and Protected Environments.

Conservation Category 2, these are protected areas with some legislative security. These include Local Authority Nature Reserves, Mountain Catchment Areas, Private Nature Reserves and Biodiversity Agreements.

Conservation Category 3, these are protected areas with little or no legislative security. These include Voluntary Conservation Areas, Biosphere Reserves and Conservancies.

Critical Biodiversity areas or CBAs – these indicate areas of land as well as aquatic features that must be safeguarded in their natural state if biodiversity is to persist and ecosystems are to continue functioning. CBAs incorporate: (i) areas that need to be safeguarded in order to meet national biodiversity thresholds; (ii) areas required to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services; and/or (ii) important locations for biodiversity features or rare species.

Critically endangered marine and coastal habitats – these are determined as part of the National Biodiversity Assessment of 2011.

Ecological infrastructure – refers to naturally functioning ecosystems that deliver services to people such as fresh water, climate regulation, soil formation and disaster risk reduction. It is nature's equivalent of the built environment. It includes healthy mountain catchments, rivers, wetlands, coastal dunes, nodes and corridors of natural habitats, which together form a network of interconnected structural elements in the landscape.

Ecological resilience – this refers to the capacity of ecosystems to adapt to changes and disturbances, yet retain their basic functions and structures. A resilient ecosystem can adapt to shocks and surprises, and rebuild itself when damaged.

Ecosystem approach – this is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.

Ecosystem services – these are benefits people obtain from ecosystems. These include *provisioning services* such as food, water, timber and fibre; the *regulating services* that affect climate, floods, disease, wastes and water quality; *cultural services* that provide recreational, aesthetic and spiritual benefits, and *supporting services* such as soil formation, photosynthesis and nutrient cycling.

Endemism – see *species endemism*

Estuary – refers to a body of water forming the interface between a river and a sea into which the river flows. Estuaries may be permanently or periodically open to the sea.

Freshwater ecosystem priority areas or FEPAs – these are as determined by the National Freshwater Ecosystem Priority Areas project (NFEPA) and were confirmed by the National Biodiversity Assessment of 2011.

Important Bird and Biodiversity Areas – this consists of a network of sites that are significant for the long-term viability of naturally occurring bird populations, across geographical range of bird species and for which a site-based approach is appropriate.

Mainstreaming biodiversity – this is the strategy of internalisation of the goals of biodiversity conservation and the sustainable use of biological resources into economic sectors and development models, policies and programmes, and, therefore, into all human behaviour.

Off-reserve conservation – this is a conservation activity that occurs in a land that is not proclaimed by law or that has limited legal protection. This may be private, communal or still public sector owned land.

Phytogeography - this refers to the branch of botany that is concerned with the geographical distribution of plants.

Precautionary principle – this is a principle of ecologically sustainable development whereby if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

Species endemism – this refers to those species found only in one area and nowhere else in the world.

Sustainable use or wise use – this refers to the use of biodiversity within its capacity for renewal or regeneration.

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 .

Wetland – this refers to land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil

Executive summary

Biodiversity underpins the functioning of an economic system. It provides the goods and services that sustain life such as food, water, building materials and the air we breathe. Biodiversity also provides intrinsic values that are not always realized and valued, these include heritage values, and social values, the values derived from biodiversity are defined in table 2, below. It also serves as both a source of inputs to the economic system as well as a sink that absorbs waste from the system. Despite the value provided by biodiversity, many of its goods and services are not formally traded and do not have market prices attached to them. As a result, these goods and services may be used in an unsustainable manner. Environmental regulation serves to manage these goods and services and provides guidelines as to how to maintain sustainable biodiverse systems in the absence of fully functioning markets.

Furthermore, many areas of important biodiversity overlap with areas of human activity and settlement. This can lead to conflict. Especially relating to decisions over land use allocations and land use changes. The National Environmental Management Act (NEMA) recognises the value of natural resources and the need to protect areas considered irreplaceable for biodiversity conservation and important ecosystem services. It also recognises the need for the sustainable use of natural resources.

As a result of these challenges and the current national and provincial policy environment (the development of both the national and provincial biodiversity strategies and action plans and the national biodiversity economy strategy), the Western Cape Department of Environmental Affairs and Development Planning (DEADP) has called for the development of a provincial biodiversity strategy (PBES). The aim of this biodiversity strategy is to recognise the importance of natural resources and systems in driving the improvement of people's lives and the growth of the economy in the western Cape.

This Strategy is positioned at a time when the international community is approaching the review of the Aichi Targets, and the drive towards knowledge, understanding and implementation of "green economies" is prompting a paradigm shift away from business-as-usual. These elements underline the importance of inclusive dialogue and knowledge sharing with key stakeholders around the role and potential for developing a biodiversity economy in the Province.

The PBES is a five-year strategy that coordinates with the National and Provincial Medium Term Strategic Frameworks 2014-2019, the National Biodiversity Strategy and Action Plan (NBSAP) and the National Biodiversity Economy Strategy (NBES) and it represents the implementation of actions proposed in the draft Provincial Biodiversity Strategy and Action Plan (PBSAP). It responds to the national and provincial economic growth and development strategies as well as other biodiversity-related and economic policies and laws internationally, nationally and provincially. The highlights of the strategy are shown in the PBES at a glance.

The PBES at a glance

PBES VISION

By 2040, biodiversity, the natural heritage and associated ecological infrastructure is valued, wisely used, conserved and restored, and thus deliver the ecosystem services that improve the quality of life of the people of the Western Cape Province.

OVERARCHING FIVE-YEAR GOAL

By 2020, a biodiversity - based economy contributes to inclusive and sustainable livelihoods and development opportunities.

SOME HEADLINE INDICATORS

Job creation	Number of jobs created (full-time, part-time)	Annual reports for CapeNature, SANBI, Other implementing partners
Economic expansion	a. Area under biodiversity economy initiatives b. Contribution to provincial revenues	Project reports Tax or incentive revenues, GDP
Equity	Number of disadvantaged people engaging in the biodiversity economy, Number of woman participating in the biodiversity economy	Project reports, Provincial statistics

GUIDING PRINCIPLES

- Socio-economic sustainability
- Ecosystems have finite capacity
- Ecological Resilience
- Fair & Equitable Benefits from Biodiversity
- Conservation of biodiversity and ecological infrastructure
- Sustainable use of indigenous species
- Incentive-driven compliance
- Ethical practice

CORE PBES OBJECTIVES

CO1: Biodiversity economy of the province grows by developing and unlocking the economic potential of biodiversity sector value chains

CO2: Stakeholders recognise and value the economic contribution of ecological services to the Western Cape development goals

ENABLING PBES OBJECTIVES

- **EO1: Developing financing mechanisms and mobilise financial resources**
- **EO2: Enhance research & development to support the biodiversity economy in the Province**
- **EO3: Improve & share knowledge, and promote optimal use of technology**
- **EO4: Enhance institutional and human capacity**
- **EO5: Streamline markets**

1. Background

Biodiversity underpins the functioning of an economic system. It provides the goods and services that sustain life such as food, water, building materials and the air we breathe. Biodiversity also provides intrinsic values that are not always realized and valued, these include heritage values, and social values, the values derived from biodiversity are defined in table 2, below. It also serves as both a source of inputs to the economic system as well as a sink that absorbs waste from the system. Despite the value provided by biodiversity, many of its goods and services are not formally traded and do not have market prices attached to them. As a result, these goods and services may be used in an unsustainable manner. Environmental regulation serves to manage these goods and services and provides guidelines as to how to maintain sustainable biodiverse systems in the absence of fully functioning markets.

Furthermore, many areas of important biodiversity overlap with areas of human activity and settlement. High population density, high agricultural potential, mineral deposits and scenic beauty important for tourism, all have different demands on the natural environment and expectations on how it should be used. This can lead to conflict. Especially relating to decisions over land use allocations and land use changes. The National Environmental Management Act (NEMA) recognises the value of natural resources and the need to protect areas considered irreplaceable for biodiversity conservation and important ecosystem services. It also recognises the need for the sustainable use of natural resources.

Development challenges are also changing. Issues such as climate change, natural resources scarcity, and food and energy insecurity have implications for all sectors of society and business. The world has become highly interconnected and global shocks have the potential to reverberate quickly, while externalities such as macro-economic instability, social and economic inequalities, and conflict can have large and wide ranging spillover effects at various scales, international, national, provincial and local (OECD, no date).

As a result of these challenges and the current national and provincial policy environment (the development of both the national and provincial biodiversity strategies and action plans and the national biodiversity economy strategy), the western Cape Department of Environmental Affairs and Development Planning (DEADP) has called for the development of a provincial biodiversity strategy (PBES). The aim of this biodiversity strategy is to recognise the importance of natural resources and systems in driving the improvement of people's lives and the growth of the economy in the western Cape.

Key points that anchor and drive the strategy:

- Policy Framework of the Western Cape government including the Provincial Strategy Plan, 2014 to 2019, which under strategic goal 4 aims to enable a resilient, sustainable, quality and inclusive living environment. Under strategic goal 4 a key objective is to improve management and maintenance of the ecological and agricultural resource base,
- The Green Economy Strategic Framework (2013) lists Smart Ecosystems driver which has its the objectives, being, enhanced water and biodiversity preservation, as well as expanded infrastructure, tourism, livelihood and job opportunities created through better - managed ecosystems. Opportunities identified are ecosystem management and restoration, biodiversity management, mariculture, tourism, sustainable harvest,

conservation education, and research and development. Enablers have been identified as finance, rules and regulations, knowledge management, capabilities and infrastructure,

- The Western Cape Province's biodiversity is globally significant as well as important to the national economy and to people's livelihoods at a provincial and local level,
- The importance of biodiversity is gaining momentum and there is currently opportunity to mainstream biodiversity throughout the economy in the Western Cape,
- Due to the reliance on biodiversity by both people and business, it is important that the management of biodiversity is integrated with poverty alleviation and economic development goals,
- The biodiversity economy potentially provides the opportunity to "unlock" value and drive growth in the Province.

This Strategy is positioned at a time when the international community is approaching the review of the Aichi Targets, and the drive towards knowledge, understanding and implementation of "green economies" is prompting a paradigm shift away from business-as-usual. These elements underline the importance of inclusive dialogue and knowledge sharing with key stakeholders around the role and potential for developing a biodiversity economy in the Province.

2. Introduction and setting the strategic context

The PBES is a strategic mechanism of the Western Cape Provincial Government that aims to ensure that all stakeholders operating in the province, including the national and provincial government entities, local authorities, non-governmental organisations (NGOs), business and society as a whole, act in a coordinated and collaborative manner with regards to biodiversity conservation, its sustainable use, and the fair and equitable sharing of benefits arising from the use of biodiversity resources. This report provides an analytical reference point for the provincial biodiversity economy strategy and interventions utilising an evidence-based platform to inform and guide provincial planning and budgeting to ensure economic growth within the ecological limits of the natural environment and sustainable livelihoods for all.

2.1 The time frame of this PBES

The PBES is a five-year strategy that coordinates with the National and Provincial Medium Term Strategic Frameworks 2014-2019, the National Biodiversity Strategy and Action Plan (NBSAP) and the National Biodiversity Economy Strategy (NBES) and it represents the implementation of actions proposed in the draft Provincial Biodiversity Strategy and Action Plan (PBSAP). It responds to the national and provincial economic growth and development strategies as well as other biodiversity-related and economic policies and laws internationally, nationally and provincially.

2.2 The scope and definitions covered by this PBES

Below we define the scope covered by this PBES by defining biodiversity, the biodiversity economy and the geographic boundary to which it applies.

2.2.1 The scope of the PBES

The strategy recognises that biodiversity conservation and poverty alleviation are inextricably linked. These challenges are not only global but are evident at regional, national, provincial and local levels. As a result the Western Cape Government has commissioned the development of a Provincial Biodiversity Economy Strategy to unlock developmental potential from the Provinces unique biodiversity assets. The role of Western Cape DEADP in the Provincial Biodiversity Economy Strategy is to:

- Coordinate role players and stakeholders in the Western Cape,
- Provide leadership and strategic direction on the PBES,
- Support the national BES
- Ensure implementation of the strategy remains within the mandate of the DEADP to ensure sustainable use and conservation of biodiversity while supporting sustainable livelihoods,
- Enforce regulations while supporting co-operative mechanisms to encourage participation in the biodiversity economy,
- Monitor progress in the implementation of the strategy.

2.2.2 Defining biodiversity

This PBES defines biodiversity as per the text of the Convention on Biological Diversity (CBD, 1992):

> *"Biological diversity or 'biodiversity' is the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."*

The key attributes associated with biodiversity as indicated in Table 1 below, are encompassed in defining the scope of biodiversity:

Table 1: Attributes of the biodiversity hierarchy (Peck, 1998; draft PBSAP, 2015)

Level	Component	Pattern	Processes
Gene	Genes	Genetic structure of a population or species	Genetic processes
Species	Populations Species	Population structure and distribution	Demographic processes and life histories
Ecosystem	Communities Ecosystems	Habitat types Habitat architecture	Interactions among species Ecosystem processes
Landscape/ seascape	Landscape types Seascape types	Landscape and seascape patterns	Landscape and seascape processes and disturbances Resources use trends Hydrological processes

2.2.3 Defining a biodiversity economy

Biodiversity helps to maintain many ecosystem goods and services on which human well-being is dependent. Numerous studies have shown the value of biodiversity to economic sustainability. However, many biodiversity-based ecosystem services are not traded on markets, and their value is not properly reflected in market prices.

> *"The economic work under the Convention seeks to promote the valuation of these services, and to introduce measures that correct the incentives of individuals, governments and companies towards more effective conservation and sustainable use of biodiversity, such as promoting the trade of biodiversity-based goods that are produced in a sustainable manner. It also seeks to ensure the mutual supportiveness of international trade rules and the objectives of the Convention" (NBES, 2015).*

At least 40 percent of the world's economy and 80 percent of the needs of the poor are derived from biological resources. In addition, the richer the diversity of life, the greater the opportunity for medical discoveries, economic development, and adaptive responses to such new challenges as climate change.
Convention on biological diversity, 2010

A well-functioning and healthy biodiversity economy provides various natural goods and services to people, society and economic activities. These goods and services referred to as natural capital or natural capital assets are outlined in Table 2, below.

Table 2: Natural capital assets provided by biodiversity (Source: NBES,2015 and CBD,2010)

Goods and Services provided by well-functioning biodiversity		
Ecosystem Services	**Natural Resources**	**Natural resources for society**
Purification of air and water	Provision of food, fuel and fibre	Cultural and aesthetic benefits
Detoxification and decomposition of wastes	Provision of shelter and building materials	Ability to adapt to change
Stabilization and moderation of the Earth's climate	Food	Research, education and monitoring
Generation and renewal of soil fertility, including nutrient cycling	Medicinal resources and pharmaceutical drugs	Recreation and tourism
Pollination of plants, including many crops	Wood products	Well-being
Control of pests and diseases	Ornamental plants	Healthy lifestyles
Maintenance of genetic resources as key inputs to crop varieties and livestock breeds, medicines, and other products	Breeding stocks and population reservoirs	Spiritual pursuits
	Future resources	

The dominant economic model of our time is a linear model that aims to 'take, make, and dispose'. It relies on access to and the use of large quantities of natural resources and energy. The model as it is currently implemented is unsustainable, given the changes in resource qualities, quantities, distribution and a rising population. The circular economy model aims to address environmental resources and systems concerns by characterizing the economy in a restorative and regenerative way (WEF, 2015).

"It is conceived as a continuous positive development cycle that preserves and enhances natural capital, optimizes resource yields and minimizes system risks by managing finite stocks and renewable flows" (WEF, 2015).

The circular economy is underpinned by 3 key principles, namely (WEF, 2015):

- Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows – for example, replacing fossil fuels with renewable energy or using the maximum sustainable yield method to preserve fish stocks.
- Optimize resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles – for example, sharing or looping products and extending product use cycles.
- Foster system effectiveness by revealing and designing out negative externalities, such as water, air, soil and noise pollution; climate change; toxins; congestion; and negative health effects related to resource use.

On a macro-economic and developmental level, a thriving biodiversity economy underpinned by the theory of the circular economy has the potential to:

- Make the Province more competitive both nationally and internationally (especially in the agricultural (agri-processing), eco-tourism, bioprospecting and knowledge management sectors);
- Create more jobs;
- Enhance food and water security;
- Address the Province's desire to deliver the ecosystem services that improve the quality of life of the people of the western Cape Province, and
- Create opportunities for economic growth and development that are environmentally sustainable.

2.2.4 Geographic scope of the PBES

The western Cape Province is home to globally important biodiversity assets. The province's biodiversity is characterised in large part by the CFR. At about 90 000 m^2, the CFR is not only the smallest plant kingdom of the six floral kingdoms in the world, but it is the only plant kingdom that is found within the boundaries of only one country. Some 8 500 species of plants are found in the CFR. About 68 percent of the species of the region – 20 percent of the genera and six families – are characterised as endemic. These endemic species also face high levels of threats that have led or may lead to loss of this unique biological diversity. The CFR has thus been recognised as a biodiversity hotspot. In fact, Conservation International (CI) recognises as global biodiversity hotspots, both the Cape Floristic Region (CFR) as well the Succulent Karoo biome. In 2004, the "Cape Floral Region Protected Areas" were inscribed as a World Heritage Site that consists of eight protected areas representative of phyto-geographical centres of endemism of this region and covering an area of 553 000 ha.

The western Cape is characterised by:

- A landscape that consists of the Fynbos, Succulent Karoo, the Forest, the Subtropical Thicket and the Nama Karoo biomes,
- Four water management areas (WMAs), namely the Berg WMA, the Breede WMA, the Gouritz WMA and the Olifants-Doorns WMA,
- A coastline that is in excess of 1 000 km,
- High levels of endemism,
- Focused investment in the restoration of natural capital to secure the provision of ecosystem services.

This PBES and all its strategy elements pertain to the geographic area that coincides with the Western Cape Province of South Africa as shown in Figure 1 below:

Figure 1: The Western Cape provinces and its local authorities (Source: www.westerncape.gov.za)

A more extensive overview of the western Cape Province's biodiversity assets is available in the Provincial Biodiversity Strategy and Action Plan (PBSAP, 2016).

2.3 *A snapshot of the process followed to develop the PBES*

The methodology followed to develop this PBES is summarised below:

Figure 2: Methodology followed to develop the PBES

3. The situation analysis and the basis for the strategy and action plan

In order to facilitate economic growth in a sustainable, equitable manner, the country requires better nutrition and health care, improved educational standards, increased access to further and higher education, easier entry into the labour market and greater labour mobility (the ability to move to where jobs are on offer), access to good quality public services, access to infrastructure and transport nodes, functional human settlements, energy security, water security, among others. All of these factors need to be taken into account in national and provincial planning and for the purposes of this report, the development of a biodiversity economy strtaegy for the Western Cape Province.

Economic growth and opportunity are also underpinned by spatial planning, allowing for access to services, facilities, work, finance, healthcare and education. A key focus of some of the policies underpinning growth include a shift towards developing opportunities in the green economy, developing human capital and knowledge hubs, and addressing historical spatial imbalances.

Economic growth "at all costs" is no longer possible, given the critical limits of the natural resource endowments on which this growth depends. The environmental legislation and policies outlined for the country identify the need to manage, allocate, use and protect these natural resources to ensure long-term sustainable growth. The development of a biodiversity economy strategy for the Western Cape Province will need to take into consideration the natural resource endowments of the region and in particular the impacts of climate change on these endowments. Current development and planning opportunities or economic industries may come under future pressure as temperatures rise, water resources become scarcer and food security is compromised.

3.1 The policy context underpinning the PBES

The PBES is being developed to align and respond to the requirements of international, national and provincial policy and legal frameworks governing biodiversity and economic growth.

3.1.1 The International Policy context

There is an extensive body of Multilateral Environmental Agreements (MEAs), developmental policies and green economy strategies relating to this PBES. Examples are illustrated in Box 1, below.

Box 1. Examples of multilateral environmental agreements, policy and strategy documents that are relevant to this PBES

- Convention of Biological Diversity (CBD, 1992)
- Convention on International Trade in Endangered Species of Fauna and Flora (CITES, 1975)
- Convention Concerning the Protection of World Cultural and Natural Heritage (WHC, 1975)
- Convention of Prevention of Marine Pollution (1975)
- International Convention for the Regulation of Whaling (IWC, 1948)
- Convention on Wetlands of International Importance, esp. as a waterfowl habitat (Ramsar, 1971)
- Convention on the Conservation of Migratory Species of Wild Animals (CMS, 1991)
- Benguela Current Convention (2013)
- OECD Strategy on Development (2011)
- The Green Economy and the BRICS Countries: Bringing Them Together (SAIIA, 2013)

Under the Convention on Biological Diversity (CBD) key objectives that under pin this biodiversity economy strategy are:

- sustainable use of the components of biodiversity; and
- sharing the benefits arising from the commercial and other utilization of genetic resources in a fair and equitable way.

Figure 3: The Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets

Indeed the CBD Strategic Plan, 2010 to 2020 and its Aichi Targets progress these objectives to actions and targets. The Aichi Targets under **Goal D**, states

"…enhance the benefits to all from biodiversity and ecosystem services".

In addition, **Target 14** aims to:

By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into

account the needs of women, indigenous and local communities, and the poor and vulnerable.

3.1.2 The National Environmental and Development Policy context

The national context for this PBES first emanates from the Constitution of the Republic of South Africa, which stipulates the mandates of the three tiers of government – national, provincial and local government. In relation to functions pertaining to biodiversity management, Schedule 4 ascribes the following functions concurrently to national and provincial governments:

"...nature conservation, excluding national parks, national botanical gardens and marine resources".

The Constitution under the Bill of Rights also states:

"Everyone has the right:
a) To an environment that is not harmful to their health or well-being b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:
i. Prevent pollution and ecological degradation
ii. Promote conservation; and
iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."

This, therefore, means that all the three tiers of government – national, provincial and local – and other organs of state are required to take legislative and other measures to give effect to the environmental right.

3.1.3 The National Development Policy context

Some of the key legislation and policies that underpin economic planning and development in South Africa include:

- The Constitution of the Republic of South Africa (Act 108 of 1996),
- National Development Plan (NDC, 2011b),
- New Growth Path (EDD, 2010),
- Industrial Policy Action Plan, IPAP 2013/14-2015/16,
- Medium-Term Strategic Framework 2009-2014 (NPC, 2009),
- Comprehensive Rural Development Programme (CRDP, 2009),
- Integrated Resource Plan 2010-2030 (DoE, 2011),
- Municipal Systems Act No 32 of 2000 relating to the requirements for the preparation of an:
    - Integrated Development Plan (IDP), and
    - A Spatial Development Framework (SDF), and
- The National spatial development perspective (NSDP, 2006).

Key macro policies at the national level that are relevant to this PBES include, among others, those stipulated in Figure 4 below:

Figure 4: Examples of South Africa's current macro-economic and development policies

3.1.3.0 The National Development Plan

South Africa's National Development Plan underpins the need to reduce unemployment and alleviate poverty in the country. It also recognizes the need to shift the economy away from one based on energy-intensive industries towards industries that place a lower burden on the electricity intensity of the economy, while at the same time addressing climate impacts through a shift towards renewable power generation. Key focus areas of the NDP include:

- An economy that will create more jobs,
- Building capabilities,
- Improving infrastructure,
- Building environmental sustainability and resilience,
- Improving the quality of education,
- Quality health care for all,
- Building safer communities,
- Fighting corruption.

The NDP recognises that South Africa needs faster growth and more inclusive growth. Key elements of this strategy include raising exports, improving skills development, lowering the costs of living for the poor, investing in a competitive infrastructure, reducing the regulatory burden on small businesses, facilitating private investment and improving the performance of the labour market to reduce tension and ease access to young, unskilled work seekers. Seven pillars underpin the NDP and include: economy and employment, economic infrastructure, environmental sustainability and resilience, an inclusive rural economy, transforming human settlements, education, training and innovation, and healthcare and safe communities.

One of the five geographically strategic integrated projects (SIPs) for the NDP focuses on the Saldanha-Northern Cape development corridor. One of the three spatial SIPs focusses on agri-logistics and rural infrastructure and one of the three energy SIPs focusses on Green Energy in support of the South African economy. All three of these provide strategic focus for the Western Cape Province.

3.1.3.1 The Medium-Term Strategic Framework

The Medium Term Strategic Framework (MTSF) is Government's strategic plan for the 2014-2019 electoral term. It reflects the commitments made in the election manifesto of the governing party, including the commitment to implement the NDP. The MTSF sets out the actions Government will take and targets to be achieved. It also provides a framework for the other plans of national, provincial and local government.

The MTSF highlights Government's support for a competitive economy, creation of decent work opportunities and encouragement of investment. The aim of the MTSF is to ensure policy coherence, alignment and coordination across government plans as well as alignment with budgeting processes.

The 2014-2019 electoral mandate focuses on the following priorities:

- Radical economic transformation, rapid economic growth and job creation,
- Rural development, land and agrarian reform and food security,
- Ensuring access to adequate human settlements and quality basic services,
- Improving the quality of and expanding access to education and training,
- Ensuring quality health care and social security for all citizens,
- Fighting corruption and crime,
- Contributing to a better Africa and a better world,
- Social cohesion and nation building.

In its focus on these priorities, and their elaboration into fourteen key outcomes and associated activities and targets, the MTSF has two over-arching strategic themes: 1) radical economic transformation and 2) improving service delivery.

3.1.4 The National Environmental Policy context

South Africa has extensive policies and legislation pertaining to sustainable development and environmental management. The PBES is informed significantly by these policies, highlighted in Box 2:

Box 2: The sustainable development and national environmental policy and legal framework

1. National Framework for Sustainable Development (NFSD, 2008)
2. National Strategy on Sustainable Development and Action Plan 2011-2014 (NSSD 1, 2011)
3. White Paper on Environmental Management (1997)
4. National Environmental Management Act (NEMA, Act No 107 of 1998 as amended)

The policy development and law reform in respect of biodiversity management has ensured alignment with the Constitution, and sustainable development and environmental management policies and laws. Biodiversity policies and laws are also a mechanism to

implement the relevant national and provincial obligations under the Constitution as well as the sustainable development and environmental principles, particularly those contained under the United Nations Conference on Environment and Development. The biodiversity policy and legal framework also responds to international biodiversity agreements highlighted in Box 1 above. In Figure 5 below we highlight the current national biodiversity policy framework:

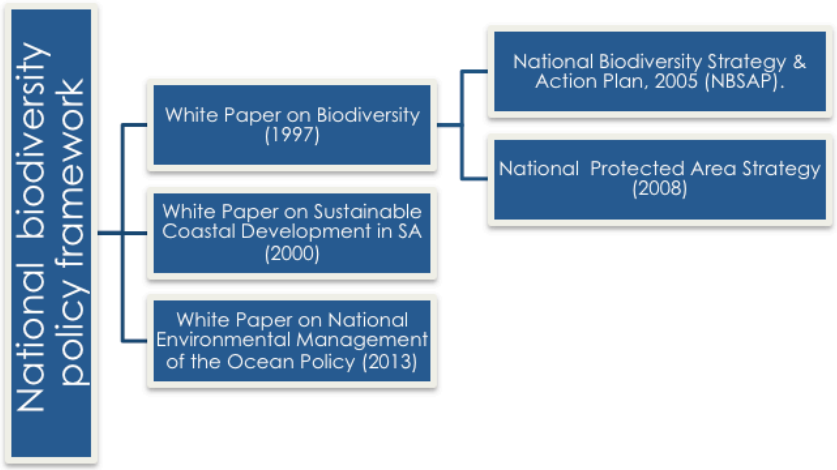


Figure 5: The relevant national policy framework on biodiversity

The national legislation on biodiversity covers various subject matter of regulation as we depict in Figure 6 below. In addition to the biodiversity legislation we illustrate below, there are regulations such as on alien invasive species and on bioprospecting, access and benefit sharing that guide implementation in these regulatory areas. These regulations will be key for the development and unlocking the economic value of biodiversity of the province.

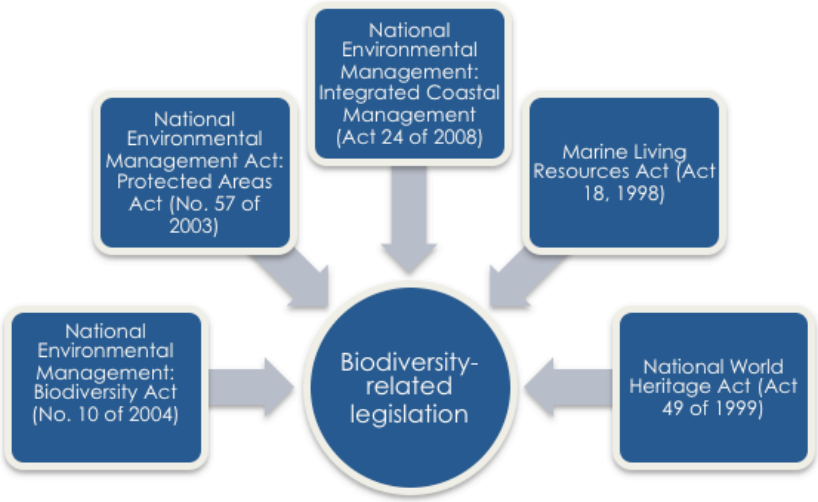


Figure 6: The current biodiversity related legislation

3.1.4.0 National Biodiversity Economy Strategy

The biodiversity economy of South Africa encompasses the businesses and economic activities that either directly depends on biodiversity for their core business or that contribute to conservation of biodiversity through their activities. The biodiversity economy strategy addresses two sub-sectors, namely:

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

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 BES imperatives, BES 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. Two BET nodes were identified through the NBES for the Western Cape. These are categorised under the urban development nodes and include: the City of Cape Town specifically Khayalitsha-Mfuleni and Eden (Keurbooms-Avontuur).

3.1.4.1 Green Economy Strategic Framework

The Green Economy Strategic Framework for South Africa focusses predominnatly on the transition to a low carbon economy and clean energy. It is underpinned by the following legislation:

- National Development Plan, Vision 2030,
- 2009-2014 Medium Term Strategic Framework and 12 Outcomes,
- Integrated Resource Plan & Integrated Energy Plan,
- 10-Year Innovation and Global Research Plan,
- New Growth Path, Green Economy Accord & Green Jobs Report,
- Industrial Policy Action Plan,
- National Water Resource Strategy,
- Environmental Fiscal Instruments (e.g., carbon tax, green fund),
- National Strategy for Sustainable Development and Action Plan (NSSD1),
- National Climate Change Response Policy,

- Agriculture and Rural Development,
- National Skills Development Strategy 3,
- 2009 South African Framework for Responding to Economic Crisis,
- National Green Economy Summit and programme reports,
- Transport and Human Settlement,
- National Skills Development Strategy 3.

3.1.5 The Provincial Policy context

The Provincial policy context for the PBES has the advantage of drawing from some innovative iniatives being undertaken in the Province. These are outlined below.

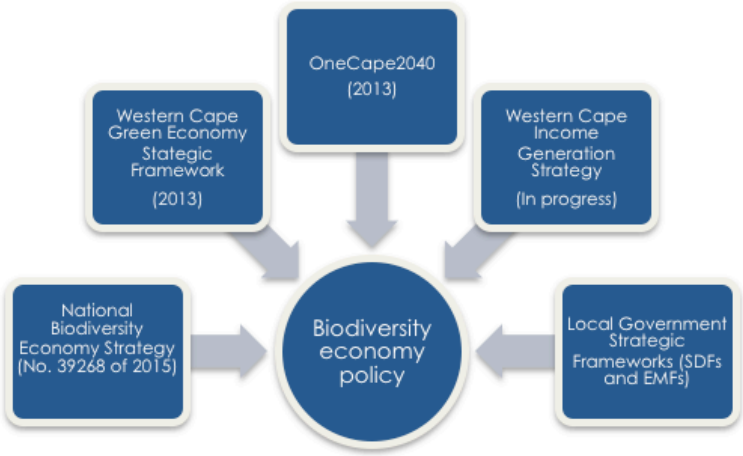


Figure 7: The current biodiversity economy and related legislation, policies and strategies for the Western Cape Province

3.1.5.0 OneCape2040 (2013)

This Western Cape Provincial Government initiative compliments the NDP, and builds on the Provincial Strategic Objectives (PSOs). OneCape 2040 sets the goal of:

> *"...creating a resilient, inclusive and competitive Western Cape with higher rates of employment producing growing incomes, greater equality and an improved quality of life".*

The vision as stated in OneCape 2040 is that of:

> *"...a highly-skilled, innovation driven, resource efficient, connected, high opportunity and collaborative society".*

The ecological transition goals pertinant to the PBES are:

- All people to have access to water, energy and waste services that are delivered on a sustainable resource-efficient manner; and

- The Western Cape to be a recognised leader and innovator in the Green Economy.

3.1.5.1 Provincial Strategic Plan (2014-2019)

The Provincial Strategic Plan 2014 – 2019 and Provincial Strategic Goals framework are key areas for government to prioritise as well as to work in partnership with key stakeholders in the Western Cape. Factors such as skills development, infrastructure, improved education outcomes, youth development as well as moving toward increased export growth, focusing on areas of comparative advantage have consistently been identified as important levers for growth and development (Provincial Treasury, 2015). A key element of the provincial strategic plan includes Project Khulisa.

Project Khulisa focuses on productive and enabling sectors that contribute to the regions competitive advantage and/or having the potential to be catalytic in growing the economy. The sectors identified in this regard include tourism, agri-processing, and oil and gas (rig repair) with a particular focus placed on them over the next 3 to 5 years. In addition, sectors such as the Business Processing Outsourcing (BPO), Film and Information and Communication Technology (ICT) are also identified as important for a well- functioning economy (Provincial Treasury, 2015).

3.1.5.2 Alignment to the NBSAP and the WC PBSAP

The NBSAP and the PBSAP provide a strategic framework for the management of biodiversity both at a provincial level and at a national level. The PBES aligns with the 4th strategic objective of the NBSAP and the 3rd strategic objective of the PBSAP. These objectives state the following:

NBSAP SO 4: Human development and well-being is enhanced through sustainable use of biological resources and equitable sharing of the benefits

PBSAP SO 3: A biodiversity - based economy contributes to inclusive and sustainable livelihoods and development opportunities.

3.1.5.3 Alignment to Eco-Invest I and Eco-Invest II

In response to the Western Cape Government's Green Economy Strategy Framework (2013) and Provincial Strategic Plan 2014 - 2019, the Western Cape Department of Environmental Affairs and Development Planning (DEADP) aims to promote, accelerate and upscale private and public investment into natural capital in the province. To advance this aim, DEADP implemented the first phase of the Eco-Invest initiative in 2013/14. This phase of work focused on the identification and evaluation of a broad range of possible interventions for unlocking development of the nature-based economy in the Western Cape Province. Eco-Invest I identified that the degradation of natural capital in the Western Cape is estimated to cost society at least R4.5 billion per annum.

In 2014/15, the DEADP implemented the second phase of the Eco-Invest initiative. This phase aimed to develop to business plan level, and in which key stakeholders were to be mobilised towards implementing these priority interventions. Phase II of the Eco- Invest initiative focused on the Southern Cape geographic region, where it was deemed that there was a notably

high potential for success in the establishment of the desired supply chains – and where Eco-Invest would start with building the appetite and capacity for these initiatives amongst stakeholders.

Eco-Invest Phase I recommended that the Western Cape Government focus on 5 priorities.

Box 3: Eco-Invest I priorities

- Sustainable Financing for Estuary Management
- Energy Generation from Invasive alien Plant Biomass
- Funding land restoration with Spekboom using Carbon Credits Trading
- Incentivising Fynbos restoration through Honeybush Cultivation
- Agroforestry

Eco-Invest II assessed the state of readiness of a number of priority nature-based economy supply chains in the Western Cape, and proposed ways to advance investment into those sectors.

Box 4: Eco-Invest II priority sectors and supply chains

1) Transitioning Eco-Invest from phased project to established programme,
2) Sustainable and equitable financing of estuary management,
3) Funding land restoration with Spekboom using Carbon Credit Trading,
4) Funding restoration through trading invasive alien plant biomass,
5) Developing the indigenous natural plant products sector through fynbos restoration.

3.1.5.4 Western Cape Green Economy Strategic Framework (2013)

The strategy, *Green is Smart*, is the Western Cape's roadmap to become the leading green economic hub on the African continent. The key elements of the framework are five drivers, namely smart living, smart mobility, smart ecosystems, smart agri-production and smart enterprise. The Smart Ecosystems driver encompasses water and biodiversity conservation, expanded infrastructure, tourism, livelihood and job opportunities created through better - managed ecosystems. The strategy has identified opportunities such as ecosystem management and restoration, biodiversity management, mariculture, tourism, sustainable harvest, conservation education, and research and development. It has further identified enablers that include finance, rules and regulations, knowledge management, capabilities and infrastructure.

Box 5: Green Economy and renewable energy
The Green Economy has reconfigured the relationship between the economy and the natural systems and resources on which it depends, to identify opportunities, which simultaneously drive economic growth, social development and the protection of environmental resources and systems. Investing in natural resources and natural system conservation supports economic growth that is more sustainable into the future and supports livelihoods. Such investment includes renewable energy as an alternative to conventional energy sources.

Source: GreenCape (2012, 2014 and 2015)

The strategy, which goes by the tag line, Green is Smart, is the Western Cape's roadmap to become the leading green economic hub on the African continent. The framework is premised on five key principles and choices of action, namely market focus, private sector-driven, public sector- enabled, collaboration and inclusion. The key elements of the framework are five drivers, namely smart living, smart mobility, smart ecosystems, smart agri-production and smart enterprise.

The Smart Ecosystems driver, has as its the objectives, enhanced water and biodiversity preservation, as well as expanded infrastructure, tourism, livelihood and job opportunities created through better - managed ecosystems. Opportunities identified are ecosystem management and restoration, biodiversity management, mariculture, tourism, sustainable harvest, conservation education, and research and development. Enablers have been identified as finance, rules and regulations, knowledge management, capabilities and infrastructure.

3.2 *The Western Cape economic context for PBES*

The Western Cape Government's commitment to grow the economy and create jobs is underpinned by the concept of 'inclusive growth'. Despite the Western Cape's ability to outperform the rest of the country, its pace of growth has halved since the start of the recession in 2007. In 2013, economic growth in the Western Cape slowed to 2.4 percent. Given the current and projected economic outlook for the country and the forecast 1.8 percent national growth rate for 2016, it is anticiapted that the growth outlook for the Western Cape will remain mixed. Any downward pressure however may be mitigated to some extent by the depdence of the Province on service orientated sectors rather than the mining sector.

Lead by the Presidency and Implemented by Department of Environmental Affairs, Operation Phakisa: Ocean Economy is poised to stimulate growth of the ocean through its four focus areas, viz:

- Marine transport and manufacturing activites such as coastal shipping, trans – shipment, boat building and repair,
- Offshore oil and gas exploration,
- Aquaculture, and
- Marine protection services.

When implemented these initiative shoulsd have a significant impact on job creation in town along the coast of the province and economic growth goals of the province will benefit greatly.

According to Provincial Treasury, 2015, for the forecast horizon (2015 - 2020) economic growth in the Western Cape is expected to average 2.7 per cent per year. The tertiary sector is likely to be the biggest driver of this growth, as evidenced over the past few years.

The provincial economic review and outlook (PERO),Provincial Treasury, 2015 also recognizes that the Province is becoming a services-oriented regional economy. Its non-metro regions are however still supported by the regions 'agricultural roots'. This is particularly evident in the West Coast District and Cape Winelands District. Furthermore, the closely linked agri-processing sector reveals a comparative advantage in all non-metro districts, except the Central Karoo District. The Province's agri-processing sector is also a key sector for future employment and export opportunities. The Province's three biggest export sectors were: 1) food, beverages and tobacco; 2) petroleum products, chemicals, rubber and plastic; and 3) agriculture, forestry and fishing. The Province is uniquely positioned relative to the rest of the country, as its reliance on the mining sector for growth remains less important.

Box 6: The meaning of inclusive growth

In 2014 PERO the concept of inclusive growth was defined and explained. A summary of that explanation is given here because of the centrality of the theme in 2015 PERO.

Inclusive growth captures the importance of structural transformation for economic diversification, socio-economic and competition. It puts the emphasis on policies that remove constraints to growth and inequality and creates a level playing field for investment and access to opportunity.

Inclusive growth refers both to the pace and pattern of growth, which are considered interlinked. The emphasis is thereby placed on the idea of equality in terms of access to opportunity, markets, resources, and an unbiased conducive regulatory environment for businesses and individuals.

The focus is on creating work opportunities characterised by increased productive value and growing competitive businesses rather than increasing the quantum of jobs regardless of whether it was done in a sustainable and competitive manner.

Source: The 2015 Provincial Economic Review and Outlook.

Three core sectors and their related value chains were identified by PERO 2015 (Provincial Treasury, 2015) to drive future economic growth in the Province, these included:

- **Tourism** - including both business and leisure tourism, as well as other more specialised niches,
- **Agri-processing** - with a focus on food and beverages; includes export and domestic product potential, and
- **Oil and gas** - with the focus on areas of immediate potential, particularly midstream services such as rig repair; exploration was purposely discounted as the lead teams are too long to deliver impact on jobs and growth within the next five years.

In order for the economic potential in these sectors to be realised, five key enablers were identified and these included: energy security, water, skills development, other infrastructure, and reducing red tape.

3.3 The structure of the Western Cape economy

The diverse structure of the Western Cape economy is a critical aspect of its historical and current growth performance, it also indicates the current low reliance of the province on income from the mining sector in South Africa. Some of the key sectors, as measured by their nominal value added in 2011, were as follows:

- Finance, real estate and business services: 19.7%;
- General government: 9.8%;
- The wholesale, retail and motor trade; catering and accommodation sector: 17.4%;
- The manufacturing sector: 14.6%;
- The transport, storage and accommodation sector: 15.4%; and
- Agriculture, forestry and Fishing sector: 22.6%.

3.4 Role players in the Western Cape biodiversity economy

Similar to the biodiversity economy of South Africa, the Western Cape Province biodiversity economy is regulated by the public sector and operationalised mostly by the private sector with support from academic and research organisations. For the PBES 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 the success of the PBES and to expand the opportunities for growth identified through the biodiversity economy in the province.

The role players in the biodiversity economy in the Western Cape Province include:

1. Communities,
2. Industry and industry bodies,
3. Financial institutions,
4. Agriculture and Farming associations,
5. Academia,
6. Science councils,
7. Non-governmental organisations,
8. Community-based organisations and cooperatives,
9. Local, Provincial and National government,
10. National and Provincial conservation agencies and entities.

Table 3: Roles in developing and growing the biodiversity economy value chains

Provincial and Local Departments	Sustainable resource management & conservation	Priority setting	Drive innovation: Discovery & Research	Product Development	Product to Market	Human Capital Development	Implementation of innovative strategies	Funding	Monitoring
Science and Technology			Y	Y	Y		Y	Y	
Health			Y	Y		Y	Y	Y	Y
Trade and Industry		Y	Y	Y			Y	Y	Y
Agriculture, Forestry and Fisheries	Y	Y		Y	Y		Y	Y	Y
Environmental Affairs	Y	Y		Y	Y		Y	Y	Y
Higher Education and Training			Y			Y			
Economic Development	Y	Y					Y	Y	Y
Energy	Y	Y					Y	Y	
Public Enterprises				Y			Y	Y	Y
Rural Development and Land Reform	Y	Y			Y		Y	Y	Y
Water Affairs and Sanitation	Y	Y					Y	Y	Y
Social Development						Y	Y		Y
Human Settlements					Y	Y			
Traditional Affairs						Y			Y
National Treasury		Y						Y	Y
South African Revenue Services		Y						Y	
Statistics South Africa	Y								
Small Business Development			Y	Y	Y	Y	Y	Y	
Planning and Development	Y	Y	Y		Y		Y		Y

3.5 *Further trends impacting the Western Cape economy*

Through a consultative workshop process the following trends were further identified as driving economic growth or impacting biodiversity (either negatively or positively) in the Province, these included:

- Mining and quarrying: Resource extraction in general with a focus on the potential for uranium mining, rare earth and phospurus mining, and fracking,
- Agriculture, forestry and fishing: Declining fish stocks,
- Transport, storage and communication: Bio-aviation fuel,
- Electricity, gas and water: Wildfire impact on climate change,
- Water security: The impact of estuary and river health declining,
- Migration of people to the Western Cape: Rising pressures on housing and skills, a young and mobile population, youth dividend (people who are consumers and are connected & able to make ethical decisions),
- Urban densification (compact versus diverse city planning).

3.6 *Western Cape Province biodiversity economy SWOT analysis*

Unpacking the overarching goal into objectives and their accompanying targets 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 Western Cape biodiversity economy, which the action plan seeks to address.

The strengths listed below demonstrate the key benefits of the strategy and, importantly, demonstrate the value in implementing this strategy. The threats summarise the risks of not achieving sustainable economic transformation. The opportunities and weaknesses specify the interventions that need to be addressed in the short, medium and long term in order to ensure the overarching goal, defined in section 4.2, is achieved.

Strengths	**Weaknesses**
• The extent and scale of biodiversity in the Western Cape is unique, • The province hosts World Heritage sites from which income is leveraged, • Tourism is dependent on the natural assets of the Western Cape and contributes to the provincial GDP, • The provincial economy is dependent on natural resources that are becoming scarce such as water, • The location of the province provides a geographical advantage, • Human capital and knowledge in the province is robust, for example there are four universities in the region, • Scientific and technical support is available in the province.	• Developmental and economic constraints are compounded through the "threatened" status of some of the biodiversity assets, • Law enforcement capacity for biodiveristy assets remains limited, • Untested models hinder there adoption, accuracy and use of biodiversity into economic opportunity considerations, • Inadequate use of natural resource accounting has limited the knowledge of the status quo of the provinces natural capital.
Opportunities	**Threats**
• Society in the province has a shared value in biodiversity, • Various initiatives currently exist that provide opportunities for leverage and collaboration, • Ability for the adoption of an approach to biodiversity which contributes to climate change mitigation and improving resilience for example ensuring water security, • A biodiversity economy could strengthen social inclusion in the province.	• Loss of biodiversity is occuring through mining and agriculture, • Loss of biodiversity is occuring through rapid invasion by alien plants, • Unregulated/illegal or excessive extraction compounds biodiversity loss in the province.

3.7 Western Cape Province biodiversity economy enabling factors

Enablers are identified as key factors that may be used to facilitate the implementaton of the strategy and its key actions. Through a consulttaive process the following drivers were identified as relevant for the Western Cape Province.

Box 7: Critical enablers to achieve the Provincial Biodiversity Economy Strategy

1. Finance and Investments: Support funding, financing mechanisms and sustainable investments are available to facilitate the development of PBES
2. Research and Development: R&D is done to facilitate the successful implemenation of PBES products
3. Knowledge and shared information: Awereness and advocacy for PBES grows and people are capacitated
4. Institutions and capacity: Institutions are capacitated to roll-out PBES
5. Human Resource: Skills are developed for PBES
6. Technology: Technology underpins and supports PBES growth
7. Geographical indicators: Data is available and accurate to support PBES
8. Resolution: There is a shared commitment to drive and implement PBES

4. The Vision, the Overarching Goal and the Guiding Principles for the strategy

The PBES's Vision is a far-reaching aspirational statement that indicates where "we want to be" and in this context it is aligned with OneCape 2040, National Biodiversity Economy Strategy (NBES), the Western Cape Green Economy Strategic Framework (2013), the draft Western Cape Provincial Biodiversity Strategy and Action Plan (PBSAP) and the Provincial Strategic Plan, 2014 to 2019. In turn, OneCape 2040 is aligned with the NDP, Vision 2030.

The Overarching Goal represents a five-year milestone en route to achieving the vision. The strategic objectives, outcomes, targets and actions in this PBES are anchored on the Overarching Goal.

The Guiding Principles reflect the values and the philosophies or enduring truths that serve as the foundation for the PBES and cut across all elements of this strategy. They remain aligned to the Principles that underpin the provincial biodiversity strategy and action plan.

4.1 The Vision

The Vision for the PBES is aligned to the Vision for the Western Cape Biodiversity Strategy and Action Plan.

PBES Vision

By 2040, Biodiversity, the natural heritage and ecological infrastructure is valued, wisely used, conserved and restored, and delivers the ecosystem services that improve the quality of life of the people of the Western Cape Province.

4.2 The Overarching Goal

The overarching goal for the PBES is aligned to the third strategic objective of the Western Cape Biodiversity Strategy and Action Plan.

PBES Overarching Goal

By 2020, a biodiversity-based economy contributes to inclusive and sustainable livelihoods and development opportunities in the Western Cape Province.

4.3 The Guiding Principles

To address the PBES goal and objectives, PBES has the principles of:

FAIR AND EQUITABLE BENEFITS FROM BIODIVERSITY: There is fair and equitable distribution of the benefits that arise from the commercial development of the biodiversity and biological resources found in the Western Cape Province.

PROMOTING ECOLOGICAL RESILIENCE: Building ecological resilience recognises the province's social and economic development imperatives as well as the links between ecological and social systems and infrastructure.

CONSERVATION OF BIODIVERSITY & ECOLOGICAL INFRASTRUCTURE: The biodiversity economy is recognised as a public good and will be developed and grown while maintaining the biological diversity, at all scales (gene, species, ecosystem) and in all environments in the province.

SUSTAINABLE USE OF INDIGENOUS RESOURCES: Resource economic dependent growth that assures the sustainability of the indigenous biological/genetic resources, which are exploited, and the conservation of the ecosystem within which the resources are found.

SOCIO-ECONOMIC SUSTAINABILITY: The biodiversity economy and the products from the markets within this economy need to be socio-economically sustainable.

INCENTIVE-DRIVEN COMPLIANCE TO REGULATION: Innovative incentive-based compliance of all stakeholder and products in the sector to relevant legislation and regulations.

ETHICAL PRACTICES: Growth of the biodiversity economy should be based on the ethical business practices of the country, and includes the principles of fair trade.

IMPROVING QUALITY AND STANDARDS OF PRODUCTS: Growing the biodiversity economy sub-sectors through the production of excellent quality products, which adhere to national and international product standards and certification.

5. Provincial biodiversity economy Objectives, Outcomes and Targets

The PBES's Objectives, Outcomes and Targets have been devised as a means to achieve the five-year Overarching Goal. These address key issues, challenges, threats and pressures on the biodiversity economy and its associated ecological infrastructure identified following the desktop review conducted as part of this project as well as the inputs received during the consultation process. This PBES has **two Core Objectives** and **five Enabling Objectives.**

PBES Objectives (PBEOs) are statements that relate to the fulfillment of the Overarching Goal.

We have organised the PBES Objectives into:

1) **Core Objectives** – these relate to objectives that pertain to the core function of a biodiversity economy and associated tools and mechanisms.
2) **Enabling Objectives** – these are supporting and cross-cutting objectives that will enable effective implementation of the core objectives.

Outcomes are results that stem from achieving core and enabling objectives.
Targets are measures that inform us whether we are achieving our objectives.

5.1 Strategic alignment of PBES objectives with relevant strategies

The PBES objectives are aligned with international, national, provincial and local level strategies and initiatives. Some of the strategic objectives or key focus points of these strategies and initiatives are outlined in Table 5, below. All these focus points are driven by both biodiversity and economic development objectives.

Table 4: Other objectives that underpin the Western Cape biodiversity economy strategy

Strategy or Initiative	**Key strategic objective**
Global biodiversity strategy	SO 4: The human capacity for conserving and using biodiversity sustainably must be greatly strengthened, particularly in developing countries
NDP	Key focus: Building environmental sustainability and resilience
NBSAP	SO 4: Human development and well-being is enhanced through sustainable use of biological resources and equitable sharing of the benefits
NBES	All 10 transformation enabling objectives
Green economy strategy	Addressing environmental externalities and existing market failures, where the production or consumption of goods and services has negative effects on third parties and the environment whereby the cost is not fully reflected in market prices
Bio-economy strategy	Overall sustainable economic growth from the bio-economy
PBSAP	SO 3: By 2020, a biodiversity-based economy contributes to inclusive and sustainable livelihoods and development opportunities in the Western Cape province.
IGS	SO 1: Job Creation and Economic Growth SO 7: Mainstreaming Sustainability and Optimising Resource Use Efficiency
Western Cape Green Economy	To achieve 'enhanced water and biodiversity preservation, and expanded infrastructure, tourism, livelihood and job opportunities created through better managed ecosystems'
OneCape2040	1) All people to have access to water, energy and waste services that are delivered on a sustainable resource-efficient manner; and 2) The Western Cape to be a recognised leader and innovator in the Green Economy
Eco Invest I & II	Identify and implement interventions for unlocking the development of the nature-based economy in the Western Cape Province, specifically: 1) Promoting the development of biomass to energy industries, value-added alien wood enterprises, and restoration of landscapes cleared of alien plants, through establishing and

	piloting a model for selling alien plant biomass, using the Flower Valley Conservation Trust and Agulhas Biodiversity Initiative as a pilot, 2) Promoting rollout of degraded landscape restoration using Spekboom, by developing a cost-efficient model for carbon validation and landowner contracting, using the Vanwyksdorp Jobs for Carbon project as a pilot, 3) Promoting ecologically sustainable Honeybush (and other indigenous natural products) production by facilitating the development of standards and certification systems for wild harvesting and commercial cultivation, and promoting access to degraded land for community indigenous natural products conservation farming projects.

5.2 Core PBES Objectives, Outcomes & Targets

The PBES strategy is underpinned by 2 core objectives (CO), namely:

Goal: By 2020, a biodiversity - based economy contributes to inclusive and sustainable livelihoods and development opportunities.

Core Objectives to achieve the PBES goal:

- CO 1: Biodiversity economy of the province grows by developing and unlocking the economic potential of biodiversity sector value chains.
- CO 2: Stakeholders recognise and value the economic contribution of ecosystem goods and services to the Western Cape provinces development goals.

5.2.1 Biodiversity economy of the province grows by developing and unlocking the economic potential of biodiversity sector value chains

Scope: To measure and ensure that the PBES drives sustainable economic growth in the Province that improves the livelihoods of all citizens while maintaining environmental integrity, through the unlocking of the economic potential of biodiversity sector value chains.

Core Objective 1: Biodiversity economy of the province grows by developing and unlocking the economic potential of biodiversity sector value chains	
Outcomes	**Actions**
a. Contribution of biodiversity and ecosystem-based products; processes; services and initiatives have a growing contribution to the economy and employment creation goals of the province.	a.1. By 2018, the scope, the value and the growth potential of the biodiversity-based economy of the province are determined, a.2. By 2020, incentives for sustainable use principles for industries that directly grow, harvest and use indigenous biodiversity, and natural resources including water resources found in the province lead to enhanced economic benefits, a.3. By 2016, A provincial biodiversity economy planning and

	assessment framework informs all decisions regarding land and resource use and spatial development, a.4. By 2025, Biodiversity economy considerations are integrated into macro-economic, trade, industrial and fiscal policy, a.5. By 2019, The objectives and actions of Eco-Invest II and III support sustainable economic growth in the province, a.6. By 2020, smart ecosystems are adopted and support the biodiversity economy.
b. Economic opportunities and other social values based on biodiversity are progressively inclusive of all sectors of society including previously disadvantaged individuals and communities, youth, people with disabilities and women.	b.1. By 2020, an increased number of previously disadvantaged individuals visit and have improved access to the biodiversity economy, b.2. By 2020, the Green Economy Strategy Framework programmes, and other relevant provincial and local economic development strategies and plans stipulate objectives that promote, in line with applicable legislation, inclusive economic participation in the biodiversity-based economy and ensure equitable sharing of benefits arising from the commercial development of biological resources found in the province, b.3. By 2020, local beneficiation of biological resources found in the province is part of the Green Economy Strategy Framework programmes and other economic and industrial development strategies of the province and of local authorities, b.4. By 2018, a wildlife sector economy strategy is developed to support the growth of the sector.

5.2.2 *Stakeholders recognise and value the economic contribution of ecological services to the Western Cape provinces development goals*

Scope: Ensure that stakeholders understand and recognise the value that ecological services make to the economy.

Core Objective 2: Stakeholders recognise and value the economic contribution of ecological services to the Western Cape provinces development goals	
Outcomes	**Actions**
c. The business case for conservation and sustainable use of biodiversity and its associated contribution to the economy and development goals of the province is recognised and appreciated by an increasing number of key decision makers and members of society.	c.1. By 2017 a comprehensive and proactive provincial communication, awareness raising and advocacy strategy reaches targeted sectors and facilitates conservation and wise use of biodiversity to grow the biodiversity economy, c.2. By 2017, the biodiversity economy network is secured, expanded and managed to ensure that a representative sample of biodiversity economy initiatives are sustainably implemented, c.3. By 2020, a monitoring and evaluation system is established for biodiversity economy initiatives, c. 4. The value of natural products and their dependence on biodiversity is understood.

5.3 Enabling PBES Objectives, Outcomes & Targets

The PBES strategy is underpinned by 5 enabling objectives (EO), namely:

Goal: By 2020, the promotion of equitable access and a sustainable and inclusive biodiversity-based economy for the benefit of all citizens of the Western Cape province that will progressively contribute to the attainment of the biodiversity conservation, economic and development vision of the Western Cape Province.

Enabling Objectives to achieve the PBES goal:

- EO 1: Developing financing mechanisms and mobilise financial resources
- EO 2: Enhance research & development to support the biodiversity economy in the Province
- EO 3: Improve & share knowledge, and promote optimal use of technology
- EO 4: Enhance institutional and human capacity
- EO 5: Streamline markets for the biodiversity economy (identify, improve access, develop)

5.3.1 Developing financing mechanisms and mobilise financial resources

Scope: Focus is on ensuring that funding and financing opportunities are available for PBES and that the implemented value chains generate sustainable income streams

Enabling Objective 1: Developing financing mechanisms and mobilise financial resources	
Outcomes	**Actions**
d. Innovative financing strategies lead to the growth of the current funding available to achieve biodiversity economy goals, strategic objectives and actions of the province.	d.1 By 2018, a feasibility study of new and innovative funding sources, models and mechanisms for the biodiversity-based economy is conducted. d.2.By 2020, the CapeNature protected area Income Generation Strategy supports sustainable funding of biodiversity. d.3. By 2018, develop a biodiversity economy-financing plan that takes into account the recommendation of the feasibility study on innovative financing mechanisms and of the South African pilot of the BIOFIN project. d.4. By 2020, bioprospecting profits are used to fund species rich conservation and preserve biodiversity, d.5.By 2018, Donors for development funding such as European aid agencies like CBI (Netherlands), SIPPO (Switzerland), Danida (Sweden) are identified and contacted,

	d.6. By 2020, continued work of the CapeNature wildlife forum supports the financial viability of the sector. d.7 By 2019, the western Cape Integrated Tourism development framework (ITDF) supports sustainable funding of biodiversity-based eco-tourism.

5.3.2 Enhance research & development to support the biodiversity economy in the Province

Scope: Ensure that all implemented value-chains are supported through effective, relevant and scientifically-sound research and development processes.

Enabling Objective 2: Enhance research & development to support the biodiversity economy in the Province	
Outcomes	**Actions**
e. Strategic research priorities are identified that lead to the implementation of the biodiversity economy objectives and effective knowledge sharing in the Province.	e.1. By 2020, information management systems, research priorities, and monitoring and evaluation frameworks are in place and effectively supporting the biodiversity economy, e.2. By 2017, an R&D assessment for the biodiversity economy supports the development of the PBES e.3.By 2020, technology transfer and knowledge sharing ensure the development of sustainable bioprospecting markets.

5.3.3 Improve & share knowledge, and promote optimal use of technology

Scope: Focus is on generating, updating and sharing of data, information and knowledge, and on optimal use of technology in support of planning, decision-making, monitoring, reporting and management of biodiversity and its associated ecological infrastructure.

Enabling Objective 3: Improve & share knowledge, and promote optimal use of technology	
Outcomes	**Actions**
f. Promote collaboration between provincial and national institutions to support knowledge sharing for the biodiversity economy.	f.1 By 2018, inter-firm networks that help spread technology and innovation for the biodiversity-based economy are promoted, f.2 By 2018, collaborative networks that help spread knowledge for the biodiversity-based economy are promoted, f.3 By 2020, appropriate extension services support the development of the biodiversity-based economy, f.4 Support greater diffusion of ICTs to the bioprospecting economy sector, f.5.By 2018, indigenous knowledge is captured and recorded to

	ensure the sustainability of the biodiversity economy, f. 6. By 2017, information on the potential distributions of wildlife, market size, and product types supports sector decisions.

5.3.4 Enhance institutional and human capacity

Scope: Ensure that institutions are effectively capacitated to role-out and manage issues related to PBES.

Enabling Objective 4: Enhance institutional and human capacity	
Outcomes	**Actions**
g. Provincial initiatives to manage biodiversity are co-ordinated, developed and implemented with full stakeholder participation to contribute to sustainable socioeconomic development through appropriate institutional capacity.	g.1. By 2020, an enabling regulatory environment for the biodiversity economy businesses is in place, g.2. By 2016, an effective and efficient government supporting institution for the biodiversity economy takes the lead on its development, g.3 By 2018, SMME support for biodiversity-based businesses is established, g.4. By 2020, regulation, monitoring and industry co-ordination are capacitated to support the implementation of the biodiversity economy, g.5 Legislation that supports translocation and development of the sector.

5.3.5 Streamline markets for the biodiversity economy

Scope: Markets for biodiversity services and products drive economic growth in the Province.

Enabling Objective 5: Streamline markets (identify, improve access, develop)	
Outcomes	**Actions**
h. Established markets for biodiversity services and products promote sustainable economic growth.	h.1. By 2020, there are replicable case studies on investment in prioritised biodiversity goods and services of the province.

6. PBES Programme of action

The PBES programme is driven by 12 sub-sectors, identified through a consultative process. These sub-sectors and their value chains are expanded below.

6.1 PBES Economic Sectors and Value Chains

Various potential economic sub-sectors and associated value chains were identified through a consultative process for the development of the PBES. The potential for value-chain development, given the richness of the Western Cape's biodiversity assets was extensive.

Some of the initiatives already underway that have proposed strategies around biodiversity management or are exploring income generation opportunities through value chain development are highlighted in Table 5, below. The identified sub-sectors are explored further in sections 6.1.1 to 6.1.12.

Table 5: Brief snapshot of the potential initiatives, sectors, products and markets for PBES

Biodiversity economic initiative	**Sub-sectors**	**Products, Processes, Services**
NBES	Bio-prospecting Wildlife Ecotourism	Medicines, Cosmetics, Pharmaceuticals, Neutraceuticals Game farming, Hunting, Meat Bird watching, Photography, Adventure
NGP - Green economy	Energy efficiency, Recycling waste, Biofuels, Clean-coal initiatives, Retrofitting, Low carbon Transport, Electrification	-
WC – Green economy	Smart living, Smart mobility, Smart ecosystems, Smart agri-production and Smart enterprise	-
PBSAP	All sectors – critical for agriculture	-
WC PBES	Biosprospecting, Wildlife, Ecotourism, Alternative energy, Investment and Asset classes, Natural products, Fishing, Estuary management, Land restoration, Payments for environmental services.	Horticulture and wildflower products or businesses, Pharmaceuticals, Traditional medicines, Cosmetics, Agriculture and agro-processing products, Other biotechnology-enabled products, Alien invasive plant clearing, Biomass
WC EcoInvest I and II	Financing of estuary management, Land restoration through carbon credits trading, Energy generation from plant biomass, Fynbos restoration	Biomass, carbon credits
CapeNature IGS	Tourism, Natural Resource Utilisation, PES, Renewable energy, Investment & Commercial opportunities, Market priced services, Leveraging position as management authority	Spekboom (Jobs for carbon) and Trading Biomass (ABI+)

6.1.1 Bioprospecting sub-sector

South Africa is actively engaged in bioprospecting and the past decade has witnessed a flurry of activities in the exploration of local biodiversity for commercially valuable genetic resources and biochemicals. This is due largely to the country's extraordinarily rich and unique biodiversity and well-developed research and institutional capacity, which combined provide an extremely favourable environment for bioprospecting, as well as for other approaches based on trading and using biodiversity for commercial gain (NBSAP, 2005).

> *The South African bioprospecting 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, or derivatives and genetic material thereof for commercial or industrial purposes (NBES, 2015).*

"Commercial and industrial products which fall under the ambit of the bioprospecting 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.

Case study 1: Traditional medicines

There are reported to be 28 million consumers of traditional medicines in South Africa, but the current supply of medicinal plants from woodlands and forests is thought to be unsustainable.

Traditional medicines are considered essential for the welfare of black households in South Africa. In South Africa over 60% of all healing takes place outside the formal western-style medical system.

Source: NBSAP, 2005

Communities and organisations that utilise or modify any information on the traditional uses of indigenous biological/ genetic resources also form part of the bioprospecting sector of the country", (NBES, 2015).

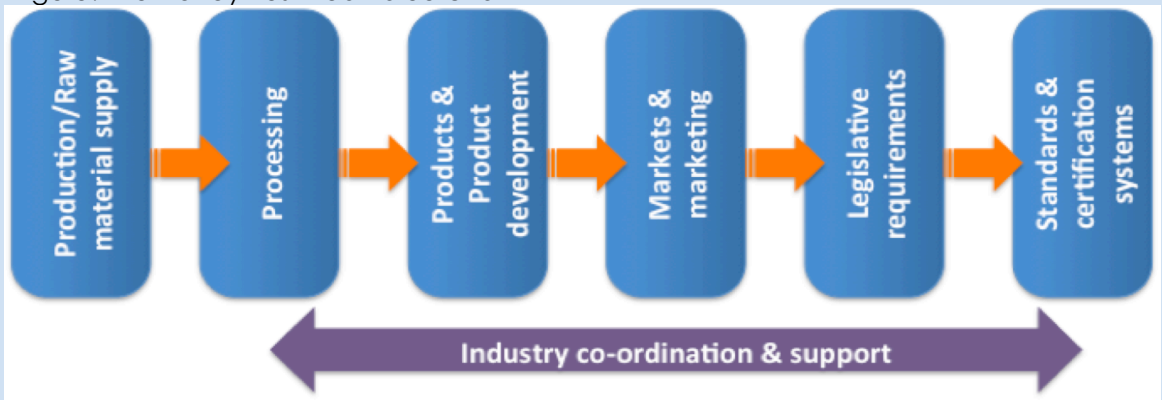
Case study 2: The production of honey bush tea

South Africa produces about 200 tonnes of unique honeybush tea each year. Most of this commercial crop is exported, with 35% going to the Netherlands, 20% to the UK, 17% to Germany and 14% to the USA exports. There are many different species of honeybush, and the most successful commercial species are bergtee (*Cyclopia intermedia*), vleitee (*Cyclopia subternata*) and kustee (*Cyclopia genistoides*). Another species, *Cyclopia maculata*, grows naturally around Genadendal in the Western Cape. In a three-year project funded by the Department of Science and Technology (DST) from 2009 to 2012, researchers from the South African Agricultural Research Council, the Medical Research Council and Stellenbosch University worked closely with members of the Genadendal community and neighbouring Bereaville community to work toward establishing ways to successfully grow this species on a commercial scale in the area. In this time, two trial plots were established, with the goal of establishing sustainable production of the crop by the town's small-scale farmers (Source: DST, 2014).

Overall, the opportunity to promote Fynbos restoration in commercial Honeybush plantations is limted, but that there is a strong need and opportunity to secure systems of sustainable wild production/harvesting of Honeybush.

Recommendations: From project to programme, Develop an understanding of the value hierarchy and the institutional complexity, Generating an enabling environment, Market development, Technology development, and Legal support.

Figure: The Honey Bush tea value chain



6.1.1.1 Biosprospecting sub-sector problem statement

The bioprospecting sub-sector demonstrates the potential for significant future development and growth, which is of great benefit to the Western Cape economy. According to (xx, xx)

Measured in terms of Gross Domestic Product (GDP), the bioprospecting sub-sector contributed 0.1 billion to the South African economy in 2013 (NBES, 2015). This GDP contribution indicates a significant opportunity for growth in absolute numbers but also remains a valuable sector to the Western Cape Province in terms of job creation, research and development, and strategic comparative advantage.

However, the sustainable growth of this sub-sector requires a strategic review of key opportunities, products and markets. It also requires the development of effective partnerships across private sector, government and communities to ensure successful implementation and long-term sustainability. The absence of legal and administrative mechanisms to control access to South Africa's genetic resources and to set conditions for benefit-sharing has in the past also been a key constraint towards achieving more meaningful benefit-sharing and managing the sustainability of the sub-sector (NBSAP, 2005).

6.1.1.2 Bioprospecting sector challenges and opportunities

The key drivers, challenges and markets for the wildlife sector are shown in Table 6, below.

Table 6: Defining characteristics of the bioprospecting economy (NBES, 2015)

Key challenges	**Key drivers**	**Key markets**
Reputational risk and compliance Regulation and compliance Sustainable management and use	Pharmaceutical and other businesses Research organisations Investors Communities	Medicines, Cosmetics, Pharmaceuticals, Neutraceuticals

6.1.1.3 Bioprospecting sector headline enabling interventions

The following headline enabling actions are identified for the bioprospecting sub-sector in the Wetern Cape province, they are unpacked in section 7 below:

- Conservation versus exploitation – biopsopecting profits could be used to fund species rich conservation,
- Technology transfer and knowledge sharing to develop sustainable markets,
- Capturing of indigenous knowledge,
- Regulation, monitoring and industry co-ordination,
- Identify donors for development funding such as European aid agencies like CBI (Netherlands), SIPPO (Switzerland), Danida (Sweden).

6.1.2 Wildlife sub-sector

The wildlife sector defined by the NBES, 2015 is centered on game and wildlife farming/ranching activities that relate to the stocking, trading, breeding, and hunting of game, and all the goods and services required to support this value chain. This sector is therefore characterised by an unusual combination of agriculture, eco-tourism and conservation characteristics.

According to the 2013 Absa Agricultural Outlook, commercial wildlife ranches cover 16.8% of South Africa's landmass. However, the extent and range of these ranches falls predominantly in the Limpopo province (50%), the Northern Cape province (19.5%), the Northern Cape province (19.5%) and the Eastern Cape province (12.3%). Overall, South Africa hosts 20 million game animals, 16 million of which can be found on private land and the remaining 4 million on state-owned land (NBES, 2015).

Recently, 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: private sales, public auctions of live animals, public wildlife catalogue auctions, a tender system, and electronic auctions (NBES, 2015).

Another large contributor to the wildlife tourism sector in South Africa is hunting. The domestic hunting market was estimated to generate ZAR6.4 billion in 2013, while the international hunting market generated ZAR1.4 billion in the same year. The geographic value add (GVA) for the western Cape Province is unknown. Additionally, through the sales of game meat, wildlife products and non-hunting accommodation, the wildlife value chain generated a further ZAR540 million in 2013 (NBES, 2015).

The wildlife industry in the Western Cape Province has ben growing over the past 10 years. The sub-sector remains a potentially important contributor to economic growth in the province. Wildlife production units are evenly spread within the province with a diversity of about 37 different wildlife species. Ecotourism, hunting and live sales are the most prominent ways of utilising this wildlife. Two typical value chains are biltong hunting and trophy hunting. Two examples of these value chains were evaluated for (van Hoving, 2011):

- biltong hunting in the Beaufort West region, and
- trophy hunting in the Southern Cape region.

Unfortunately, despite the biltong value chain proving to be profitable, the profits realized were relatively small. It is however regarded by ranchers as a source of additional income to livestock production associated with minor additional input costs. Although the gross margin per large stock unit is high, the trophy hunting system is not profitable and runs at a loss, this is due to overhead costs exceeding gross margin due to a relatively low number of wildlife species being marketed in the Western Cape (van Hoving, 2011).

The two typical systems evaluated are the biltong hunting system in the Beaufort West region and the trophy hunting system in the Southern Cape region. The biltong hunting system has been shown to be profitable, though it realises skimpy profits. It is, however, successful by virtue of the fact that wildlife producers perceive the wildlife enterprise as additional income to livestock production, almost without any additional costs. Although the gross margin per

large stock unit is high, the trophy hunting system is not profitable and runs at a loss. The main problem is the overhead costs that exceed the gross margin, due to too low a number of wildlife species marketed. The industry in this region is, according to wildlife producers, hampered by legislation and regulations, which limit the variety of species allowed in the region. These wildlife producers manage their system on a part-time basis and fund it from other income sources. The wildlife sub-sector provides the greatest opportunity for growth through tourism (accommodation, conferencing, birding, hiking, game drives, wild flower viewing, photo safaris and mountain biking were prioritized) and hunting (van Hoving, 2011).

6.1.2.1 Wildlife sub-sector problem statement

The wildlife sub-sector demonstrates the potential for significant future development and growth in South Africa, but remains more subdued in the Western Cape Province given the distribution of ranching and hunting activities. The opportunity for ecotourism rather than hunting-linked tourism is explored in section 6.1.3 below.

Measured in terms of Gross Domestic Product (GDP), the wildlife sub-sector contributed 2.9 billion to the South African economy in 2013 (NBES, 2015). This GDP contribution indicates a significant opportunity for growth in absolute numbers for the country. The challenge remains for the Western Cape Province around how to leverage this potential national growth for provincial growth. The province does not necessarily have a comparative advantage in this sub-sector relative to the Limpopo province, and Northern and Eastern Cape provinces but the sub-sector remains a valuable contributor to job creation. Currently, the industry in Western Cape is hindered by legislation and regulations, which limit the variety of species allowed into the region. Most wildlife ranchers manage their systems on a part-time basis and fund their activities from other income sources (van Hoving, 2011).

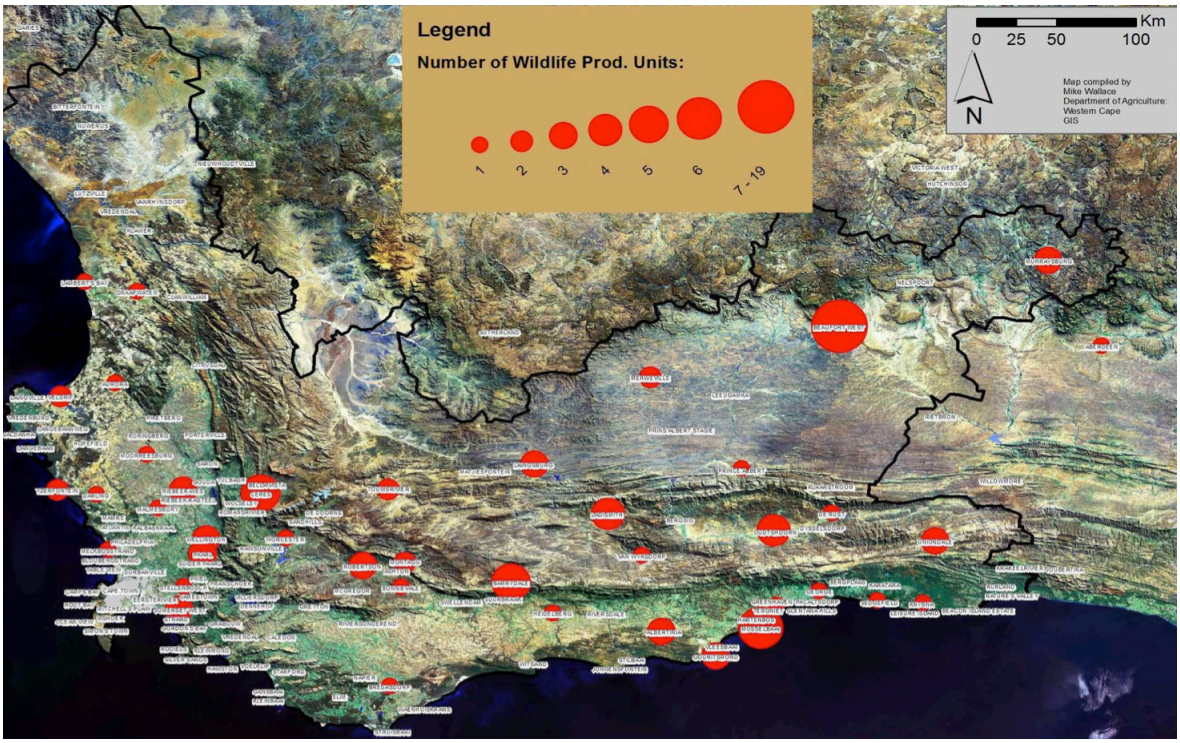


Figure 8: Distribution of wildlife production units in the Western Cape (van Hoving, 2011)

The presence of indigenous wildlife on private land can also play a significant role in encouraging private landowners to participate in and find commercial interests in

conservation. Poor recognition of the wildlife that occurred historically in the region and the lack of information on possibilities for management of wildlife in the area has to some extent resulted in the provinces inability to partake more broadly in this sub-sector (van Hoving, 2011 and Kerley et al, 2003).

6.1.2.2 Wildlife sub-sector challenges and opportunities

The key drivers, challenges and markets for the wildlife sector are shown in Table 7, below.

Table 7: Defining characteristics of the wildlife economy (NBES, 2015)

Key challenges	**Key drivers**	**Key markets**
Reputational risk Economic development constraints Sustainable management and use Limiting legislation	Domestic hunters International hunters Growing retail market for wildlife products Trade and sale of live indigenous animals Tourism	Local hunters International hunters Game meat and taxidermy Ranchers and Breeders Non-hunting accommodation

6.1.2.3 Wildlife sub-sector headline enabling interventions

The following headline enabling actions are identified for the wildlife sub-sector in the Wetern Cape province, they are unpacked in section 7 below:

- Proposed wildlife conservation strategy,
- Producing information on the potential distributions of wildlife, market size, product types,
- Legislation that supports translocation and development of the sector,
- Continued work of the Cape nature wildlife forum.

6.1.3 Ecotourism sub-sector

Due to the western Cape's unique and globally recognised biodiversity, the tourism sector in the Province remains one of the most robust in the country. The western Cape has become a global player in the highly competitive tourism market.

> According to Life: The State of South Africa's Biodiversity 2012, "Tourists, many of whom are drawn to our beaches, natural spaces and wild animals, brought an estimated R251 billion into the country's gross domestic product (GDP) in 2011."

The type of tourists attractions based on biodiversity include:

- Cape Floristic Kingdom - which is home to the Fynbos,
- The Garden Route,
- Coastal tourism with attractions such as the whale route,
- Conservation areas such as Table Mountain National Park and the Cape Nature Nature Reserves,

- Bird watching, whale watching, flower viewing, photography,
- Adventure activities such as shark diving,
- Outdoor activities such as cycling, horse riding and hiking.

However, not all tourism is ecotourism. Ecotourism is defined by the IUCN as "environmentally responsible travel to natural areas, in order to enjoy and appreciate nature (and accompanying cultural features, both past and present) that promote conservation, has a low visitor impact and provides for beneficially active socio-economic involvement of local peoples."

Case study 3: Volunteer Tourism – Blue Adventures: Beyond conservation

Expeditions are run by a social enterprise, which fuels marine research and conservation work in Madagascar and Belize. Profits generated by the expeditions (run by a private company) are re-invested to maintain the standard of future expeditions and are further channeled into the Blue Ventures Conservation (registered charity) in order to support the development of their innovative and integrated community-based programmes.
Source: www.blueventures.org

6.1.3.1 Ecotourism sector problem statement

Rising tourism activities and visitors to sensitive natural areas can threaten the integrity of ecosystems and local cultures, in the absence of appropriate planning and management. Over-dependence on ecotourism can also be exacerbated and negatively impacted by climate, currency exchange rates, and political or social conditions. Despite, these challenges, ecotourism has the potential to create jobs in rural areas, provide alternative opportunities for local economic development, and support both education and activism for the sub-sector.

6.1.3.2 Ecotourism sector challenges and opportunities

The key drivers, challenges and markets for the ecotourism sub-sector are shown in Table 8, below.

Table 8: Defining characteristics of the ecotourism sub-sector

Key challenges	Key drivers	Key markets
Reputational risk Economic development constraints Sustainable management and use Security and safety challenges Problem of eco-labeling to market tourism products	Domestic tourism International tourism (UK, USA/Canada, Germany, Holland) Volunteer tourism Growing retail market for inclusive and unique tourism products/packages	Ecotourism and Ecofriendly accommodation Bird enthusiasts, Photography enthusiasts, Adventure seekers, Holistic health seekers, Volunteer and development programmes, Business and conferencing

6.1.3.3 Ecotourism sector headline enabling interventions

The following headline enabling actions are identified for the eco-tourism sub-sector in the Wetern Cape province, they are unpacked in section 7 below:

- Provide local communities with strong incentives to participate in and benefit from the industry,
- Provide appropriate training in Ecotourism principles and service standards at all levels,
- Launch aggressive and effective marketing strategies that will ultimately maximise local profit share and capture a greater share of the global Ecotourism market.

6.1.4 Alternative energy sub-sector

Promoting the development of biomass to energy industries, value-added alien wood enterprises, and restoration of landscapes cleared of alien plants, through establishing and piloting a model for selling alien plant biomass, using the Flower Valley Conservation Trust and Agulhas Biodiversity Initiative as a pilot.

6.1.4.1 Alternative energy sector problem statement

The objective of this EcoInvest II initiative is to utilise woody invasive alien plant species (IAPs) for economic purposes, be it woodchips, charcoal, electrical or thermal energy, bio-char, wood cement, furniture or any other biomass-based product. However, EcoInvest I has indicated that challenges hindering successful implementation in this sub-sector, include, a variety of administrative and largely non-market related reasons (Manders et al, 2015).

Two key opportunities have been identified as follows:

- The utilisation the invasive alien biomass from 100 landowners on the Agulhas plains that has already been cleared, but which is not utilised. The institutional relationships between the Flower Valley Conservation Trust (which is an implementing agent for the NRM programme), the Agulhas Biodiversity Initiative and their participating landowners is of such a mature nature that the supply chain of the biomass is relatively simple. The biomass can be placed on tender for the market and various market operators can bid for the biomass. The volumes and the locations of the biomass can easily be determined; and
- An additional and supporting opportunity is to re-commission an existing charcoal plant belonging to the Elim community. The operation of this plant can be put on tender and an operator appointed. While a separate tender process would be required for this than the above, this tender should be linked to a secure biomass supply to render the operation viable.

The following headline enabling actions are identified for the alternative energy sub-sector in the Wetern Cape province, they are (Manders et al, 2015):

- A partnership between government and the private sector is essential to make this initiative to work,
- The trade in cleared invasive alien plant biomass can be used for the establishment of

revolving funds that can fund the rollout of natural capital restoration and management,
- Need to ensure secure supply of biomass and define end-users/markets.

6.1.5 Investment and Asset Classes sub-sector

The investment and asset classes sub-sector is broad. It includes opportunities ranging from market-based instruments for biodiversity management, to international donor funded programmes, to "green" investing, and offsets, through to traditional financing mechanisms. For the purposes of the western Cape biodiversity economy strategy, two options were highlighted through a consultative process and these included:

1. Land banking, and
2. Current potential financing initiatives underway in the Province.

The concept of land banking can be applied in different ways depending on the context and sector to which it is applied. Traditionally, land banking refers to the holding of land until such time as it is profitable or useful to release it. However, in the context of developing countries, land banking has been considered as an approach to facilitate urban renewal, preserving open space, and stabilizing property or land values (Harrison, 2007). The guiding principles of land banking in developing countries are defined by GTZ, 1988 in Harrison, 2007 as follows:

- To improve access of the poor and other specific target groups to land,
- To support the implementation of urban development projects,
- To reduce inflation in land prices and reduce land speculation,
- To promote public/private partnerships,
- To improve the land tenure structure,
- Create options for commercial and industrial development.

Successful land banking is expected to achieve both allocative efficiency and distributive efficiency and requires land acquisition, land management and land development (Harrison, 2007). Land banking remains a controversial tool in the absence of complementary mechanisms and appropriate institutional and governance structures.

Case study 4: MetroVivienda, Bogota, Colombia

The MetroVivienda is Bogota's land banking agency. It was established to address the problems of the lack of affordable housing in the City and to mitigate against an expanding informal housing market. The function of the MetroVivienda is to purchase open spaces on the periphery of the city for housing development. The agency assembles large land parcels and sells them off to private developers to develop affordable housing. The agency is financially self-sufficient and this has undermined the development of low-cost housing. The MetroVivienda purchases land on the periphery of Bogota and not in more strategically located inner city land. A series of criticisms levelled at the MetroVivienda include:

- Their housing reaches low-income households but not the urban poor,
- The acquired land is divided into uses such as commercial, residential and institutional. Most often residential blocks are built and sold prior to the development of commercial building leaving residences without access to services.

Source: Cullen-Cheung, 2007 in Harrison, 2007

Key financing initiatives underway in the Western Cape are outlined below.

Case Study 5: The Global Environment Facility (GEF)

The Global Environment Facility is a partnership for international cooperation where 183 countries work together with international institutions, civil society organisations and the private sector, to address global environmental issues. It serves as a financial mechanism for the international agreements like the CBD, United Nations Framework Convention on Climate Change (UNFCC) and United Nations Convention on Combatting Desertification (UNCCD). It was established in 1991 as a USD1 billion pilot programme in the World Bank to assist with the protection of the global environment and to promote environmental sustainable development. The United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP) and the World Bank were the three initial partners implementing GEF projects. In the Western Cape Province, GEF funded the CAPE programme and the Agulhas Biodiversity Initiative and recapitalised the Table Mountain Fund.

Case Study 6: Table Mountain Fund (TMF)

The Table Mountain Fund (TMF) is a Capital Trust Fund designed to provide a sustainable source of funding to support biodiversity conservation within the CFR.

The main objective of TMF is the conservation of biodiversity of the Cape Peninsula and the CFR as a whole, including the adjacent marine systems. The World Wide Fund for Nature South Africa (WWF –SA) raised the start-up capital in 1993.

By 1998 South African custodians had donated R10 million and the Trust was registered with WWF- SA as the founder, and SANPARKS and the Cape Peninsula National Park Committee as Trustee Groups, providing the opportunity to expand beyond Table Mountain and the Peninsula, to support conservation efforts throughout the CFR. The Global Environment Facility increased the capital fund by R30 million, and achieves synergy through this and its other investments in the CFR, particularly in the CAPE programme.

Case Study 7: BIOFIN

South Africa is one of the countries participating in the Biodiversity Finance Initiative (BIOFIN). BIOFIN is an initiative under the UNDP and aims to enable governments to build sound business cases for increased investment in conservation, sustainable use and equitable sharing of benefits of ecosystems and biodiversity, with a particular focus on identifying and addressing finance needs at the national level.

The BIOFIN initiative has developed the following tools to assist countries:

1. BIOFIN Workbook, which aims to promote consistent application of resource mobilisation steps and fostering the adoption of key principles. This workbook consists of three parts, namely the Review of biodiversity finance context, Analysis of NBSAP cost, and Development of a financing plan
2. BIOFIN Excel Spreadsheet, which helps planners to capture data at each step of the BIOFIN workbook.
3. BIOFIN User Manual, which provides illustrative examples and lessons learnt across BIOFIN participating countries. The aim of these tools is to provide concrete guidance to countries on how to assess existing biodiversity-related expenditures, gauge costs for implementation of their NBSAPs and understand how to mobilise financial resources required to fully implement their revised NBSAPs. By doing so, countries can improve biodiversity and sectoral policies and better align their national expenditures with their biodiversity and development goals.

6.1.5.1 Investment sub-sector problem statement

Developing a biodiversity economy in the Western Cape, hinges on appropriate and viable access to finance. This remains a major obstacle to both conservation efforts and aspiring sub-sector development. Financing gaps, especially for micro, small and medium sized enterprises are rising and remain large (NBES, 2015).

> *The single largest commercial challenge for the biodiversity economy is to attract investment (NBES, 2015).*

A key intervention to attract investment for biodiversity is to market viable value chains. This is also requires the development of sound business cases for these investment opportunities.

6.1.5.2 Investment sub-sector challenges and opportunities

The key drivers, challenges and markets for the wildlife sector are shown in Table 9, below.

Table 9: Defining characteristics of the investment sub-sector

Key challenges	**Key drivers**	**Key markets**
Poorly defined business plans, Effective and strategic marketing, Certification, monitoring & evaluation. Skills and knowledge gaps	A global shift towards "green" investments, Demands of SRI reporting and responsible business practices – requiring a license to operate, Domestic policy focused on economic growth and job creation.	Industry, Environmentally conscious investors, Global donors

6.1.5.3 Investment sub-sector headline enabling interventions

The following headline enabling actions are identified for the investment sub-sector in the Wetern Cape province, they are unpacked in section 7 below:

- Alignment to the objectives and actions of Eco-Invest II,
- Assess the feasibility of viable markets,
- Develop funding proposals for international donors such as: European aid agencies like CBI (Netherlands), SIPPO (Switzerland), Danida (Sweden),
- Implement the BIOFIN actions.

6.1.6 Natural Products sub-sector

The Western Cape Province is the world's richest area of different indigenous plants. The natural products sector in the Western Cape employs approximately 133 000 people and is continuing to gain recognition globally. This sub-sector consists of various plant species for example: Rooibos, Honeybush, Proteas, Buchu, Hoodia, Aloe, Essential oils, Sceletium, Sutherlandia, Pelargonium and is starting to observe a rise in the demand for plant oils. The most developed and well-recognised traded plant species are Rooibos and Honeybush, both are mainly used for herbal infusions and teas (WC DEADP, 2016). Growing this sub-sector is

expected to significantly increase job creation and drive economic development. The opportunity, especially for rural development and the inclusion of communities and small, emerging producers into the natural product value chain could also drive transformation through the biodiversity economy strategy.

Case study 8: Using wetlands to purify water

"Wetlands remove pollutants from water through various natural processes, making these systems invaluable allies when dealing with water contaminated by mining processes, industrial effluent, sewage and agricultural runoff. But even the most robust wetland has a breaking point."

The case study of the Klip River wetlands in Gauteng shows how wetlands can reduce the downstream costs for cleaning water. However, these particular wetlands have a unique characteristic, a rare peat, which serves as the critical filter and absorbs harmful toxins and waste from polluted water. When these wetlands are healthy, this process continues but when the wetlands become degraded through siltation, floods or excessive toxins, the service they provide may be compromised or completely destroyed.

Source: SANBI, 2016 – www.sanbi.org

Case study 9: GEF/UNEP/FAO funded pollinators project in South Africa

Insects, birds, bats and other animals serve as pollinators while they forage for their own survival, consequently providing a free ecosystem service upon which we depend. In South Africa, the honey bee remains the most important pollinator for agricultural crops. Farmers rely on managed honey bees to ensure adequate pollination. They usually pay beekeepers to provide the managed honey bees. Farmers recognise that the economic benefits resulting from this honey bee market are improved or better managed crop yields and yield quality.

Further research through the Honey Bee Forage Programme funded by WfW and DEA also highlighted that eucalyptus trees, certain crops such as sunflower, citrus and canola, indigenous trees and shrubs, flowering plants in suburban gardens and even roadside wildflowers or weeds are all critically important to South Africa's indigenous honey bees. This knowledge for the purposes of a biodiversity economy strategy allows for market segmentation and services to be designed with the final consumer in mind.

Source: SANBI, 2015 – www.sanbi.org

Research done in the Aloe and Rose Hip Industries indicates that for every ZAR1 million exported, at least 20 fulltime, sustainable jobs in rural areas for mainly unskilled workers may be created (Joubert, 2012).

Case study 10: Farming of wildflowers in the Western Cape

The farming of wildflowers to service the horticultural industry has become big business in some areas, especially in the Western Cape. While some indigenous species are cultivated as with any other agricultural crop, selected fynbos plant species are also harvested from the wild for commercial purposes. Harvesting is done according to international certification standards based on currently known sustainable levels. A number of plants yield traditional beverages (such as rooibos tea and honeybush tea), or aromatic oils or remedies (such as buchu, hoodia and devil's claw), which have been commercialised. The market for wildlife and wildflowers has had positive impacts and has led to an increase in the area of land under conservation management.

Source: NBSAP, 2005

Case study 11: Badger friendly honey (South Africa)

In South Africa, the effective conservation of honey badgers requires that beekeepers adopt "badger-friendly" practices as part of their profession, particularly when their hives are placed in indigenous vegetation and on the borders of protected areas.

A proposed solution to protecting badgers has been the development, branding, marketing and selling of "badger friendly honey". Ultimately, honey that is sourced from hives adhering to the sustainable practices outlined for badger conservation.

Source: EWT, 2016 – www.ewt.org.za

6.1.6.1 Natural products sub-sector problem statement

Eco-Invest Phase I identified 'Fynbos Restoration through Honeybush Cultivation' and 'Agroforestry' as two of the five priority theme areas that should be pursued to leverage investment in natural capital in the Western Cape Province (Manders et al, 2015). Under the natural products sub-sector, EcoInvest II further recognises that "the restoration of landscapes with locally indigenous trees, other high value indigenous plants, and food crops (where local communities are involved), could offer optimum social, ecological and economic outcomes" (Mander et al, 2015).

6.1.6.2 Natural products sub-sector challenges and opportunities

The key drivers, challenges and markets for the natural products sub-sector are shown in Table 10, below.

Table 10: Defining characteristics of the natural products sub-sector

Key challenges	Key drivers	Key markets
Poor representation and content on local retail outlets, Economic development constraints, Sustainable management and use, Lack of institutional coordination and capacity, Need for guidelines for the sustainable, development of the natural products industry.	Global demand for unique biodiverse products, Shift towards healthy living Drive to find new markets and support economic development	Health and wellness Beverages Cosmetics

6.1.6.3 Natural products sub-sector headline enabling interventions

The following headline enabling actions are identified for the natural products sub-sector in the Wetern Cape province, they are unpacked in section 7 below:

- Implement the CapeNature protected area income generation strategy.
- Smart ecosystems uptake,

- Product Identification and Development,
- *Promoting Value Chain integration across Provincial Borders,*
- *Promoting Access to Land for sustainable production of Indigenous Natural Products,*
- *Sustainable Indigenous Natural Products cultivation and harvesting Guidelines, Standards and Certification Systems,*
- *Processing, packaging and marketing.*

6.1.7 Fishing sub-sector

The marine fishing sector is an important economic sector in South Africa. About 600 000 tons of marine resources are harvested annually by 27 000 South African fishermen and women, with a value of approximately ZAR2.5 billion. The value of the entire fishing industry, incorporating commercial, recreational and subsistence fishing, is estimated to be ZAR4.5 billion a year (NBSAP, 2015)

Case study 12: Operation Phakisa – Aquaculture Priority Sector

Operation Phakisa is an initiative under the Presidency. Its strategy is to fast track economic development. Based on the NDP, within the environmental sector, it aims to unlock economic potential of South Africa's oceans by contributing to poverty alleviation and employment creation. Government has identified four priority sectors for Operation Phakisa. One of these is on aquaculture.

Government will be looking at enhancing growth in the sector through increasing the contribution of all segments across the aquaculture value chain, while creating jobs especially in fish processing and marketing. Aquaculture is a relatively underdeveloped area in South Africa, despite it being an increasingly important contributor to food security globally. Despite its relatively small size, aquaculture in South Africa has shown strong growth of 6.5 % per annum.

Source: PBSAP, 2016

6.1.7.1 Fishing sub-sector problem statement

The full ambit of fisheries management falls beyond the mandate of the western Cape biodiversity economy strategy as fisheries are mandated and managed under the Department of Agriculture, Fisheries and Forestry (DAFF). However, there is limited information on the subsistence sector. Furthermore, coastal and estuarine resources are particularly difficult to manage, due to the extensive coastline and overlapping jurisdictions. Despite these constraints, under the biodiversity economy strategy, there is an opportunity to address the subsistence sector and consider opportunities to generate income. The policy on small-scale fisheries in South Africa (DAFF, 2012) recognises the need for poverty alleviation, sustainable livelihoods, job creation and food security through the sustainable development of this sector.

6.1.7.2 Fishing sub-sector challenges and opportunities

The key drivers, challenges and markets for the fishing sub-sector are shown in Table 11, below.

Table 11: Defining characteristics of the fishing sub-sector

Key challenges	**Key drivers**	**Key markets**
Access to licenses Economic development constraints Sustainable management and use Physical access to the sea	Domestic and international industry (fish markets),	Fish processing, Fish marketing, Acquaculture

6.1.7.3 Fishing sub-sector headline enabling interventions

Headline enabling actions are identified for the fishing sub-sector in the Wetern Cape province, they are unpacked below. These actions are also linked to the Western Cape Integrated Coastal Management Programme (ICMP, 2003). Goal C1 of the ICM, 2003, states "to promote the diversity, vitality and long term viability of coastal economies and activities, giving preference to those that are distinctly coastal or dependent on a coastal location". The headline enabling actions include:

- SME support for small fisheries:
  - investing in processing and marketing infrastructure in productive areas;
  - developing relevant marketing strategies for fisheries zones;
- Training on sustainable principles,
  - capacity development programmes and information sharing;
- A supportive allocation and regulatory environment,
  - developing area and fishery economic development zones with purpose specific development programmes in each zone;
  - developing existing proclaimed fishing harbours to ensure equitable access to marine resources to promote local economic development;

- Specialist interventions through 'markets enablers':
  - promoting job creation through the implementation of the Working for Fisheries

Programme; and
- aquaculture development.

6.1.8 Estuary Management sub-sector

The EcoInvest II project recognises that estuary functionality throughout the Western Cape Province is declining, placing the valuable social, financial and economic benefits they provide at risk. Consequently, local households, urban economies, and municipal and national revenue streams are potentially also at risk (Manders et al, 2015).

Estuary supply services are currently fixed or declining and demand for these services is projected to rise, making them more valuable. As a result, EcoInvest II considers it prudent to promote estuary management systems, for example the LBRCT, to manage, maintain and grow the economic benefits associated with the western Cape estuaries (Manders et al, 2015).

In order to ensure the realization of economic benefits from these estuaries, EcoInvest II proposed the following enabling actions:

- Initiate dialogue with estuary users, private and public sector, to implement a social learning process over a six-month period to share understanding and develop new insights into the assets, services supplied, and opportunities for benefit sharing,
- Clustering Western Cape Estuaries into Management Units, and
- Facilitating a Dialogue to Re-invest in Municipal Estuary Assets.

6.1.9 Land Restoration sub-sector

The objective of EcoInvest II is to restore degraded landscapes in the Klein Karoo using mainly Spekboom cuttings, but also other native plant species.

> *Currently there is a 300 hectare pilot restoration project on five properties within a 20 km radius from Vanwyksdorp implemented under the umbrella of the Gouritz Biosphere Reserve (GBR) with the Wildlife and Environment Society of South Africa (WESSA) as managing agent, and funded primarily by the European Union, but with co-funding from Working for Lands under the banner of "Jobs for Carbon" (Manders et al, 2015).*

Spekboom restoration and Carbon Sequestration projects have the following benefits (DEADP, 2016):

Carbon stocks	Improved tourism potential
Increased biodiversity	Associated incomes from beekeeping
Soil stabilisation	Associated incomes from pastoralism
Reduced siltation of dams	Associated incomes from game farming
Increased basal stream flow in rivers	Job creation
Improved aesthetics of landscapes	Rural economic development

The Spekboom value chain is shown in figure 9 below, (DEADP, 2016).

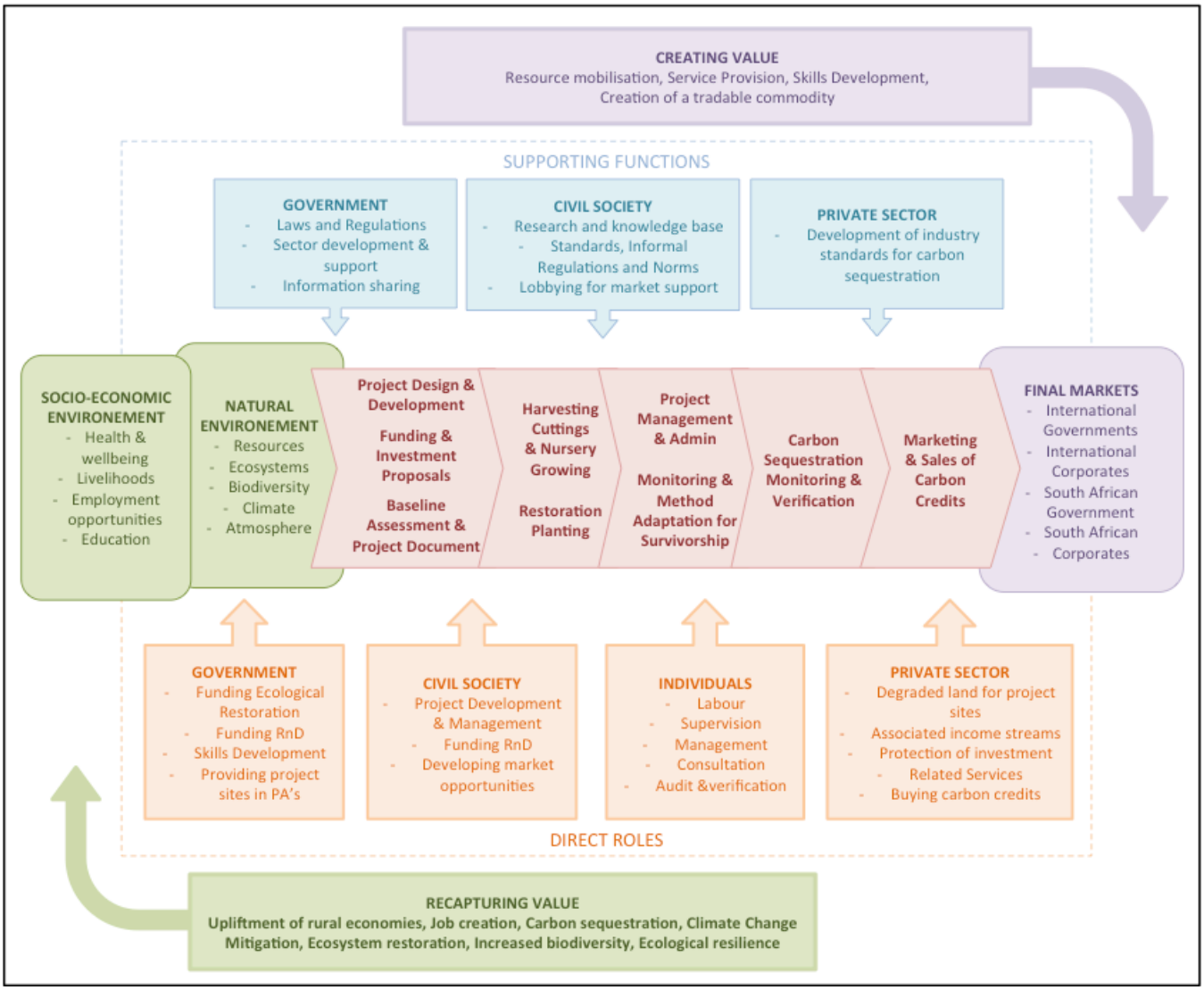


Figure 9: Participatory Value-chain of the Spekboom Carbon Sequestration sub-sector (DEADP, 2016)

The upfront restoration cost for this initiative is estimated at ZAR30 million, with the restoration activity estimated to take about 5 years, creating at least 100 full time jobs. The following enabling actions have been identified (Manders et al, 2015):

- Institutional support can and should be rendered to assist in the development of the

required legal processes and to facilitate the trade of the carbon,
- Government can and should provide down-scaled extension planning services,
- Regions, such as biospheres, should be assisted to develop the region's carbon baseline,
- Government should promote capacity building with in the context of good land management practices, and
- Government can determine its own carbon footprint and seek to off-set this footprint, at least in part, through natural capital restoration activities that sequester carbon and improve the adaptive capacity and resilience of ecosystems to climate change.

Further development of this sector requires alignment to the objectives and actions identified through Eco-Invest II and Eco-Invest III. Some of these actions are included in the role-out of the biodiversity economy strategy and are shown in table 14, below.

6.1.10 Knowledge management and services sub-sector

Knowledge management and services has been recognised as a sub-sector of strategic importance in tackling the issues of market failure linked to poor information. The need in this section is to recognise the potential for the development of knowledge management tools and data, to support decision-making in other sectors, which can potentially be sold.

Case Study 13: Intelligent Natural Assets – The Internet of Things

"The rise in IoT applications could significantly improve global market transparency, fundamentally changing the way consumers, government organizations and businesses make purchasing and investment decisions. More informed decisions would be made with increasing ease, a phenomenon that could dramatically shift consumer demand towards more resource-productive business models and shape them in ways we do not yet fully understand. Through this increased transparency, demand for circular products and services would grow, generating enormous market potential for products and services as well as entire business models designed to capture this demand. Models that successfully leverage IoT-enabled transparency to exhibit circular economy activities and establish a competitive advantage – through instrumenting the performance and impact of resources, supply chains, production processes and distribution networks – would succeed by capturing market share".

Source: Robinson, R. in WEF, 2015.

Another area of importance for development to underpin the biodiversity economy strategy for the Province is the development of human capital through training in critical scarce skills. GreenMatter focuses on this and is described below.

Case Study 14: GreenMatter

Lewis Foundation, responding to the Environmental Sector Skills under the auspices of the Department of Environmental Affairs (DEA) and the Department of Science and Technology (DST), partnered with SANBI to create a platform for broad-based transformation in the sector through a shared network called GreenMatter, administered by the Development Bank of Southern Africa (DBSA). GreenMatter is the implementing programme that puts the Biodiversity Human Capital Development Strategy into action. It provides a skills base for postgraduate, scarce and critical skills development through, among others, the provision of fellowships.

Source: PBSAP, 2016

6.1.10.1 Knowledge management and services sub-sector problem statement

The Western Cape has a comparative advantage in the knowledge management and services sub-sector. This is also supported by the four universities underpinning academic research in the Province.

6.1.10.2 Knowledge management and services sub-sector challenges and opportunities

The key drivers, challenges and markets for the knowledge management and services sub-sector are shown in Table 12, below.

Table 12: Defining characteristics of the knowledge management and services sub-sector

Key challenges	**Key drivers**	**Key markets**
Rapidly changing technology environment, Access to open source information, Knowledge gaps	Academia and research, Biodiversity data collection and analysis	Decision/Policy makers, Business and industry, Responsible reporting institutions

6.1.10.3 Knowledge management and services sub-sector headline enabling interventions

The following headline enabling actions are identified for the knowledge management and services sub-sector in the Wetern Cape province, they are unpacked in section 7 below:

- Information and awareness,
- Develop collaboration platforms,
- Flexible business models that can respond to price variability and the rapid evolution of technology,
- Reveal and quantify the cost of biodiversity economy externalities.

6.1.11 *Payments for ecological services (PES) sub-sector*

Payments for environmental services (PES) including watershed restoration and maintenance, are potential sources of substantial financing to support rural communities' management of their natural assets, and to provide benefits to downstream water users or other communities. But while it may be simple enough to identify those who provide environmental services and the beneficiaries of those services, creating contractual relationships between them has proved complex and difficult (IFAD, no date).

Rewards or 'payments' can include a range of incentives, including cash payments, low-cost information, marketing, input and credit services, and conditional property rights. Currently, in South Africa, PES alone is unlikely to have a substantial impact on job creation, poverty alleviation and economic growth given the complexities related in setting up, monitoring and facilitating trades (King et al, 2008).

Case Study 15: South Africa - Examples of the Department of Environmental Affairs-funded Natural Resources Management (NRM) Programmes

There is an extensive implementation activity of these NRM programmes in the Western Cape Province.

Working for Water: This programme focuses on clearing of alien invasive plants using mechanical, chemical, biological and integrated control methods. It has led to creation of a number of job opportunities. Secondary products such as furniture for schools and charcoal are being manufactured from clearing of IAPs.

Working for Wetlands: The South African National Biodiversity Institute (SANBI) implements this programme. It focuses on rehabilitation of wetlands through gabion construction, the removal of invasive alien plants in the immediate area, surveying of flood irrigation furrows, construction and placing of grass bale gabions and levelling of drainage furrows.

Working for the Coasts: This programme is coordinated by the Department of Environmental Affairs (DEA) and assists with challenges of sedimentation, pollution and destruction of coastal habitats through activities coast and/or beach clean ups, removal of illegal and abandoned structures, removal of invasive alien vegetation and rehabilitation of degraded areas, including dunes and estuaries

Source: PBSAP, 2016

International initiatives for payments for environmental services have shown some successes. Key examples of two international programmes are described in the case studies below.

Case Study 16: International – Payments for Environmental Services programmes

Payments for environmental services have been researched and implemented widely on an international scale; examples of two international programmes are described below:

Pro-poor Rewards for Environmental Services in Africa (PRESA)

Tested innovative techniques for promoting PES through negotiated environmental service contracts with poor communities based on the principles of 'willingness to provide services' and 'willingness to pay'.

Rewards for, Use of and Shared Investment in Pro-poor Environmental Services (RUPES)

Currently active in 12 sites in China, Indonesia, the Lao People's Democratic Republic, Nepal, the Philippines and Viet Nam. In Indonesia alone, over 6,000 farmers in 18 communities received permits to grow coffee while protecting the forests. Providing communities with clear land tenure rights gave them the incentive to maintain or restore environmental services, such as replanting and managing forest areas. One community negotiated with a private dam operator to reduce silt in the river by applying soil protection techniques on their plots in return for a microhydroelectric machine for energy supply. The company then engaged in negotiations with communities upstream of other dams. The activities also benefit lowland communities by protecting the watersheds, and they shore up carbon sinks. These activities are providing further evidence that PES incentives do not necessarily need to be financial, but can be provided in the form of secure land rights.

6.1.11.1 PES sub-sector problem statement

Within the international arena new options for the management of natural resources are being investigated and developed, the focus is tending towards incentive-based mechanisms rather than regulatory controls. PES are one kind of incentive mechanism that deal in particular with market failures. PES includes payments or rewards designed for biodiversity protection, carbon sequestration, landscape beauty, catchment protection and watershed management (Landell-Mills and Poras, 2002). Our understanding of the impacts on livelihoods, sustainable income generation, and long-term biodiversity conservation, of implementing these mechanisms, although better understood still remains uncertain (King et al, 2008).

6.1.11.2 PES sub-sector challenges and opportunities

The key drivers, challenges and markets for the PES sub-sector are shown in Table 13, below.

Table 13: Defining characteristics of the PES sub-sector

Key challenges	Key drivers	Key markets
Defining markets, Identifying services, sellers and buyers, Secure land and water rights, Regulatory environment	Demand for clearly identified services – water suppliers, land managers, industry, mines, farms, municipalities, conservation areas	Watershed management, Alien invasive clearing, Coastal resources, Landscape beauty

6.1.11.3 PES sub-sector headline enabling interventions

The following headline enabling actions are identified for the PES sub-sector in the Wetern Cape province, they are unpacked in section 7 below:

- Enabling legislative environment is supportive of PES,
- Land and water rights are defined and secure,
- Institutional frameworks are stable and capacitated to facilitate PES,
- Unique shared information, knowledge and skills are generated.

6.1.12 Other initiatives

Other initiatives highlighted as potential supporting and implementing collaborators in the role out of the western Cape biodiversity economy strategy during the consultative process included the GEF funded project and the CapeNature income generation strategy. These are highlighted below.

Initiative 17: CapeNature – Green Income Generation

CapeNature has embarked on the process to determine the feasibility, viability and sustainability of generating significant income within and adjacent to Protected Areas in the Western Cape. The overall objective is to significantly increase the revenue generated by CapeNature.

Phase 1 involved raising awareness amongst CapeNature staff about the sustainable financing of Protected Areas (PAs) and focused on gathering data of income generation potential from private sector investment and employment creation. Through stakeholder engagements, a generation matrix was produced providing a list of income generation streams (from adventure tourism to wind farms). Service Provider: NCC

Phase 2 of the project is currently evaluating what needs to be done and where by assessing the most viable opportunities. At the end of Phase 2, a series of pilot projects identified through stakeholder engagements will be presented to CapeNature with Business Plans and Investment Strategies. Service Providers: JAYMAT and EcoAfrica

Phase 3 of the project will ultimately assist CapeNature in taking the identified projects and respective risk management plans to the market for implementation through the facilitation of partnerships. Service Provider: JAYMAT

Source: CapeNature, 2016

Initiative 18: Unlocking biodiversity benefits through development finance in critical catchments (GEF project)

***Project Objective*:** To develop policy and capacity incentives for mainstreaming biodiversity and ecosystems values into national, regional and local development policy and finance: application demonstrated in two water catchments.

Focus area for the Western Cape: The Berg River is in the Cape Floristic Region Hotspot. The catchment area is 8,980km^2 and the river has a total length of 285km. It is undoubtedly the most significant river system for the Cape Town Metropole.

Key lessons and research objectives relevant for the PBES:

- Capacity and skills development in Natural Capital Accounting,
- Application of financial mechanisms in the water sector,
- Delivery of funds, tools and lessons for replication and improvements in watersheds,
- Application of financial mechanisms lead to 25% increase in cost recovery of ecological investments through water price-linked charges,
- Ecosystems services maintained in over 200,00 hectares of riverine ecosystems by removal of alien invasive plants with heavy water use.

Source: GEF, 2015

6.2 *PBES interventions for the sub-sectors*

The sub-sectors identified provide some headline actions for implementing the PBES across different sectors. These headline actions are identified below.

Table 14: Summary of sub-sector interventions for PBES aligned to the core and enabling objectives

Actions	Targets	Indicators	Responsibility
Bioprospecting			
d.4. By 2020, bioprospecting profits are used to fund species rich conservation and preserve biodiversity,	d.4.1. The value of bioprospecting "super" profits are determined and alignment with a funding plan for the sector.	d.4.1.1 Bioprospecting valuation and funding plan	CapeNature, DEADP, Provincial Treasury, Research institutions.
d.5.By 2018, Donors for development funding such as European aid agencies like CBI (Netherlands), SIPPO (Switzerland), Danida (Sweden) are identified and contacted,	d.5.1 A donor proposal plan has been developed.	d.5.1.1 A donor proposal plan	
e.3.By 2020, technology transfer and knowledge sharing ensure the development of sustainable bioprospecting markets,	e.3.1. Technology and information sharing in the biosprospecting sector is encouraged.	e.3.1.1. Biosprospecting information portal built.	
f.5.By 2018, indigenous knowledge is captured and recorded to ensure the sustainability of the biodiversity economy,	f.5.1. A report on indigenous knowledge captures values and opportunities for the biodiversity economy.	f.5.1.1. An indigenous knowledge report.	
g.4. By 2020, regulation, monitoring and industry co-ordination are	g.4.1. A capacity gaps report is completed to identify areas for training and development in	g.4.1.1. A capacity development report is	

capacitated to support the implementation of the biodiversity economy.	different institutions, g.4.2. Guidelines for the sustainable development of the honeybush industry is completed	completed, g.4.2.1. Guidelines are completed.	
Wildlife			
b.4. By 2018, a wildlife sector economy strategy is developed to support the growth of the sector, d.6. By 2020, continued work of the Cape nature wildlife forum supports the financial viability of the sector. f. 6. By 2017, information on the potential distributions of wildlife, market size, and product types supports sector decisions. g.5 Legislation that supports translocation and development of the sector.	b.4.1. A wildlife sector economy strategy is developed, d.6.1 Continue to align with the work of the CapeNature wildlife forum. f.6.1. An information report on the potential distributions of wildlife, market size, and product types including value is done. g.5.1. Legislation that supports translocation and development of the sector is reviewed and recommendations are made.	b.4.1.1. A wildlife economy strategy d.6.1.1. CapeNature wildlife forum reports f.6.1.1. Wildlife sector economic report. g.5.1.2 A legislation review report on the wildlife sector.	Cape Nature, DEA, DEADP
Ecotourism			
d.2.By 2020, the CapeNature protected area income generation strategy supports sustainable funding of biodiversity. d.7 By 2019, the western Cape Integrated Tourism development framework (ITDF) supports sustainable funding of biodiversity-based eco-tourism.	d.2.1. The CapeNature income generation strategy is implemented. d.7.1 Review and implement the western Cape Integrated Tourism development framework (ITDF).	d.2.1.1. CapeNature annual reports d.7.1.1. The ITDF incorporates biodiversity-based tourism	CapeNature, DEADP, Tourism
Alternative energy			
a.5. By 2019, The objectives and actions of Eco-Invest II and III support sustainable economic growth in the province,	a.5.1. Unlock the opportunities identified in the Eco-Invest II report and Eco-Invest III business plans.	a.5.1.1. Eco-Invest III business plans and reporting	DEADP
Investment & asset classes			
a.5. By 2019, The objectives and actions of Eco-Invest II and III support sustainable economic growth in the province, d.1 By 2018, a feasibility study of new and innovative funding sources, models and mechanisms for the biodiversity-based economy is conducted. d.5.By 2018, Donors for development funding such as European aid agencies like CBI (Netherlands), SIPPO (Switzerland), Danida (Sweden) are identified and contacted, d.3. By 2018, develop a biodiversity economy-financing plan that takes into account the recommendation of the feasibility study and of the South African pilot of the BIOFIN project.	a.5.1. Unlock the opportunities identified in the Eco-Invest II report and Eco-Invest III business plans. d.1.1. A biodiversity-economy financing strategy is completed d.5.1 A donor proposal plan has been developed d.3.1. A biodiversity-economy business and financing plan is completed.	a.5.1.1. Eco-Invest III business plans and reporting. d.1.1.1. The biodiversity-economy financing strategy d.5.1.1 A donor proposal plan d.3.1.1 The business and financing plan for the biodiversity-based economy has included recommendations from the BIOFIN project.	DEADP, National Treasury
Natural products			
a.6. By 2020, smart ecosystems are adopted and support the biodiversity economy, c.4. By 2020, the value of natural products and their dependence on	a.6.1. Smart ecosystems under Cape2020 is implemented, c.4.1. Develop regional institutional capacity for the sustainable development of natural	a.6.1.1. Reports on Cape2020. c.4.1.1. A report on the value of natural products,	CapeNature, DEADP, Provincial Treasury

biodiversity is understood, d.2.By 2020, the CapeNature protected area income generation strategy supports sustainable funding of biodiversity, h.1. By 2020, there are replicable case studies on investment in prioritised biodiversity goods and services of the province. h.6. By 2020, prioritized natural products have coordinating bodies and sustainable guidelines for the development of their industries.	products that is underpinned by the recognition of value creation. d.2.1. The CapeNature income generation strategy is implemented. h.1.1. Conduct a feasibility study of the comparative advantages the Province has for biodiversity economy initiatives (specifically natural products). h.6.1. Guidelines for the sustainable development of the honeybush industry is completed. h.6.2 .Guidelines for the sustainable development of natural products in the Western Cape.	c.4.1.2. Number of people capacitated in the natural products sector. d.2.1.1. CapeNature annual reports. h.1.1.1. A feasibility study on the comparative advantages for the province in the biodiversity economy. h.6.1.1 Honeuybush Guidelines h.6.2.1 Natural products Guidelines.	
Fishing			
a.7. By 2018, the small-scale fishing industry is recognised as part of the biodiversity economy and supports sustainable economic growth, b.5. By 2020, the small-scale fishing industry contributes to transformation of the biodiversity economy, g.6. By 2017, small-scale fisherman and woman are capacitated to participate in biodiversity-based fishing markets. h.2. By 2020, specialist interventions through 'market enablers' ensure sustainable markets for small-scale fishing	a.7.1. SME support for small fisheries incorporates the principles of a biodiversity economy and shows sustainable growth, b.5.1. Fishing harbours ensure equitable access to marine resources to promote local economic development, g.6.1. Training on biodiversity econonomy principles and their relationship to the fishing industry are valued and adopted in the sector, h.2.1. Job creation is promoted through the implementation of the Working for Fisheries Programme, h.2.2. Markets for aquaculture development are identified and implemented, h.2.3. Relevant marketing strategies for fisheries zones are developed, h.2.4. Investment in processing and marketing infrastructure in productive areas supports the	a.7.1.1. GVA figures for the sector, a.7.1.2. SME plans include biodiversity economy principles, b.5.1.1. Equitable access to fishing harbours proclomations, g.6.1.1 Number of training manuals or courses held, g.6.1.2. No of people trained on sustainable fishing principles, g.6.1.3. Number of SME programmes that share information and build capacity. h.2.1.1. Annual reports on job creation figures from the Workin for Fisheries programme, h.2.2.1. A report on aquaculture markets and their enabling factors is completed, h.2.2.2. The number of sustainable aqaucaulture projects implemented, h.2.3.1. The number of marketing strtaegies for fisheries zones, and h.2.3.2. The number of marketing strtaegies being implemented and monitored, h.2.4.1 The value of investments made into	DAFF, DEADP, SMEs, Working for Fisheries

	small-scale fishing sector.	processing and marketing infrastructure for small-scale fisihing.	
Estuary management			
a.8. By 2017 the goods and services provided by estuaries are identified and valued to support the biodiversity economy.	a.8.1. A baseline report on the goods and services and the value they provide is conducted.	a.8.1.1. A baseline report is completed.	DEADP, LBRCT. EcoInvest II and EcoInvest III, Municipalities
b.6. By 2018, A social learning process ensures mutual understanding of opportunities around benefit sharing for estuaries management.	b.6.1. A dialogue with estuary users, private and public sector, to implement a social learning process over a six-month period to share understanding and develop new insights into the assets, services supplied, and opportunities for benefit sharing has been initiated,	b.6.1.1. Minutes of dialogue meetings. b.6.1.2. Number of people engaged in the social learning process and training meetings.	
g.7. By 2018, Western Cape Estuaries have been clustered into Management Units, and institutional capacity developed to support the biodiversity economy.	g.7.1. A baseline report on the Western Cape estuaries and their management units has been done, g.7.2. Discussions have been held to establish institutional clustering of the management units and identify relevant capacity gaps.	g.7.1.1. A baseline report has been completed, g.7.2.1. Defined management units and number of institutions capacitated.	
h.3. By 2018, opportunities for financing municipal estuary assets are identified and funding proposals developed.	h.3.1. A dialogue to Re-invest in Municipal Estuary Assets is facilitated, h.3.2. A funding plan and proposals have been developed and delivered.	h.3.1.1. Minutes of the dialogue meetings, h.3.2.1. A funding plan and the number of submitted funding proposals.	
Land restoration			
c.5. By 2017, an industry forum is established that understands, values and is capacitated to grow the sub-sector,	c.5.1. A representative land restoration forum is established and capacitated to grow the sector, c.5.2. A framework for the land restoration forum is established defining roles and responsibilities.	c.5.1.1. Number of land restoration forum representatives, c.5.1.2. Minutes of the land restoration forum meetings, c.5.1.3. A forum framework for land restoration is drafted and adopted.	DEA and DEADP, EcoInvest – carbon spekboom team
d.1 By 2018, a feasibility study of new and innovative funding sources, models and mechanisms for the biodiversity-based economy is conducted.	d.1.1. A biodiversity-economy financing strategy is completed, specifically for land restoration and Spekboom.	d.1.1.1. The biodiversity-economy financing strategy for land restoration and Spekboom.	
e.4. By 2017, the regions carbon baseline is established, including best land management practice for carbon sequestration,	e.4.1. A baseline report defining the regions carbon baseline, best land management practices and opportunities for land restoration are clearly defined.	e.4.1.1. A carbon baseline and land management report is completed for the province.	
g.8. By 2017, institutional support is rendered to assist in the development of the required legal processes and to facilitate the trade of the carbon,	g.8.1. An institutional guideline including a legal framework for carbon trading is developed, g.8.2. Institutions are trained on the guidelines and approaches for using carbon trading to develop the biodiversity economy.	g.8.1.1. Guideline for carbon trading is complete, g.8.2.1. Number of training manuals for land restoration through carbon trading, g.8.2.2. The number of people capacitated and trained in land restoration	

		and carbon trading.	
g.9. By 2018, extension-planning services exit to support the development and role-out of the Spekboom carbon project.	g.9.1. Extension services are set-up and trained to role-out the Spekboom carbon project.	g.9.1.1. Number of effective extension service creating opportunity for growth.	
f.7. By 2017, technology supports the growth of land restoration through the development of database of existing conservation and agriculture extension officers as well as individuals and entities active in existing landscape initiatives in the spekboom restoration areas.	f.7.1. An extension database supports the development of the Spekboom conservation areas.	f.7.1.1. An extension database is commissioned and completed.	
h.4. By 2017, the recommendation for developing the Spekboom carbon project are adopted and support the biodiversity economy.	h.4.1. The business plan for the Spekboom project is adopted and implemented,	h.4.1.1. The Spekboom business plan is completed and approved.	
Knowledge Management & Services			
f.2 By 2018, collaborative networks that help spread knowledge for the biodiversity-based economy are promoted,	f.2.1 Develop a shared- knowledge platform for biodiversity economy learning and e-learning	f.2.1.1 Shared- knowledge learning platforms identified and implemented	DEADP, DST, Academic institutions, Implementing partner institutions
e.1. By 2020, information management systems, research priorities, and monitoring and evaluation frameworks are in place and effectively supporting the biodiversity economy,	e.1.1 Reveal and quantify the costs of biodiversity economy externalities and benefits, e.1.2. Identify market enablers and develop the business case for biodiversity economy activities,	e.1.1.1 Reports and costing on externalities, e.1.2.1 Report on market enablers.	
e.5. By 2017, the cost of biodiversity economy externalities are quantified and revealed,	e.5.1. A report on the costs of biodiversity externalities is completed.	e.5.1. An externalities report is completed.	
h.5. By 2020, flexible business models that can respond to price variability and the rapid evolution of technology support the sustainable growth of the biodiversity economy.	h.5.1. Flexible business model for developing the biodiversity economy have been developed.	h.5.1.1. Number of business model/plans developed for the biodiversity economy.	
Payments for Ecological Services			
f. 8. By 2019, unique shared information, knowledge and skills are generated to support PES in the biodiversity economy,	f.8.1. A Forum is established for shared PES learning and a database for business opportunities collated.	f.8.1.1. PES forum minutes, f.8.1.2. Database for PES business opportunities.	DEADP, DWAF, DLA, Working for programmes, Research institutions
g.10. Enabling legislative environment is supportive of PES, which includes secure land and water rights that are defined and secure,	g.10.1. A review of the enabling legislative environment required for fast-tracking PES is done.	g.10.1.1. A review report on enablers including the legislative environment for fast-tracking PES is completed.	
g.11. Institutional frameworks are stable and capacitated to facilitate PES,	g.11.1. Guidelines for PES are adopted to capacitate institutions to deliver on the biodiversity economy objectives.	g.11.1.1. Guidelines for PES are completed.	
Other interventions			
d.8. By 2019, Further funding opportunities for the biodiversity economy are unlocked through the GEF and CapeNature initiatives.	d.8.1. Potential opportunities are identified through the GEF and CapeNature initiatives and are funded.	d.8.1.1. Reporting on the CapeNature and GEF funded initiatives.	GEF, CapeNature

7. Aligning the Action Plan to other initiatives

The sub-sectors above are aligned with the following initiatives and their associated actions.

Table 15: Summary of aligning interventions for PBES

Alignment with existing initiatives	New actions	Partner institutions
Bioprospecting	a. Implement the CapeNature protected area income generation strategy, b. Align to DEA initiative on NBES and DST on the Bio-Economy Strategy, c. Align to the initiatives of Green Cape and the Western Department on Smart-Agri on sustainable agriculture practices.	CapeNature, DEADP , Provincial Treasury DEA and DST Green Cape, the Western Cape Department of Agriculture
Wildlife	a. Implement the CapeNature protected area income generation strategy, b. Align with the Wildlife Forum established under the NBES, c. Align to the initiatives of Green Cape and the Western Cape Department of Agriculture on Smart-Agri on sustainable farming practices, d. Align to risk reduction, response and recovery strategies (addressing for example drought, veld fires, extreme weather conditions, floods, land degradation) under Provincial Disaster Management Framework, e. Link to the relevant sectoral mitigation contributions and adaptation strategies of Western Cape Climate Change Response Strategy 2014.	CapeNature, DEADP , Provincial Treasury CapeNature, DEA Green Cape, the Western Cape Department of Agriculture
Ecotourism	a. Link to the Tourism initiatives, b. Link to the Tourism initiatives of CapeNature, the metros and district municipalities, South African Tourism	DEADP, CapeNature, the metro and district municipalities SA
Alternative energy	a. Take up the implementing recommendations of EcoInvest II, b. Implement outcomes of "Value Added Industries from Alien Clearing Biomass" project d. Link to the relevant sectoral mitigation contributions of Western Cape Climate Change Response Strategy 2014.	DEADP, Working for Water, CapeNature and other conservation agencies
Investment & asset classes	Continue to pursue various funding opportunities, which include these examples: a. International biodiversity donor funds: e.g. the Global Environment Facility or GEF (implemented by the World Bank and UN Development Programme) and the Critical Ecosystem Partnership Fund or CEPF (joint initiative of AFD, Conservation International, GEF, the Government of Japan, the McArthur Foundation and the World Bank) b. SA Government-initiated funding opportunities, e.g. the DEA/Development Bank of Southern Africa Green Fund, the Jobs Fund, the Marine Living Resources Fund, the Technology Innovation Agency funds	DEADP, GEF, DEA/Development Bank of Southern Africa Green Fund, the Jobs Fund,

	c. Civil society/ private sector initiated funding opportunities, e.g. the Table Mountain Fund, the Green Trust, Anglo Zimele's Green Fund d. The South African Pilot of the Biodiversity Finance Initiative (BIOFIN) e. Leslie Hill Trust f. Western Cape Eco-Invest II	
Natural products	a. Align and review lessons learnt from the Honey Bee, Wildflower harvesting, Badger friendly honey initiatives, b. Align to the initiatives of Green Cape and the Western Department on Smart-Agri on sustainable agriculture practices c. Link to the relevant sectoral mitigation contributions and adaptation strategies of Western Cape Climate Change Response Strategy 2014, d. Lessons learnt from the Flower Valley Conservation Trust and Aghallus Biodiversity Initiative, e. Development of industry sustainability guidelines.	DEADP, GreenCape, Western Cape Department of Agriculture, SANBI, CapeNature, Flower Valley Conservation Trust, EWT, Flower Valley and Aghallus Biodiversity Initiative, SAHTA, DEDAT, CapeNature, SANPARKS, Academia.
Fishing	a. Link to Operation Phakisa aims to unlock the economic potential of South Africa's oceans by contributing to poverty alleviation and employment creation b. Link to Working for Fisheries Programme of Department of Agriculture, Forestry, and Fisheries	DEADP, DEA Marine and Coastal Branch, Marine Living Resources Fund
Estuary management	a. Link to the EcoInvest II programme and the Western Cape Coastal Management Programme, b. Link to the relevant sectoral mitigation contributions and adaptation strategies of Western Cape Climate Change Response Strategy 2014.	DEADP and LV DEADP
Land restoration	a. Link to the EcoInvest II programme, b. Link to LandCare programme under the Expanded Public Works and Department of Agriculture, Forestry and Fisheries, c. Align to risk reduction, response and recovery strategies (addressing for example drought, veld fires, extreme weather conditions, floods, land degradation) under the Provincial Disaster Management Framework.	DEADP DEADP and DAFF DEADP and Disaster Management Centre
Knowledge Management & Services	a. Link to the EcoInvest II programme and the CapeNature Income generation strategy for shared learning	DEADP to lead
Payments for Ecological Services	a. PBES linked to the RSA initiatives around working for water, working for fire and working for coasts, b. Implement outcomes of 'Carbon Sequestration Using Spekboom', c. Align to risk reduction, response and recovery strategies (addressing for example drought, veld fires, extreme weather conditions, floods, land degradation) under Provincial Disaster Management Framework, d. Link to the relevant sectoral mitigation contributions and adaptation strategies of Western Cape Climate Change Response Strategy 2014.	Working for programmes DEADP and Disaster Management Centre DEADP
Other interventions	a. PBES linked to the WAVES program and the	BIOFIN, WAVES

	project linked to BioFin for support with methodologies and fund raising for widespread testing/piloting, including replication of successful pilots from component 2.	

8. Next steps

The Western Cape Province through this PBES is consolidating and creating further momentum for government and its partners to continue to expand on the initiatives underway to conserve the biodiversity of the globally important CFR. The province has a global responsibility to safeguard, restrain loss of and restore the biodiversity and ecological services within its boundaries.

The Western Cape Province's own imperatives to grow the economy, to create jobs and to reduce inequality underscore the need to pursue these initiatives in a manner that ensures that the young will also have an opportunity to derive the benefits we now enjoy from the biodiversity endowment of the province.

The provincial strategic goal (PSG4) states that the province aims to "Enable a resilient, sustainable and inclusive living environment". Some of the key initiatives that have been initiated in respect of Sustainable Living and Resource Use include:

- The Province will continue to strive in protecting bio-diversity and ecosystems including safeguarding of coastal and inland water resources while managing the use of water, given that the Province is experiencing water scarcity and drought.
- Climate change response frameworks developed for district municipalities; River and estuarine sites monitored in respect of pollution control; River Improvement Plans to be developed; Waste management planning interventions undertaken; and Monitoring of air quality.

As a result of the value and importance of biodiversity to the Province, the Department of Environmental Affairs and Development Planning has been allocated a budget of R1.7 billion over the 2016 MTEF to drive these key interventions. This amount includes the transfer to its entity, CapeNature.

The actions proposed herein, including the existing initiatives – which we reinforce – have to be implemented within the five-year period. The target date of the year 2020 is symbolic in that it will also be when the Aichi Targets need to be achieved. It will also be a year after the end of the current 2014-2019 national and provincial political terms in South Africa.

As the strategy now provides a guide for sustainable growth, the immediate steps to be undertaken to attain the core objectives, targets and actions in PBES over the five years are the following:

- A governmental consultation process will unfold shortly to confirm alignment and engagement of transversal resources within the Province.

- The PBES will then be disseminated to all stakeholders;
- Implementation Programme will be developed for 2015 to 2020 in partnership with all relevant role-players;
- The PBES will be implemented with annual reporting and review.

Annexure 1: Headline Indicators to Assess Progress towards Achieving the Overarching Goal

Overarching Goal: By 2020, the promotion of equitable access and a sustainable and inclusive biodiversity-based economy for the benefit of all citizens of the Western Cape province that will progressively contribute to the attainment of the biodiversity conservation, economic and development vision of the Western Cape Province.		
Headline Indicator	**Specific Indicators**	**Sources of data to measure**
Job creation	Number of jobs created (full-time, part-time)	Annual reports for CapeNature, SANBI, Other implementing partners
Economic expansion	a. Area under biodiversity economy initiatives b. Contribution to provincial revenues	Project reports Tax or incentive revenues, GDP
Equity	Number of disadvantaged people engaging in the biodiversity economy, Number of woman participating in the biodiversity economy	Project reports, Provincial statistics
Empowerment and ownership	Extent of knowledge transfer and skills development	Number of training programmes and lists of attendees
Sustainable use	Number of products/services contributing to the biodiversity economy	Initiative reports, Biodiversity economy forum reports
Integration of biodiversity-based economy programmes into the Green Economy Framework	Programmes on development of biodiversity-based economy are integrated into the Green Economy Framework	Strategic Plans and Annual Performance Plans of the DEADP and GreenCape.
Integration of biodiversity priorities in Spatial Development Frameworks	a. Extent of the integration of the CBAs in the Provincial Spatial Development Framework b. Number of local authorities that have integrated CBAs in their Spatial Development Frameworks	Number of local authorities that have integrated CBAs in their Spatial Development Frameworks
Change in attitude of citizens towards biodiversity conservation	a. Number of provincial level biodiversity economy awareness activities conducted per annum b. Improvement in awareness level regarding biodiversity economy initiatives	a. Record of training course on the biodiversity economy b. Perception survey on biodiversity economy issues

Annexure 2: Provincial Biodiversity Framework & Monitoring and Evaluation Framework linked to the Targets

CO 1: Biodiversity economy of the province grows by developing and unlocking the economic potential of biodiversity sector value chains.				
Outcomes	**Impact**	**Actions**	**Targets**	**Indicators**
a.Contribution of biodiversity and ecosystem-based products; processes; services and initiatives have a growing contribution to the economy and employment creation goals of the province.	a. Job creation, sustainable use of biodiversity	a.1. By 2018, the scope, the value and the growth potential of the biodiversity-based economy of the province are determined.	a.1.1. Initiate a baseline study to determine the current value of the biodiversity economy of the province.	a.1.1.1Completed baseline study
		a.2. By 2020, incentives for sustainable use principles for industries that directly grow, harvest and use indigenous biodiversity, and natural resources including water resources found in the province lead to enhanced economic benefits,	a.2.1. Develop and implement a provincial biodiversity-based economic plan that includes an investment framework in ecological services and natural capital.	a.2.1.1 Number of economic plans developed and implemented
		a.3. By 2016, A provincial biodiversity economy planning and assessment framework informs all decisions regarding land and resource use and spatial development.	a.3.1 BPES is drafted, finalized and implemented	a.3.1.1 BPES is adopted
		a.4. By 2025, Biodiversity economy considerations are integrated into macro-economic, trade, industrial and fiscal policy.	a.4.1 A task team is set up to prioiritse biodiversity actions with macro-economic, trade, industrial and fiscal decision-makers in the province	a.4.1.1 Task team meeting minutes and decisions
		a.5. By 2019, The objectives and actions of Eco-Invest II and III support sustainable economic growth in the province,	a.5.1. Unlock the opportunities identified in the Eco-Invest II report and Eco-Invest III business plans.	a.5.1.1. Eco-Invest III business plans and reporting
		a.6. By 2020, smart ecosystems are adopted and support the biodiversity economy,	a.6.1. Smart ecosystems under Cape2020 is implemented,	a.6.1.1. Reports on Cape2020
		a.7. By 2018, the small-scale fishing industry is recognised as part of the biodiversity economy and supports sustainable economic growth,	a.7.1. SME support for small fisheries incorporates the principles of a biodiversity economy and shows sustainable growth,	a.7.1.1. GVA figures for the sector, a.7.1.2. SME plans include biodiversity economy principles.
		a.8. By 2017 the goods and services provided by estuaries are identified and valued to support the biodiversity economy.	a.8.1. A baseline report on the goods and services and the value they provide is conducted.	a.8.1.1. A baseline report is completed.
b. Economic opportunities and other social values based on biodiversity are progressively inclusive of all sectors of society including previously disadvantaged individuals and communities, youth, people with disabilities and women.	b. Job creation, sustainable use of biodiversity, beneficiation	b.1. By 2020, an increased number of previously disadvantaged individuals visit and have improved access to the biodiversity economy.	b.1.1 A framework is developed to ensure access by previously disadvantaged people to the biodiversity economy	b.1.1.1 The number of frameowks being implemented, b.1.1.2 The number of previously disadvantaged people accessing the biodiversity economy
		b.2. By 2020, the Green Economy Strategy Framework programmes, and other relevant provincial and local economic development strategies and plans stipulate objectives that promote, in line with applicable legislation, inclusive economic participation in the biodiversity-based economy and ensure equitable sharing of benefits arising from the commercial development of biological resources found in the province.	b.2.1 Strategic frameworks and business plans for the biodiversiy-based economy include transfarmation and benefit-sharing targets	b.2.1.1 Project reports on transformation statistics b.2.1.2 Beneficiation is measured in value terms
		b.3. By 2020, local beneficiation of biological resources found in the province is part of the Green Economy Strategy Framework programmes and other economic and industrial development strategies of the province and of local authorities.	b.3.1 Local beneficiation opportunities within the biodiversity economy are identified and business plans for them are developed	b.3.1.1 Number of local beneficaition business plans developed for the biodiversity economy
		b.4. By 2018, a wildlife sector economy strategy is developed to support the growth of the sector.	b.4.1. A wildlife sector economy strategy is developed.	b.4.1.1. A wildlife economy strategy
		b.5. By 2020, the small-scale fishing industry contributes to transformation of the biodiversity economy.	b.5.1. Fishing harbours ensure equitable access to marine resources to promote local economic development,	b.5.1.1. Equitable access to fishing harbours proclomations,
		b.6. By 2018, A social learning process ensures mutual understanding of opportunities around benefit sharing for estuaries management.	b.6.1. A dialogue with estuary users, private and public sector, to implement a social learning process over a six-month period to share understanding and develop new insights into the assets, services supplied, and opportunities for benefit sharing has been initiated,	b.6.1.1. Minutes of dialogue meetings b.6.1.2. Number of people engaged in the social learning process and training meetings.
CO 2: Stakeholders recognise and value the economic contribution of ecological services to the Western Cape development goals				
Outcomes	**Impact**	**Actions**	**Targets**	**Indicators**
c. The business case for conservation and sustainable use of biodiversity and its associated contribution to the economy and development goals of the province is recognised and appreciated by an increasing number of key decision-makers and members of society.	c. Equity, Empowerment and ownership	c.1. By 2017 a comprehensive and proactive provincial communication, awareness raising and advocacy strategy reaches targeted sectors and facilitates conservation and wise use of biodiversity to grow the biodiversity economy,	c.1.1 An awareness campaign on the value of the biodiversity economy is launched, C.1.2 A report defining the business case for the biodiversity economy is written.	c.1.1.1. The number of people reached by an awaerness campaign, C.1.1.2. The number of advertisemesnt, radio talks, school presentations, conference presentations, awareness days held on the value of the biodiversity economy, c.1.2.1. A report on the business case for the biodiversity economy is completed.
		c.2. By 2017, the biodiversity economy network is secured, expanded and managed to ensure that a representative sample of biodiversity economy initiatives are sustainably implemented,	c.2.1. Establish a biodiversity economy forum representative of key stakeholders for the western Cape.	c.2.1.1Forum meeting minutes and TORs
		c.3. By 2020, a monitoring and evaluation system is established for biodiversity economy initiatives.	c.3.1. An M&E system for the biodiversity economy is implemented	c.3.1.1. The M&E system
		c. 4. The value of natural products and their dependence on biodiversity is understood,	c.4.1. Develop regional institutional capacity for the sustainable development of natural products that is underpinned by the recognition of value creation.	c.4.1.1. A report on the value of natural products, c.4.1.2. Number of people capacitated in the natural products sector.
		c.5. By 2017, an industry forum is established that understands, values and is capacitated to grow the sub-sector,	c.5.1. A representative land restoration forum is established and capacitated to grow the sector, c.5.2. A framework for the land restoration forum is established defining roles and responsibilities.	c.5.1.1. Number of land restoration forum representatives, c.5.1.2. Minutes of the land restoration forum meetings, c.5.1.3. A forum framework for land restoration is drafted and adopted.

EO 1: Developing financing mechanisms and mobilise financial resources				
Outcomes	**Impact**	**Actions**	**Targets**	**Indicators**
d. Innovative financing strategies lead to the growth of the current funding available to achieve biodiversity economy goals, strategic objectives and actions of the province.	d. Expansion and empowerment	d.1 By 2018, a feasibility study of new and innovative funding sources, models and mechanisms for the biodiversity-based economy isconducted.	d.1.1. A biodiversity-economy financing strategy is completed	d.1.1.1. The biodiversity-economy financing strategy
		d.2.By 2020, the CapeNature protected area income generation strategy supports sustainable funding of biodiversity.	d.2.1. The CapeNature income generation strategy is implemented.	d.2.1.1. CapeNature annual reports
		d.3. By 2018, develop a biodiversity economy financing plan that takes into account the recommendation of the feasibility study and of the South African pilot of the BIOFIN project.	d.3.1. A biodiversity-economy business and fianancing plan is completed.	d.3.1.1 The business and financing plan for the biodiversity-based economy has included recommendaions from the BIOFIN project.
		d.4. By 2020, bioprospecting profits are used to fund species rich conservation and preserve biodiversity.	d.4.1. The value of bioprospecting "super" profits are determined and alignment with a funding plan for the sector	d.4.1.1 Bioprospecting valuation and funding plan
		d.5.By 2018, Donors for development funding such as European aid agencies like CBI (Netherlands), SIPPO (Switzerland), Danida (Sweden) are identified and contacted,	d.5.1 A donor proposal plan has been developed	d.5.1.1 A donor proposal plan
		d.6. By 2020, continued work of the Cape nature wildlife forum supports the financial viability of the sector.	d.6.1 Continue to align with the work of the CapeNature wildlife forum.	d.6.1.1. CapeNature wildlife forum reports
		d.7 By 2019, the western Cape Integrated Tourism development framework (ITDF) supports sustainable funding of biodiversity-based eco-tourism.	d.7.1 Review and implement the western Cape Integrated Tourism development framework (ITDF).	d.7.1.1. The ITDF incorporates biodiversity-based tourism
		d.8. By 2019, Further funding opportunities for the biodiversity economy are unlocked through the GEF and CapeNature initiatives.	d.8.1. Potential opportunities are identified through the GEF and CapeNature initiatives and are funded.	d.8.1.1. Reporting on the CapeNature and GEF funded initiatives.
EO 2: Enhance research & development to support the biodiversity economy in the Province				
Outcomes	**Impact**	**Actions**	**Targets**	**Indicators**
e. Strategic research priorities are identified that lead to the implementation of the biodiversity economy objectives and effective knowledge sharing in the Province.	e. Empowerment through appropriate knowledge-sharing and research and development initiatives	e.1. By 2020, information management systems, research priorities, and monitoring and evaluation frameworks are in place and effectively supporting the biodiversity economy,	e.1.1 Reveal and quantify the costs of biodiversity economy externalities and benefits, e.1.2. Identify market enablers and develop the business case for biodiversity economy activities,	e.1.1.1 Reports and costing on externalities, e.1.2.1 Report on market enablers.
		e.2. By 2017, an R&D assemesment for the biodiversity economy supports the development of the PBES	e.2.1 Develop an R&D gap analysis and strategy for the biodiversity-based economy	e.2.1.1 Gap analysis and R&D strategy reports
		e.3.By 2020, technology transfer and knowledge sharing ensure the development of sustainable bioprospecting markets,	e.3.1. Technology and information-sharing in the biosprospecting sector is encouraged.	e.3.1.1. Biosprospecting information portal built
		e.4. By 2017, the regions carbon baseline is established.	e.4.1. A baseline report defining the regions carbon baseline and opportunities for land restoration are clearly defined.	e.4.1.1. A carbon baseline report is completed for the province.
		e.4. By 2017, the regions carbon baseline is established, including best land management practice for carbon sequestration,	e.4.1. A baseline report defining the regions carbon baseline, best land management practices and opportunities for land restoration are clearly defined.	e.4.1.1. A carbon baseline and land management report is completed for the province.
		e.5. By 2017, the cost of biodiversity economy externalities are quantified and revealed.	e.5.1. A report on the costs of biodiversity externalities is completed.	e.5.1. An externalities report is completed.
EO 3: Improve & share knowledge, and promote optimal use of technology				
Outcomes	**Impact**	**Actions**	**Targets**	**Indicators**
f. Promote collaboration between provincial and national institutions to support knowledge sharing for the biodiversity economy.	f. Empowerment through improved knowledge-sharing and supportive institutional arrangements isunderpinned by appropriate technology	f.1 By 2018, inter-firm networks that help spread technology and innovation for the biodiversity-based economy are promoted	f.1.1 Develop collaborative platforms across all sub-sectors	f.1.1.1.Collaborative platforms identified and used
		f.2 By 2018, collaborative networks that help spread knowledge for the biodiversity-based economy are promoted	f.2.1 Develop a shared- knowledge platform for biodiversity economy learning and e-learning	f.2.1.1 Shared- knowledge learning platforms identified and implemented
		f.3 By 2020, appropriate extenstion services support the development of the biodiversity-based economy.	f.3.1 Review extension services options for the sector	f.3.1.1 Report on extension service options for biodiversity economy initiatives
		f.4 Support greater diffusion of ICTs to the bioprospecting economy sector	f.4.1Establish ICT sub- committee to conduct/guide the review	f.4.1.1 ICT committee established
		f.5.By 2018, indigenous knowledge is captured and recorded to ensure the sustainability of the biodiversity economy.	f.5.1. A report on indigenous knowledge captures values and opportunities for the biodiversity economy.	f.5.1.1. An indigenous knowledge report.
		f. 6. By 2017, information on the potential distributions of wildlife, market size, and product types supports sector decisions.	f.6.1. An information report on the potential distributions of wildlife, market size, and product types including value is done.	f.6.1.1. Wildlife sector economic report.
		f.7. By 2017, technology supports the growth of land restoration through the development of database of existing conservation and agriculture extension officers as well as individuals and entities active in existing landscape initiatives in the spekboom restoration areas.	f.7.1. An extension database supports the development of the Spekboom conservation areas.	f.7.1.1. An extension database is commissioned and completed.
		f. 8. By 2019, unique shared information, knowledge and skills are generated to support PES in the biodiversity economy,	f.8.1. A Forum is established for shared PES learning and a database for business opportunities collated.	f.8.1.1. PES forum minutes, f.8.1.2. Database for PES business opportunities.

EO 4: Enhance institutional and human capacity				
Outcomes	**Impact**	**Actions**	**Targets**	**Indicators**
g. Provincial initiatives to manage biodiversity are co-ordinated, developed and implemented with full stakeholder participation to contribute to sustainable socio-economic development through appropriate institutional capacity.	g. Empowerment and ownership, Effective legal, institutional arrnagments are in place to support the biodiversity economy, people are capacitated to implment and participate in the biodiversity economy	g.1. By 2020, an enabling regulatory environment for the biodiversity economy businesses is in place.	g.1.1. Alignment with the CapeNature wildlife forum g.1.2. Alignment to the Tourism investment framework for the province g.1.3. Training on sustainable principles for biodiversity economy	g.1.1.1 Forum meeting minutes g.1.2.1 Tourism forum meeting minutes g.1.3.1 Training manuals
		g.2. By 2016, an effective and efficient government supporting institution for the biodiversity economy takes the lead on its development	g.2.1. An appriopriate institution takes the lead on implementing the PBES.	g.2.1.1. Project management targets for implementing PBES.
		g.3 By 2018, SMME support for biodiversity-based businesses is established.	g.3.1. Establish SMME support small business in the biodiversity economy	g.3.1.1 Number of SMME's
		g.4. By 2020, regulation, monitoring and industry co-ordination are capacitated to support the implementation of the biodiversity economy.	g.4.1. A capacity gaps report is completed to identify areas for training and development in different institutions, g.4.2. Guidelines for the sustainable development of the honeybush industry is completed.	g.4.1.1. A capacity development report is completed, g.4.2.1. Guidelines are completed.
		g.5 Legislation that supports translocation and development of the sector.	g.5.1. Legislation that supports translocation and development of the sector is reviewed and recommendations are made.	g.5.1.2 A legislation review report on the wildlife sector.
		g.6. By 2017, small-scale fisherman and woman are capacitated to participate in biodiversity-based fishing markets.	g.6.1. Training on biodiversity econonomy principles and their relationship to the fishing industry are valued and adopted in the sector,	g.6.1.1 Number of training manuals or courses held, g.6.1.2. No of people trained on sustainable fishing principles, g.6.1.3. Number of SME programmes that share information and build capacity.
		g.7. By 2018, Western Cape Estuaries have been clustered into Management Units, and institutional capacity developed to support the biodiversity economy.	g.7.1. A baseline report on the Western Cape estuaries and their management units has been done,	g.7.1.1. A baseline report has been completed,
			g.7.2. Discussions have been held to establish institutional clustering of the management units and identify relevant capacity gaps.	g.7.2.1. Defined management units and number of institutions capacitated.
		g.8. By 2017, institutional support is rendered to assist in the development of the required legal processes and to facilitate the trade of the carbon.	g.8.1. An institutional guideline including a legal framework for carbon trading is developed,	g.8.1.1. Guideline for carbon trading is complete,
			g.8.2. Institutions are trained on the guidelines and approaches for using carbon trading to develop the biodiversity economy.	g.8.2.1. Number of training manuals for land restoration through carbon trading. g.8.2.2. The number of people capacitated and trained in land restoration and carbon trading.
		g.9. By 2018, extension planning services exit to support the development and role-out of the Spekboom carbon project.	g.9.1. Extension services are set-up and trained to role-out the Spekboom carbon project.	g.9.1.1. Number of effective extension service creating opportunity for growth.
		g.10. Enabling legislative environment is supportive of PES, which includes secure land and water rights that are defined and secure,	g.10.1. A review of the enabling legislative environment required for fast-tracking PES is done.	g.10.1.1. A review report on enablers including the legislative environment for fast-tracking PES is completed.
		g.11. Institutional frameworks are stable and capacitated to facilitate PES,	g.11.1. Guidelines for PES are adopted to capacitate institutions to deliver on the biodiversity economy objectives.	g.11.1.1. Guidelines for PES are completed.
EO 5: Streamline markets (identify, improve access, develop)				
Outcomes	**Impact**	**Actions**	**Targets**	**Indicators**
h. Established markets for biodiversity services and products that promote sustainable economic growth.	h. Job creation, functioning markets, business development, sustainable use of biodiversity assets	h.1. By 2020, there are replicable case studies on investment in prioritised biodiversity goods and services of the province.	h.1.1. Conduct a feasibility study of the comparative advantages the Province has for biodiversity economy initiatives	h.1.1.1. A feasibility study on the comparative advantages for the province in the biodiversity economy.
			h.1.2. Ensure and guarantee product and service quality through certification and rating systems	h.1.2.1 Certification and ratings products
			h.1.3. Ensure service quality through training and standards	h.1.3.1. Standards and training manuals
			h.1.4. Conduct price benchmarking to ensure price competitiveness	h.1.4.1. A price benchmarking report/system
		h.2. By 2020, specialist interventions through 'market enablers' ensure sustainable markets for small-scale fishing	h.2.1. Job creation is promoted through the implementation of the Working for Fisheries Programme,	h.2.1.1. Annual reports on job creation figures from the Workin for Fisheries programme,
			h.2.2. Markets for aquaculture development are identified and implemented,	h.2.2.1. A report on aquaculture markets and their enabling factors is completed, h.2.2.2. The number of sustainable aqaucaulture projects implemented,
			h.2.3. Relevant marketing strategies for fisheries zones are developed,	h.2.3.1. The number of marketing strtaegies for fisheries zones, and h.2.3.2. The number of marketing strtaegies being implemented and monitored,
			h.2.4. Investment in processing and marketing infrastructure in productive areas supports the small-scale fishing sector.	h.2.4.1 The value of investments made into processing and marketing infrastructure for small-scale fisihing.
		h.3. By 2018, opportunities for financing municipal estuary assets are identified and funding proposals developed	h.3.1. A dialogue to Re-invest in Municipal Estuary Assets is facilitated,	h.3.1.1. Minutes of the dialogue meetings,
			h.3.2. A funding plan and proposals have been developed and delivered.	h.3.2.1. A funding plan and the number of submitted funding proposals.
		h.4. By 2017, the recommendation for developing the Spekboom carbon project are adopted and support the biodiversity economy.	h.4.1. The business plan for the Spekboom project is adopted and implemented,	h.4.1.1. The Spekboom business plan is completed and approved.
		h.5. By 2020, flexible business models that can respond to price variability and the rapid evolution of technology support the sustainable growth of the biodiversity economy.	h.5.1. Flexible business model for developing the biodiversity economy have been developed.	h.5.1.1. Number of business model/plans developed for the biodiversity economy.
		h.6. By 2020, prioritized natural products have coordinating bodies and sustainable guidelines for the development of their industries.	h.6.1. Guidelines for the sustainable development of the honeybush industry is completed.	h.6.1.1 Honeuybush Guidelines
			h.6.2 .Guidelines for the sustainable development of natural products in the Western Cape.	h.6.2.1 Natural products Guidelines.

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10. Acknowledgements

Authors & Acknowledgement

This Provincial Biodiversity Economy Strategy (PBES) is the project of the Western Cape Provincial Government Department of Environmental Affairs and Development Planning (DEADP). Ms Khungeka Njobe and Ms Nicola King of Kay Ann Consulting and Advisory Pty Ltd (Kay Ann Consulting) assisted the DEADP on this project. A Project Steering Committee consisting of Ms Marlene Laros, Mr Albert Ackhurst and Mr Warren Thomas of the DEADP, Melikhaya Pantsi (CapeNature) and Andrew Purnell (NCC). The desktop review informed significant elements of this PBES. All the authors of the information sources used are duly acknowledged. Two workshop sessions were held in various parts of the Western Cape Province and inputs and comments received assisted in shaping the strategy choices made in this PBES. All the participants who attended the consultation workshops and stakeholders interviewed as part of the strategy development process are thanked for their generosity in sharing information and knowledge that shaped this strategy.

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