



**Western Cape
Government**
Environmental Affairs and
Development Planning

**ECONOMIC POLICY INSTRUMENTS AND
PAYMENT FOR ECOSYSTEM SERVICES
MECHANISMS AS ENABLERS OF LOCAL-LEVEL
ECOLOGICAL INFRASTRUCTURE
INVESTMENTS: A GUIDE**

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ECONOMIC POLICY INSTRUMENTS AND PAYMENT FOR ECOSYSTEM SERVICES MECHANISMS AS ENABLERS OF LOCAL- LEVEL ECOLOGICAL INFRASTRUCTURE INVESTMENTS: A GUIDE

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ACRONYMS

ACRONYMS	DEFINITIONS
AF	Adaptation Fund
BBBEE	Broad Based Black Economic Empowerment
CARA	Conservation of Agricultural Resources Act (Act no. 43 of 1983)
CMA	Catchment Management Agency
CSI	Corporate Social Investment
CSIR	Council for Scientific and Industrial Research
DBSA	Development Bank of Southern Africa
DEA&DP	Western Cape Department of Environmental Affairs and Development Planning
DEFF	Department of Environment, Forestry and Fisheries
DOA	Western Cape Department of Agriculture
DWS	Department of Water and Sanitation
EIIF	Ecological Infrastructure Investment Framework
EPI	Economic Policy Instrument
EPWP	Expanded Public Works Programme
GCF	Green Climate Fund
GCTWF	Greater Cape Town Water Fund
GEF	Global Environment Facility
GFDRR	Global Facility for Disaster Reduction and Recovery
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
IAPs	Invasive Alien Plants
ICLEI	International Council for Local Environmental Initiatives
IDP	Integrated Development Plan
IKI	International Climate Initiative
MAR	Mean Annual Runoff
MBI	Market-based Instrument
MFMA	Municipal Finance Management Act
Mm ³	Million cubic metres
MPRA	Municipal Property Rates Act
NEMBA	National Environmental Management: Biodiversity Act (Act no. 10 of 2004)
NEMPAA	National Environmental Management: Protected Areas Act (Act no. 57 of 2003)
NEMA	National Environmental Management Act (Act no. 107 of 1998)
NFEPA	National Freshwater Ecosystem Priority Areas
NGOs	Non-Governmental Organisations
NPC	Non-profit Company
NVFFA	National Veld and Forest Fire Act (Act no. 101 of 1998)
NWA	National Water Act (Act no. 36 of 1998)
PBO	Public Benefit Organisation
PES	Payment for Ecosystem Services
PFMA	Public Finance Management Act (Act no. 1 of 1999)
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SRA	Special Rating Area
TNC	The Nature Conservancy
TRMP	Transformative Riverine Management Programme
UEIP	uMngeni Ecological Infrastructure Partnership
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
URV	Unit Reference Value
WC	Western Cape
WCWSS	Western Cape Water Supply System
WRD	Water Resource Development
WRM	Water Resource Management
WSA	Water Source Area
WUAs	Water Users Associations
WWF	Worldwide Fund for Nature

GLOSSARY

Adaptation	Adaptation means anticipating the adverse effects of climate change and taking appropriate action to prevent or minimise the damage they can cause or taking advantage of opportunities that may arise.
Carbon credits	A carbon credit is a generic term for any tradable certificate or permit representing the right to emit one tonne of carbon dioxide or the equivalent amount of a different greenhouse gas.
Catchment	A catchment/watershed is an area of land that drains all streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a stream channel.
Catchment prioritisation	A methodology for the ranking of catchment areas based on the actual numerical attribute values of each area as well as on subjective evaluations of the attributes themselves.
Ecological infrastructure	Naturally functioning ecosystems that deliver valuable services to people, such as water and climate regulation, soil formation and disaster risk reduction. It is the nature-based equivalent of built or hard infrastructure and can be just as important for providing services and underpinning socio-economic development. Ecological infrastructure does this by providing cost effective, long-term solutions to service delivery that can supplement or substitute built infrastructure solutions. Ecological infrastructure includes healthy mountain catchments, rivers, wetlands, coastal dunes, and nodes and corridors of natural habitat, which together form a network of interconnected structural elements in the landscape.
Ecological restoration	Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.
Economic Policy Instruments	Incentives directed toward adapting individual decisions toward achievement of collectively agreed (or government defined) goals. They may include incentive pricing, trading schemes, cooperation (e.g., Payments for Ecosystem Services), and risk management schemes.
Ecosystem services	Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services such as nutrient cycling that maintain the conditions for life on Earth.
Green bonds	Green bonds are typically 'government bonds', a form of debt incurred and underwritten by the government with a fixed interest payment and commitment to settle after a stipulated period (often 15 years). They are differentiated from conventional bonds in that the proceeds of Green Bonds are exclusively used to pay for projects that generate environmental benefits, for example in renewable energy production or climate adaptation.
Monitoring	A continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing development intervention with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds.
Payment for Ecosystem Services	A variety of arrangements through which the beneficiaries of ecosystem services, from watershed protection and forest conservation to carbon sequestration and landscape beauty, reward those whose lands provide these services with subsidies or market payments.
Strategic Water Source Areas	Strategic Water Source Areas (SWSAs) are areas of land that either: (a) supply a disproportionate amount of mean annual surface water runoff in relation to their size and are considered nationally important; or (b) have high groundwater recharge or where the groundwater forms a nationally important resource or both; or (c) areas that meet both criteria (a) and (b)
Water security	Water security is defined as the reliable availability of an acceptable quantity and quality of water for health, livelihoods and production, coupled with an acceptable level of water-related risks.

1. INTRODUCTION

1.1 ECOLOGICAL INFRASTRUCTURE: AN ASSET DELIVERING ESSENTIAL SOCIAL AND ECONOMIC SERVICES

Ecological infrastructure includes nodes and corridors of natural habitat – for example rivers, wetlands, forests, grasslands and fynbos areas - which together form a functional, interconnected network in the landscape. These naturally functioning ecosystems deliver services that are vital to people's wellbeing and a healthy economy, such as water, fertile soils, natural products such as thatch and medicinal plants, climate regulation and flood reduction services. Many ecosystem services are irreplaceable or can only be substituted with built infrastructure at great cost.

The Millennium Ecosystem Assessment¹ (2005) distinguishes between four categories of ecosystem services – provisioning, regulating, cultural and supporting services. Under this definition, ecosystem services are understood to flow from both naturally functioning ecosystems, as well as highly modified ecosystems, such as forestry plantations and croplands. It also recognises that one element of ecological infrastructure (e.g., a wetland) can deliver more than one service, for example, a wetland can support disaster risk reduction as well as water provision.

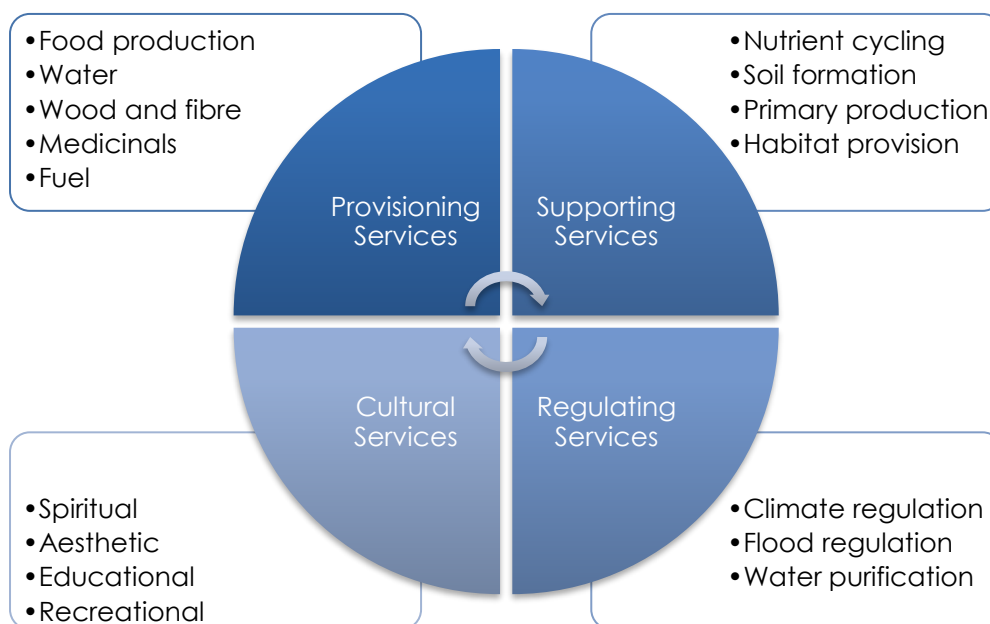


Figure 1: Types of Ecosystem Services provided by Ecological Infrastructure

Ecological infrastructure is the nature-based equivalent of built infrastructure and is at least as important for service delivery and socio-economic development². However, there are very few ecological infrastructure systems in South Africa that have escaped degradation from human activities and an associated reduced capacity to deliver beneficial services. Climate change is heavily compounding the damage to ecological infrastructure and escalating the associated human, financial and economic risks.

¹ <https://www.millenniumassessment.org/en/index.html>

² SANBI (2014). *A Framework for investing in ecological infrastructure in South Africa*. South African National Biodiversity Institute, Pretoria.

Ecological infrastructure in the Western Cape is being threatened by unsustainable levels of natural resource use, inappropriate urban and agricultural development, aggressively expanding invasive alien plant infestations, and a lack of co-ordinated management investment. Population growth and climate change are predicted to significantly compound these existing threats, further degrading essential ecological infrastructure and causing a steady decline in ecosystem services delivery over time. This will translate into rapidly increasing risks and service delivery costs that will be felt by all citizens. The poorest communities are most vulnerable in this context, given their existing service delivery deficit and their limited capacity to cope with risk and loss.

There is a growing body of evidence supporting the important role that ecological infrastructure can play in reducing global climate change (i.e., through capturing and storing carbon dioxide) as well as buffering society from the negative impacts of unavoidable climate change. For example, ecological infrastructure has been shown to provide protection against more frequent and intense disasters (e.g., floods, droughts and wildfires), and support improvements in local water and food security.

Investing in the restoration and management of ecological infrastructure is therefore critical to secure the societal and economic benefits it delivers, particularly considering the threat of climate change combined with increases in demand for natural resources (such as water) with population growth. Well-managed, healthy ecological infrastructure can play a central role in buffering of these risks and impacts, while supporting more resilient communities and green economic growth into the future.

1.2 THE WESTERN CAPE ECOLOGICAL INFRASTRUCTURE INVESTMENT FRAMEWORK

In 2018, the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) began preparing an Ecological Infrastructure Investment Framework (EIIF). The purpose of this Framework is to guide decision-makers from the public and private sector toward making investment choices that promote enhanced resilience of the Western Cape's ecological infrastructure. Recognising and understanding the key risks associated with the loss of human and economic benefits from degrading ecological infrastructure – particularly marginalised members of society who have limited ability to cope with such losses - is central to the EIIF focus. The EIIF sets out four investment objectives, as relayed in Figure 2.



Figure 2: The four main investment objectives contained in the Western Cape EIIF

The pressures on ecological infrastructure that can lead to its decline tend to be persistent and occur over the long-term. Restoring and managing ecological infrastructure therefore requires a long-term investment view. The EIIF recognises this and suggests that a range of financing mechanisms need to be developed that can support this long-term investment approach, including through the collective effort of multiple actors with an interest in securing ecosystem services flows and reducing climate change related risks. Three financial mechanisms are proposed for further development in the EIIF: government grants, revised water tariffs and a suite of financial and regulatory incentives/disincentives.

1.3 KEURBOOMS RIVER CATCHMENT CASE EXAMPLE

In seeking to localise the objectives of the Western Cape Biodiversity Economy Strategy and EIIF, in 2018 DEA&DP published a Business Case³ for the use of Payment for Ecosystem Services (PES) to fund alien clearing and restoration activities in the Keurbooms and Karatara River catchments. The underlying objective was to enhance local water security and protect the health of key estuarine and coastal assets important for the local economies in the Knysna and Bitou Local Municipalities.

DEA&DP initiated a stakeholder engagement process in 2020 with the aim of piloting the implementation of a PES (or similar Economic Policy Instrument) as a mechanism to facilitate long-term investment in ecological infrastructure in the Keurbooms River Catchment (see Figure 3).

³ https://www.westerncape.gov.za/eoadp/files/atoms/files/final_business_case-implementation_strategy-karatara_keurbooms_pes_06_nov_2018_Final.pdf

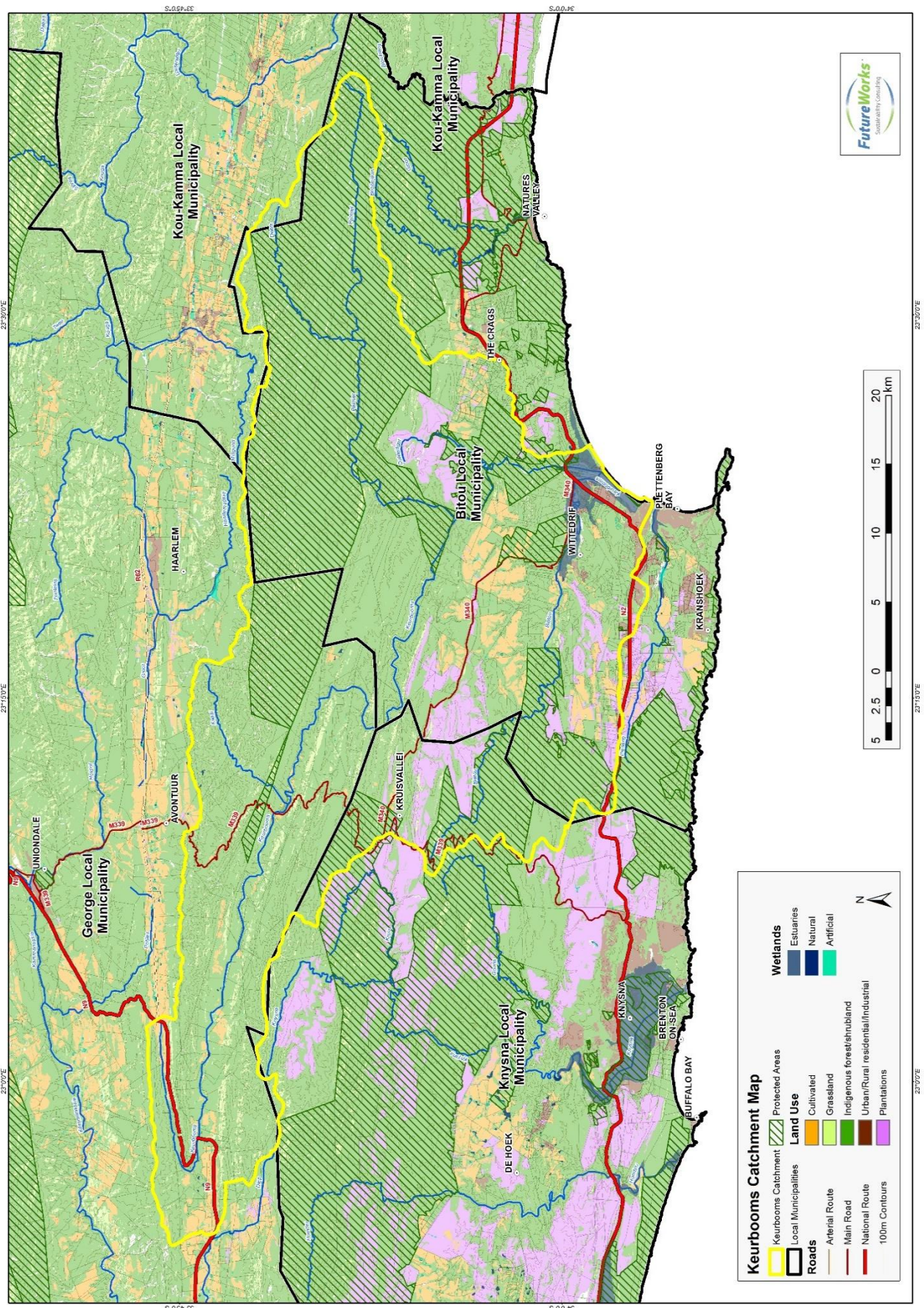


Figure 3: Keurbooms River Catchment map

During initial engagements, stakeholders widely indicated robust support for such an initiative, particularly given its goal of addressing the increasingly concerning water security and wildfire risks in the catchment. However, the ingredients for pilot implementation of a PES were incomplete, as a willing buyer of ecosystem services did not emerge during the consultations. Local municipalities in the catchment had been anticipated as the likely buyer of ecosystem services, but indicated problems of consumer affordability, capacity and water resources governance. There was a strong message that levying a tariff on domestic water consumers as part of a PES would be unlikely to be supported by political decision-makers, given current pressures to reduce the cost of utilities in response to significant non-payment problems. There were also questions around the legal responsibilities for management of ecological infrastructure between different spheres of government and landowners – both in terms of NEMBA⁴ Invasive Alien Species Regulations⁵, and the role of the National Department of Water and Sanitation (DWS) / Catchment Management Agency (CMA) in assuring bulk water supplies from the catchment. While raised as a barrier here, this is a rapidly evolving space in the national context, with the South African Local Government Association recently having produced a draft guiding document advocating for the devolution of the environmental management function from national and provincial levels to the local government sphere⁶.

From the experiences of similar initiatives in South Africa, including the Greater Cape Town Water Fund (GCTWF)⁷, municipal investment in ecological infrastructure restoration and management, particularly when through user charges, is challenging and therefore may come with pre-requisites that have to be fulfilled before municipalities will agree to implement user charges. In addition, the institutional and / or governance structuring of such initiatives that seek municipal financing for ecological infrastructure outside municipal boundaries, or outside the municipal mandate to manage⁸, are often challenging and therefore require special attention.

In response to the above context, it was decided that the focus of consultations with stakeholders in the Keurbooms River Catchment should be broadened to include a range of economic policy instruments and / or structural models that could support ecological infrastructure investments in the catchment, with PES being just one of several alternatives. The Keurbooms Ecological Infrastructure Investment Work Group was established for this purpose, comprising a broad range of government, non-government and private sector / landowner groups with an interest in ecological infrastructure in the Keurbooms River Catchment. DEA&DP provided secretarial support to the Work Group, which initially focused its efforts on co-developing of an ecological infrastructure investment model that stakeholders could agree was best fit for the local economic, ecological, social, institutional capacity and governance context. Its longer-term purpose was to act as a platform for collaboration between ecological infrastructure role-players in the Keurbooms River catchment, including those that supply and those that use key ecosystem goods

⁴ National Environmental Management: Biodiversity Act (Act 10 of 2004).

⁵ Government Notices R598 and R599 of 2014.

⁶ South African Local Government Association (SALGA). (2020) Guiding Framework for the Devolution of the Environmental Management Function to Local Government. Draft document obtained from SALGA as part of a national consultation process.

⁷ See Case Example 1 on page 13.

⁸ Municipal mandates concerning ecological infrastructure restoration and management are complex. Where a municipality owns land, it has an obvious duty in law to manage it, but where the land is not in municipal ownership, or outside the municipal boundary, the legalities around a municipality funding management are more complicated. A legal opinion was prepared in 2019 regarding the legality of City of Cape Town investing in managing the water supply catchments outside its boundary. The opinion suggested that, as a metropolitan municipality with a mandate to provide potable water systems under the Municipal Systems Act (Act No. 32 of 2000), there was no legal reason that prevented it from doing so (see: The Nature Conservancy. 2019. Advice Regarding Legal Constraints on the Spending of Municipal Funding outside of Statutory Boundaries. Report prepared by Winstanley Inc.)

and services, with the aim of promoting and facilitating enhanced investment in ecological infrastructure restoration and management. The Work Group objectives are set out in Table 1.

In working towards a sustainable model of ecological infrastructure investment, building trust relationships between the key actors that have an overlapping interest in certain areas or types of ecological infrastructure is central to success. The Keurbooms Ecological Infrastructure Investment Work Group example demonstrated that as stakeholders in the catchment began to better understand each other's mandates, roles and capacities, the need and opportunities for meaningful collaboration became more obvious.

Table 1: Keurbooms Ecological Infrastructure Investment Work Group Objectives

OBJECTIVES
1. Landscape-scale role-player collaboration
a. Build partnerships that facilitate collaboration between role-players in the catchment that manage ecological infrastructure or that use the goods and services generated by it.
b. Champion and facilitate a coordinated, systems-focused approach to ecological infrastructure restoration and management investment.
2. Prioritising and planning
a. Use a science-based and consultative approach to define ecological infrastructure investment priorities in the catchment.
b. Identify financial requirements to address the priorities.
c. Identify funding sources, instruments and alternatives, and supporting regulatory mechanisms or requirements.
d. Identify suitable institutional and governance structure(s) for achieving and sustaining the intended outcomes.
3. Championing implementation
a. Raise and manage funding for priority ecological infrastructure investment and associated transactional / administrative costs.
b. Help public and private landowners and land managers to access technical support / advice and financial support for ecological infrastructure management and restoration.
4. Communications
a. Communicate effectively with relevant stakeholders and interest groups about the Work Group processes and outcomes.
5. Promoting and sharing learning
a. Promote, support and facilitate monitoring and evaluation of the impacts of ecological infrastructure investments.
b. Promote learning and new knowledge development and share learning and new knowledge as widely as possible.

1.4 PURPOSE OF THIS GUIDE

The purpose of this document is to provide guidance to the process of planning initiatives that use economic policy instruments and/or market-based instruments such as Payment for Ecosystem Services to facilitate sustainable investment in the restoration and management of ecological infrastructure at the local-level, as envisaged by the Western Cape EIF. It is set out as a “roadmap” which users can follow, from the first steps of defining strategic and/or local-level ecological infrastructure investment priorities, to bringing key stakeholders on board and building trust relationships, and finally to evaluating the options for appropriate financing instruments and institutional mechanisms that are suitable for driving and coordinating implementation. It is

intended as a tool for practitioners working on ecological infrastructure investment to use in evaluating the options that will best suit the context in which they are working.

2. SUSTAINABLE ECOLOGICAL INFRASTRUCTURE INVESTMENT PLANNING ROADMAP

2.1 PLANNING ROADMAP OVERVIEW

This sustainable ecological investment planning roadmap contains five main steps, as shown in Figure 4.

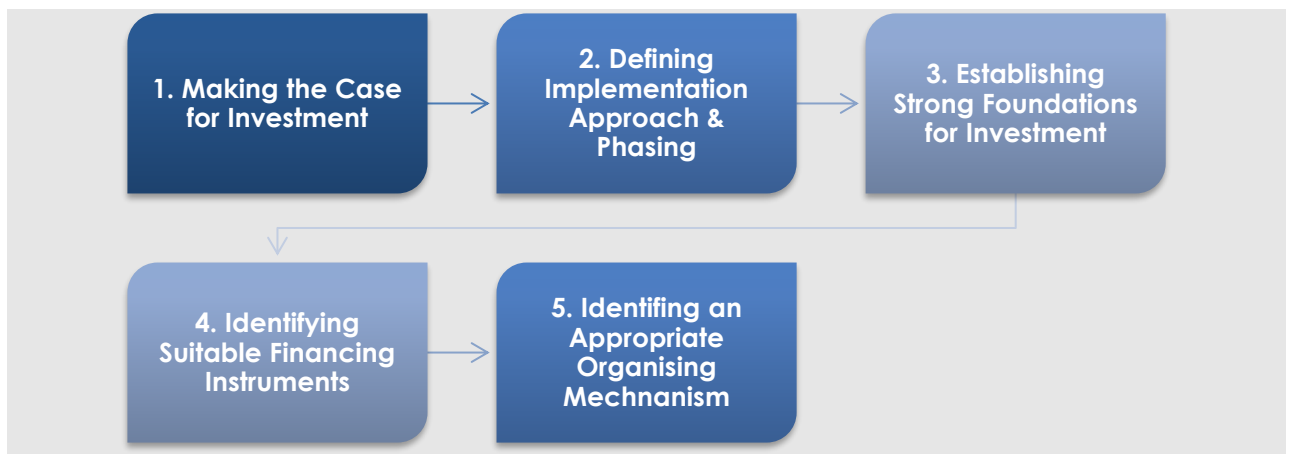


Figure 4: Five key steps in planning sustainable ecological infrastructure investments

2.2 MAKING THE CASE FOR ECOLOGICAL INFRASTRUCTURE INVESTMENT

The first step in the process of planning sustainable ecological infrastructure investments is to determine whether there is a convincing argument for implementation. This is most often done through preparing a Business Case.

A Business Case should clearly explain the problem and identify one or more options to address it. For the Business Case to be credible, the solutions it recommends should be motivated using best available science and/or robust modelling, including:

- Peer reviewed literature supporting the applicability of the proposed solution(s) in addressing the problem,
- Hydrological, environmental or economic modelling that demonstrates the potential costs and/or benefits of the recommended solutions.

In addition, the Business Case should provide a clear outline of the stakeholders that would need to be involved in implementing the proposed solutions (including financing these). These stakeholders are usually the target audience of the Business Case.

CASE EXAMPLE 1: THE GREATER CAPE TOWN WATER FUND BUSINESS CASE

In response to a serious drought experienced in the Western Cape between 2015 and 2018, The Nature Conservancy raised funding from corporate water users and international donors to prepare a Business Case for the establishment of the Greater Cape Town Water Fund (GCTWF) aimed at facilitating investment in ecological infrastructure restoration to improve water security for all users of the Western Cape Water Supply System (WCWSS). It motivated that funding and coordination of restoration could be catalysed by a collective action Water Fund that pools financial support across multiple public and private water users and others interested in ecological infrastructure solutions to Greater Cape Town's water challenges.



The Business Case evaluated the potential for improving water supplies by removing invasive alien plants (IAPs) from the sub-catchments supplying the WCWSS. A six-step process was followed to identify priority source water sub-catchments for IAP removal and to understand the return on investment associated with implementing these interventions at scale.

The results showed that investing R372 million would generate annual water gains of over 55 billion litres (55Mm³) within six years (equivalent to one-sixth of the City of Cape Town's water demand), increasing to 100 billion litres (100Mm³) within thirty years, compared to the business as usual scenario. Approximately 350 job opportunities could be created in the first five years of implementation through removing alien plants.

The Business Case argues that catchment restoration is significantly more cost effective than other water augmentation solutions, supplying water at one-tenth the unit cost of alternatives such as desalination. The GCTWF is to be established as a Water Trust Fund that pools funding from multiple sources to manage regional ecological infrastructure. It is intended that the City of Cape Town will become a major contributor through a water tariff linked charge billed to municipal water users. This water fund model is a "hybrid" PES that combines user charges to pay for delivery of specific ecosystem services and 'softer' funding from corporates and donors whose interests may lie in co-benefits such as job creation and enhancing climate change adaptation outcomes.

Read more here:

<https://www.nature.org/content/dam/tnc/nature/en/documents/GCTWF-Business-Case-April-2019.pdf>

CASE EXAMPLE 2: BUSINESS CASE FOR DURBAN'S TRANSFORMATIVE RIVERINE MANAGEMENT PROGRAMME

eThekwini Municipality plans to establish a Transformative Riverine Management Programme (TRMP), which works in partnership with all affected stakeholders to collectively

rehabilitate and sustainably manage all riverine areas within Durban. As a result of urban development, Durban's riverine areas are mostly degraded and estimated to be operating at around 42% below their potential in delivering essential ecosystem services that support human well-being, effective service delivery and a healthy economy. Climate change will exacerbate flooding and water quality problems, accelerate erosion and sedimentation impacts, and drive faster growth of invasive alien species, which will further transform and destabilise Durban's riverine ecosystems, reducing ecosystem services delivery by an estimated further 11%.



With assistance from the C40 Cities Finance Facility, eThekwini Municipality has prepared a Business Case that presents evidence-based rationale for investment in transformative riverine management across the approximately 7,000km of watercourses in the EMA. This involves a year-long process of specialist studies, hydrological and ecological systems modelling, Benefit Cost Analysis and stakeholder consultations.

The Business Case motivates that the effective management of these watercourses can alleviate a service delivery backlog and avoid social productivity losses, and deliver a basket of valuable financial, socio-economic, human and ecological benefits in line with eThekwini Municipality's mandate to deliver services in a sustainable, cost-efficient and equitable manner. A clear link is made between these benefits and their role in improving the resilience of the municipal administration, citizens and business/industry to escalating climate change risks and impacts.

It argues that every R1 spent on transformative riverine management could generate between R1.80 and R3.40 in avoided municipal infrastructure damage costs and broader societal benefits (including protection of the city's coastal economy). This investment could also create over 9,000 new permanent jobs. It also showed that by implementing a transformative riverine governance approach at a cost of R719 million over 20 years, eThekwini Municipality could unlock R4.5 billion in co-investment from private landowners, other government and third parties. It further suggested that there was a strong case for upscaling the city's existing Sihlanzimvelo Stream Cleaning Programme, with incremental phasing in of transformative approaches over time.

This work is intended to unlock increased investment from the municipal fiscus in ecological infrastructure as a supplier of vital goods and services, but also from other government, non-governmental and private sector stakeholders, and citizens.

Read more here: <https://www.c40cff.org/projects/ethekwini-municipality-durban->

Depending on the target audience for the Business Case, and how quickly the investment in ecological infrastructure needs to happen, a Business Case can also include answers to key technical, legal and financial “pre-feasibility” questions, for example:

- Are the proposed solutions technically feasible to implement?
- Do legislative and regulatory frameworks support the proposed solutions / are there any insurmountable legal barriers?
- Is it feasible to raise the finance required for implementation of the solutions?

Once complete, the Business Case is used to inform:

- Decisions on whether to implement one or more of the proposed solutions
- Detailed implementation planning
- Applications for funding / development of financing mechanisms

2.3 DEFINING THE IMPLEMENTATION APPROACH AND PHASING

2.3.1 *Defining clear investment outcomes*

When planning implementation of ecological infrastructure investments, there is typically a need to prioritise based on where interventions will yield the greatest benefits. The desired outcomes (or benefits) therefore need to be clearly defined from the outset. This includes defining the ecosystem services that investors are willing to pay to improve the supply of, and the beneficiaries of the increased supply of these services (which includes the investors and others).

For example, enhancing water security for a particular farming region may be the desired outcome, in which case the process of prioritising ecological infrastructure investment will focus on restoring and managing the ecosystems that are most important for increasing water yields and sustaining river baseflows in the spatial area where the target beneficiaries access their water.

Identifying the co-benefits of investment is equally important. Understanding who else could benefit from the investment and how, is critical insight for expanding opportunities for co-financing and for scaling up investment over time. Consideration should be given to how the investment could maximise on other positive social, ecological and economic co-benefits, for example protecting important biodiversity, creating local jobs and growing the green economy.

2.3.2 *Mapping priority implementation areas*

Identifying which spatial areas to prioritise for restoration / management to achieve the desired outcomes should use a combination of supply and demand driven priority criteria.

Demand-driven priorities link directly to the identified outcomes of the investment, including where the target beneficiaries (and co-beneficiaries) of the enhanced ecosystems services flows are located (including other areas that may face related risks). This defines where the enhanced flows of ecosystem services need to be delivered for the desired beneficial outcomes to be achieved.

Supply-driven priorities are those areas of ecological infrastructure that have the best potential to produce the ecosystem services that are the investment focus. The EIIF sets out the spatial priorities at provincial scale for where key benefits, such as water provision and protection from flooding, can be derived from the restoration of ecological infrastructure. These strategic spatial priorities

are detailed further in a Catchment Prioritisation Report⁹ and are seen as a 'point of departure' for further investigation and detailed implementation planning. In the Western Cape, there are several sources of robust, science-based spatial information sets that can be used for this purpose (e.g. water source areas, areas of high biodiversity importance, location of wetlands etc.), many of which are readily available on the Western Cape Department of Agriculture's (DOA) Cape Farm Mapper web application (<https://gis.elenburg.com/apps/cfm/>) (see also Annexure 1 of this Guide for further resources). Given that different criteria may be used to prioritise ecological infrastructure based on the desired ecosystem services, a map of priority ecological infrastructure supporting water services, for example, may identify different landscape features compared to a map of priority ecological infrastructure for disaster risk reduction.

Supply side priorities are often first mapped at a broad scale (e.g., wetlands and riparian areas may be targeted for investment to improve water security), with finer grained prioritisation following thereafter. For example, removing invasive alien plants (IAPs) growing within or directly adjacent rivers and wetlands can help reduce water losses to a much greater degree per hectare cleared than other areas¹⁰. When financial and human resources are scarce, this level of implementation planning may be needed to optimise the desired ecosystem service outcomes within the available means.

To assist with the implementation of the EIF in relation to IAP control, DEA&DP has developed Management Unit Control Plans (MUCPs) for the Keurbooms, Karatara and Holsloot River Catchments. These MUCPs estimate the costs of IAP clearing at river catchment scale over a 20-year timeframe. By focusing on specific goals, such as increasing water yields, reducing fire risks or restoring biodiversity, the MUCPs set out clear spatial priorities for IAP clearing and implementation phasing / sequencing recommendations.

2.3.3 Accounting for systems-scale processes

One of the key challenges associated with ecological infrastructure investments is that the restoration / management investment typically happens within a part of landscape-scale hydrological or ecological system. This means that improvements made in one part of the system can ultimately be compromised by a failure to manage other parts of the system. For example, the costs of controlling IAPs in riparian areas at the lower end of a river catchment are greater if riparian areas in the middle and upper catchments are not managed and continue to produce IAP seeds that germinate in the lower catchment. Similarly, if only some farmers in a fire-prone landscape manage their vegetation cover to limit fire risk, all farmers experience increased fire risk because of those not investing in adequate management.

People, land uses and economic activities surrounding ecological infrastructure may both strongly influence and be influenced by it. How people interact with these areas can influence the condition, health and function of ecological infrastructure. This in turn influences the quantity and quality of ecosystem services delivered, which people may need or benefit from. In

⁹ Western Cape Government. 2019. *Western Cape Provincial Ecological Infrastructure Investment Framework: Catchment Prioritisation Report*. Prepared for the Department of Environmental Affairs and Development Planning by M. Audouin, D. Le Maitre, W. Stafford, G. Forsyth, P. Ntshotsho and I. Kotzee (CSIR).

¹⁰ Le Maitre, D.C., Gush, M.B. & Dzikiti, S. 2015. Impacts of invading alien plant species on water flows at stand and catchment scales. *AoB PLANTS*, 7(43), doi:10.1093/aobpla/plv043.

acknowledging this cause-and-effect relationship, researchers and practitioners have increasingly recognised the need to manage certain ecological infrastructure as social-ecological systems^{11,12}.

In areas that are heavily urbanised or developed for agricultural land uses, restoring and managing ecological infrastructure alone may therefore not be adequate to ensure its health. In such cases, the human and economic relationship with the ecological infrastructure needs to be addressed as part of the process. For example, stormwater filtration and attenuation facilities that receive run-off before it is released into natural areas may be needed where surface pollution and accelerated stormflows cause ongoing damage to the health of wetlands and rivers. Equally, social interventions, such as community awareness raising or school ecosystem stewardship programmes, may be needed to change damaging human relationships with ecological infrastructure. This is called a "social-ecological" systems approach, in which one recognises that taking account of systems-scale processes and collective landscape-level risks is essential for cost-efficient implementation of ecological infrastructure investments.

2.3.4 Optimising socio-economic benefits

Given South Africa's socio-economic context, investment in ecological infrastructure should optimise job creation, poverty alleviation and rural development outcomes in harmony with enhancing desired ecosystem service supplies. Job and enterprise development opportunities created in conjunction with ecological infrastructure investment should be inclusive and gender sensitive. This objective can have implications for where implementation is prioritised (for example in areas of high socio-economic need), as well as how implementation takes place (for example in a labour-intensive manner).

2.3.5 Socially inclusive participation

Socially inclusive participatory processes are important for bringing local knowledge and experience into ecological infrastructure investment prioritisation and planning processes. Hydrological, climatic, social, economic and ecological contexts and priorities may differ significantly in different areas, and participatory planning can assist in ensuring implementation is designed to be context specific. In addition, data is almost always a constraint to good planning, and participatory processes help close data gaps through local knowledge and experience.

2.3.6 Phasing

Phasing in implementation is a critical consideration when prioritising ecological infrastructure investments. This should take account of systems-scale processes that may undermine restoration/management efforts, as well as how implementation finances are likely to flow over time. For practical reasons it is often useful to prioritise early implementation in areas where there are landowners that are willing to manage the ecological infrastructure on their properties. This can be important for getting action on the ground in the short-term, supported by a longer-term process of bringing other landowners on board over time.

¹¹ Cote, M., and Nightingale, A. J. (2012). Resilience thinking meets social theory Situating social change in socio-ecological systems (SES) research. *Prog. Hum. Geogr.* 36, 475–489. doi:10.1177/0309132511425708

¹² Dunham, J., Angermeier, P., Crausbay, S. Cravens, A., Gosnell, H., McEvoy, J., Moritz, M., Raheem, N. and Sanford, T. (2018). Rivers are social-ecological systems: Time to integrate human dimensions into riverscape ecology and management. *Wiley Interdisciplinary Reviews: Water.* 5. e1291. 10.1002/wat2.1291.

2.4 ESTABLISHING STRONG FOUNDATIONS FOR INVESTMENT

2.4.1 Mobilising role players

As envisaged by the EIIIF, initiatives that facilitate sustainable investment in ecological infrastructure require a long-term, systems-scale, multi-actor, transversal approach. Mobilising the right role players at the right time is essential to success, including:

- Those that can / should implement ecological infrastructure management
- Those that could help to provide finance, technical or other support to managers (including monitoring)
- Those that use / demand the resulting increased flows of ecosystem services, or that benefit from reduced risk

Investment in ecological infrastructure usually requires people from different disciplines and backgrounds working together, each drawing from their own knowledge bases. Having the right role players involved provides a solid foundation for implementation. Mobilising such participation requires leveraging the specific interests or mandates of each participant.

In addition to the support by the Western Cape Government under the EIIIF, there are several other government programmes that may help to subsidise or pay for ecological infrastructure restoration and management. These include the National Department of Environment, Forestry and Fishery (DEFF) Natural Resource Management programmes (such as Working for Water, Working for Wetlands and Working on Fire), CapeNature's biodiversity stewardship programme, and the Department of Agriculture (DOA) LandCare programme. Where the focus is on river catchments, the National Department of Water and Sanitation (DWS) and Catchment Management Agencies are important role players. District and local municipalities are also likely to have an interest in ecological infrastructure investments, given their mandates relating to sustainable service delivery, environmental and coastal management, disaster risk management, climate change mitigation and adaptation, and local economic development. Private landowners – including businesses and individuals – that can implement ecological infrastructure management, or who are direct users of ecosystem services, also need to be involved. Non-profit and community-based organisations may also be important to involve, particularly where they are already proactive in promoting or implementing ecological infrastructure focused projects or can act to meaningfully represent groups of landowners or beneficiaries.

2.4.2 Building from success

Where there are existing initiatives in place that are already contributing positively to the restoration/management of ecological infrastructure, these should be used as a base of knowledge, learning and engagement to build from.

2.4.3 Calculating the costs of implementation

To be able to motivate for funding or financing of ecological infrastructure investments, the costs of implementation need to be estimated. This should cover the specific biophysical interventions needed to improve ecological infrastructure condition, such as restoring natural habitats and managing IAP infestations, but may also include the cost of developing access roads and facilities for workers. Where surrounding land uses or human interactions with the ecological infrastructure are likely to continue to cause degradation, interventions that mitigate these pressures may also be budgeted for. The cost of human resources and administration should also be included, where these capacities are needed in addition to that which can be provided by existing role players.

2.4.4 Baseline setting and Monitoring

Investment in ecological infrastructure should be motivated based on a clear understanding of the desired outcomes, or desired return on investment. Baseline data should be collected, and additional data should be gathered throughout the project to track the impact of restoration and management interventions. Monitoring should apply to both biophysical and socio-economic benefits, including the numbers of new jobs and enterprises created. Where possible, existing monitoring and evaluation systems and processes should be adapted and used. Monitoring and evaluation of ecological infrastructure projects should provide information that can be synthesised across multiple projects, so that overall results can be assessed. This could support broader arguments for increased resources for investing in ecological infrastructure.

2.5 IDENTIFYING SUITABLE AND FEASIBLE FINANCING INSTRUMENTS

2.5.1 Identifying opportunities and evaluating options

Ecological infrastructure investments can potentially be financed from a range of public, private and third-party sources. While there is almost always a need to bring in additional funding, it is also important to recognise any existing funding / resourcing of ecological infrastructure investments. For example, there may be several landowners already managing effectively, and public conservation land which is also well-managed by government. In some instances, there may be an opportunity to simply better align existing resources to improve cost efficiencies and beneficial outcomes.

Financing ecological infrastructure investments is therefore about locating the critical gaps in technical, financial and human resources and identifying feasible means of addressing these through financing/resourcing mechanisms that are best suited to the local context and project objectives.

Given that ecological infrastructure investments need to be implemented over the long-term, identifying resources/sources of finance should take account of the need for sustained availability of adequate implementation finances. This is particularly important in the context of sustaining the socio-economic and risk-reducing benefits of these investments, including jobs and new enterprises. Understanding the extent of financing needs, and over what time periods these are required, is central to ensuring that ecological infrastructure investments are sustainable and cost-efficient.

There are also several short-term funding options discussed in this section. These can be useful for driving resource-intensive efforts over the shorter-term, such as restoration of wetlands or riparian areas, or intensive removals of IAPs. These short-term financing boosts may be essential to addressing significant degradation and can play an important role in reducing the costs of management. Short term funding can also be important for piloting new approaches, building skills, and demonstrating success, all of which can be important foundations for securing longer term sources of finance.

There is also merit in diversifying the financing of ecological infrastructure investments as a risk management measure. The financing approach should therefore be supported by a suitable organising structure that can facilitate resource pooling and co-investment by the various role-players with overlapping interests in the ecological infrastructure.

2.5.2 Government

Government acts in the public interest, and consequently all government resourcing of ecological infrastructure centres on maximising public benefits. There are several ways that government resources ecological infrastructure investments (see Table 2).

Table 2: Government resourcing of ecological infrastructure investment

ROLE	HOW ECOLOGICAL INFRASTRUCTURE INVESTMENT IS RESOURCED
Facilitating and supporting stakeholders to develop ecological infrastructure focused investments	In terms of the EIIIF, the Western Cape DEA&DP plays a key role in leading a province-wide process of championing, facilitating and supporting roleplayers towards enhancing ecological infrastructure investments. This includes mobilising stakeholders, facilitating collaboration and resource pooling, and providing direct assistance in the design and implementation of programmes and projects. DEA&DP has already facilitated the establishment of several “Communities of Practice” focused on ecological infrastructure in the province. Stakeholders that align their focus with the EIIIF will be well positioned for support from the Western Cape Government.
Management of ecological infrastructure that government owns / is responsible for	<p>In the Western Cape, South African National Parks (SANParks) and CapeNature are the national and provincial government actors that have primary responsibility for managing public protected areas.</p> <p>District and local municipalities are responsible for managing certain coastal areas, estuaries and local nature reserves. They may also maintain streams, rivers and wetlands where these form part of municipal stormwater systems.</p> <p>Municipal Infrastructure Grants, Strategic Integrated Projects (SIPs), other infrastructure projects, disaster risk reduction funding, and climate change mitigation and climate change adaptation funding should have specific allocations for investing in ecological infrastructure.</p>
Provision of technical / extension support to private landowners	<p>The Western Cape Department of Agriculture, CapeNature, SANParks, DEA&DP, District and Local Municipalities may provide technical / extension support to landowners regarding ecological infrastructure restoration and management.</p> <p>Capacity constraints tend to limit the extent to which these roles can be performed at scale.</p>
Regulatory development and enforcement	<p>National, provincial and local governments are specifically mandated to develop and enforce various laws and by-laws that can be used to compel private landowners to protect and manage the natural environment, for example:</p> <ul style="list-style-type: none"> • Invasive alien species control (NEMBA¹³, CARA¹⁴), • River, forest, wetland protection (NEMA¹⁵) • Water resource use and protection (NWA¹⁶) • Wildfire risk reduction/management (NVFFA¹⁷) • Municipal by-laws (pollution control, stormwater management) • Municipal development planning / land use control decisions

¹³ National Environmental Management: Biodiversity Act (Act no. 10 of 2004)

¹⁴ Conservation of Agricultural Resources Act (Act no. 43 of 1983)

¹⁵ National Environmental Management Act (Act no. 107 of 1998)

¹⁶ National Water Act (Act no. 36 of 1998)

¹⁷ National Veld and Forest Fire Act (Act no. 101 of 1998)

ROLE	HOW ECOLOGICAL INFRASTRUCTURE INVESTMENT IS RESOURCED
	<p>While there is a solid regulatory environment in place to ensure that ecological infrastructure must be effectively managed, capacity constraints tend to limit the extent to which enforcement roles can be performed and authorities tend to prioritise their efforts around the areas where poor management presents the greatest risks.</p>
<p>Direct Government funding</p>	<p>National and provincial government has several job creation programmes in place that can provide support to landowners in managing ecological infrastructure. These include:</p> <ul style="list-style-type: none"> • DEFF Natural Resources Management Programme (e.g., Working for Water, Working for Wetlands, Working on Fire) • DOA LandCare Programme • Expanded Public Works Programme (EPWP) • CMA funding for riparian area / wetland or farm dam management <p>Funding is usually provided over the short-term (1-3 years) – often to “implementing agents” that bid for the right to receive the funds and spend them in a specified area. The focus of the support is mostly on IAP control, restoring degraded agricultural areas, restoring wetlands, and managing wildfire risks. Individual landowners are not generally able to get funding this way, but may benefit if the “implementing agent” is able to include their land in the implementation plan.</p> <p>This support usually requires landowners to commit to self-funding the required maintenance after the government support has ended.</p> <p>Government funding can cover the costs of managing the implementation, but this is often limited to a small percentage of the overall funding value.</p> <p>The administrative reporting requirements are often onerous, given the need to monitor and report job creation and other public benefits achieved through implementation.</p>
<p>Provision of Ecological Asset funding</p>	<p>Work being done by SANBI¹⁸ on the establishment of an Ecological Infrastructure for Water Security Fund (EI4WS) offers significant potential for ecological infrastructure investment. According to Cartwright (2020)¹⁹, the proposal is to link the holding of ecological assets to the draw-down of money from a national EI4WS fund that is formed as a sub-component of South Africa’s proposed Infrastructure Fund. State-owned entities, provincial and local governments and companies that take responsibility for these assets would hold them on their balance sheet and report their value²⁰ using SANBI’s natural capital accounting framework, in order to qualify for money held in a national water fund. The money would be disbursed through subsidiary funds at Provincial or Regional Office level. It would be the role of the respective the Provincial or Regional Offices to ensure that the state of ecological assets is enhanced in accordance with the relevant catchment management strategies, and that robust monitoring data are produced to enable the calculation of the return on investment.</p>

¹⁸ <https://www.sanbi.org/news/new-partnership-project-for-water-security-launched/>

¹⁹ Cartwright, A. 2020. Mobilising Investment for Ecological Infrastructure and Water Security. A roadmap for the Western Cape and uMngeni Catchment in South Africa. Report produced for the SANBI GEF6 project.

²⁰ The Natural Capital Accounts framework provides a measurable and defensible account of the current state of Ecological Infrastructure linked to water security for example the condition of rivers and wetlands. A disbursement would be linked to maintaining or achieving a desired state which is associated with improved water security.

2.5.3 Donors

Donor funding for ecological infrastructure is usually made available around a specific set of social, economic, environmental or climate change priorities or objectives defined by the donor organisation. The funding is provided over the short term (1-3 years) to government or non-profits that must bid competitively for the funding.

Donor funding may be in the form of a grant (i.e., no requirement to repay) or a soft loan (i.e., a loan that incurs no or low interest). There is often a requirement to spend most of the funding directly on implementation, with strict limitations on the amounts that can be used to cover management or administrative costs. Some examples of donor funders with an interest / history of investing in ecological infrastructure projects are set out in Table 3.

Table 3: Examples of donor funds that support ecological infrastructure investments

DONOR	HOW ECOLOGICAL INFRASTRUCTURE INVESTMENTS ARE FUNDED
Global / International Donors	
<p>Green Climate Fund (GCF)</p>	<p>The Green Climate Fund (GCF) is established within the framework of the United Nations Framework Convention on Climate Change (UNFCCC) as an operating entity of the Financial Mechanism to assist developing countries in adaptation and mitigation practices to counter climate change.</p> <p>DEFF is the National Designated Agency that serves as the interface between South Africa and the GCF. It provides strategic oversight of the GCF's activities in the country and communicates South Africa's priorities for financing low emission and climate resilient development.</p> <p>The Development Bank of Southern Africa (DBSA) and the South African National Biodiversity Institute (SANBI) are the National Accredited Entities in South Africa that can access funding through the GCF. They may disburse funding through programmes and projects implemented by others, but that contribute to the objectives of the proposals they submit to the GCF in relation to South Africa's priorities for financing low emission and climate resilient development.</p>
<p>Adaptation Fund (AF)</p>	<p>The Adaptation Fund was established under the Kyoto Protocol of the UNFCCC. It finances projects and programmes that help vulnerable communities in developing countries adapt to climate change. Initiatives are based on country needs and priorities.</p> <p>DEFF is the National Designated Authority that serves as the interface between South Africa and the Adaptation Fund. Its role is to endorse accreditation of Implementing Entities and / or proposals from these Implementing Entities for adaptation projects and programmes in South Africa.</p> <p>SANBI is the National Implementing Entity for the Adaptation Fund in South Africa. There are several other Multi-lateral Implementing Entities (such as the World Bank and United Nations Environment Programme) that can also submit proposals to the Adaptation Fund that may include projects and programmes in South Africa.</p>
<p>Global Environment Facility (GEF) Small Grants Programme</p>	<p>The GEF Small Grants Programme provides financial and technical support to communities and Civil Society Organizations to meet the overall objective of global environmental benefits secured through community-based initiatives and actions.</p>

DONOR	HOW ECOLOGICAL INFRASTRUCTURE INVESTMENTS ARE FUNDED
	Government, non-profits and civil society organisations can apply for GEF funding. Sometimes this needs to be through an existing “country programme” established by National Government.
International Climate Initiative (IKI) Germany	<p>IKI is an initiative of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. It funds climate change mitigation and adaptation programmes and projects in countries with which it has established bilateral agreements.</p> <p>IKI develops themes around which it issues calls for funding proposals, usually on an annual basis.</p> <p>IKI also operates a small grants programme through the GIZ, for which calls for proposals are periodically announced.</p>
Global Facility for Disaster Reduction & Recovery	<p>The Global Facility for Disaster Reduction and Recovery (GFDRR) is a global partnership that helps developing countries better understand and reduce their vulnerability to natural hazards and climate change.</p> <p>GFDRR is a grant-funding mechanism, managed by the World Bank. Funding is usually provided directly to government.</p>
Philanthropies	<p>There are many European and US-based philanthropies that may support ecological infrastructure investments, particularly where these can demonstrate beneficial social outcomes. Annexure 1 contains weblinks to various lists of these.</p> <p>Philanthropies tend to have fixed agendas for the kinds of projects and programmes they will fund. Aligning with these is a requirement for funding applications to be successful. Funding is usually provided on a short-term basis (1 to 3 years).</p>
South African / Local Donors	
Nedbank Green Trust	<p>Nedbank raises money through one of its bank account offerings to provide funding for projects that address environmental and social needs. WWF South Africa provides the strategy for the Trust.</p> <p>Any organisation can apply for funding from Nedbank Green Trust. The initiative has a strong focus on ecological infrastructure and ecosystem-based adaptation.</p>
Table Mountain Fund	<p>The Table Mountain Fund is a capital Conservation Trust Fund that develops and funds projects to protect and restore Fynbos. Non-profit and civil society organisations can apply for funding in response to annual calls, which set out the funding objectives for that year.</p> <p>Funding is provided over the short term (1 to 3 years).</p>
South African Non-profit Companies / Public Benefit Organisations	<p>Many South African non-profit companies and public benefit organisations can raise funding from a range of sources, including from membership fees and donations (corporate and private). Some are well connected into local and international funding processes, and can be sources of funding for pilot projects / short term ecological infrastructure restoration and management activities where this aligns with their available funding. Examples include WWF and The Nature Conservancy (see Annexure 1).</p>

2.5.4 Corporate Social Investment (CSI)

South Africa's Broad-based Black Economic Empowerment (BBBEE) regulatory framework²¹ sets out the requirements for businesses to invest in marginalised individuals and communities and to grow small enterprises outside of their profit-making focus. These contributions are made through Corporate Social Investment (CSI) or Enterprise Development initiatives, in return for which businesses receive BBBEE points that count towards compliance with the BBBEE regulations for their sector. These BBBEE points may also help businesses by improving their "preferential procurement" status, making them more attractive suppliers to government and other businesses that also receive BBBEE points for interacting with companies that have good BBBEE status.

CSI and Enterprise Development funding presents a significant opportunity for leveraging investment in ecological infrastructure. In some cases, a company or entire sector may recognise the importance of the ecosystem services that are critical in their supply chain or the production of their own products, such as clean, readily available water; and invest in the supply of these services. Investing in ecological infrastructure is also an investment in a more stable society, through helping to address poverty and socioeconomic disparities. Much corporate social investment is built on this premise.

CSI funding is usually made available for projects and programmes that are "close to home", in the sense that they are either beneficial to the region where their staff live or operations take place, or are associated with an aspect of the business's supply chain (for example Woolworths invests CSI funding in community-based food production). Funding is usually provided to non-profit partners that can establish a long-term implementation-focused relationship with the CSI provider. This is a competitive space and, in some instances, non-profits are established by corporates to manage their CSI implementation processes as a dedicated service.

2.5.5 Economic Policy Instruments

Leveraging contributions from landowners who are custodians of ecological infrastructure requires specific attention to provide effective incentives, create and maintain contractual agreements, and in some cases, penalise dis-investments. Economic Policy Instruments (EPIs) are incentives designed and implemented by government with the purpose of influencing individual decisions towards appropriate investment in ecological infrastructure. EPIs are generally structured to secure long-term investment in ecological infrastructure by private landowners. Examples of such EPIs established by government are explained in Table 4.

²¹ See <http://www.thedtic.gov.za/financial-and-non-financial-support/b-bbee/b-bbee-codes-b-bbee-acts-strategies-policies/>

Table 4: Examples of Economic Policy Instruments that can fund ecological infrastructure investments

EPI	HOW ECOLOGICAL INFRASTRUCTURE INVESTMENTS ARE INCENTIVISED / FUNDED
<p>Income tax rebate for formally protected biodiversity conservation areas</p>	<p>Sections 37D of the South African Income Tax Act provides a tax incentive for landowners to formally conserve properties that have high biodiversity value²². For the incentive to be applicable, the land must be declared as a nature reserve or national park in terms of Section 20 or 23 of the NEMPAA²³. The land must be subject to a title deed endorsement for a minimum of 99 years²⁴. The landowner can claim a 4% straight line deduction on the value of the land over 25 years. This translates to a R40,000 annual rebate on the landowners taxable income for every R1 million in land value. This incentive can be used not only to formally protect high value ecological infrastructure, but also to secure management investment in it. To obtain the tax rebate, landowners must manage the land in accordance with an approved management plan, and report on this to the relevant biodiversity authority.</p> <p>One of the first examples of the successful use of this tax incentive was Kaingo Private Game Reserve (www.kaingo.co.za) in the Waterberg District of the Limpopo Province. The 22,000 hectare property falls within the Waterberg Biosphere Reserve and contains several endemic plant species, as well as outstanding scenic beauty. With the support of government, the landowner declared the property a Nature Reserve in perpetuity, and in return qualified to receive the Section 37D tax benefit. Kaingo Private Game Reserve is now an effectively managed protected area containing a boutique eco-tourism operation with a limited physical footprint, and that creates jobs and helps stimulate the local rural economy. The Section 37D tax incentive has reportedly helped to bolster the reserve's cash flow, ensuring sufficient funds are available for reserve management. The reserve needs to have an approved management plan in place and must report annually on its implementation to continue to qualify for the Section 37D tax benefit.</p>
<p>Municipal property rates rebate for protected areas</p>	<p>The Municipal Property Rates Act makes provision for municipalities to establish their own property rates policies. Within these policies, the Act allows municipalities to make provision for property rates rebates to be granted to landowners whose properties contain nature reserves or protected areas.</p> <p>This incentive can be used similarly to the Section 37D tax incentive in encouraging private owners of high value ecological infrastructure to commit to conserving it, and through the rates rebate, release landowner funds for responsible management.</p> <p>Importantly, the applicable municipal rates policies must include an appropriate provision for such a rebate, for it to be used as an incentive in this way.</p> <p>Nelson Mandela Bay Municipality was the first municipality to actively use property rates rebates to encourage the protection of priority conservation areas²⁵. Initially the municipality would only consider rebates for land contained within its Metropolitan Open Space System, but later this requirement was amended in favour of providing rebates for any priority conservation land where the landowner was prepared to make a long-term conservation commitment.</p>

²² More information on the Section 37D biodiversity tax Incentive can be found on the Panorama partnership website: <https://panorama.solutions/en/solution/biodiversity-tax-incentives-south-africas-protected-area-network>

²³ National Environmental Management Protected Areas Act (Act no. 57 of 2003)

²⁴ A fact sheet can be downloaded here: https://panorama.solutions/sites/default/files/section_37d_info_sheet_1.pdf

²⁵ A case study describing how these rebates were established through the municipality's Rating Policy, and key lessons learned, is available for download at the following link: <https://www.sanbi.org/wp-content/uploads/2018/04/3-rates-rebates-nelson-mandela-metro.pdf>

EPI	HOW ECOLOGICAL INFRASTRUCTURE INVESTMENTS ARE INCENTIVISED / FUNDED
	<p>City of Cape Town's Rates Policy²⁶ provides provision for 100% property rates rebates for "Landowners who, in terms of the Protected Areas Act: (i) are contracted into the Table Mountain National Park, or; (ii) own properties warranting Nature Reserve status and are in the process of proclaiming them or portions thereof...". In addition, property rates rebates of up to 90% are applicable to: "Owners of properties with formal in perpetuity conservation agreements of over 10 hectares, ... on that portion of the land used for residential and/or conservation management purposes...".</p>
<p>Special Rating Areas (SRA)</p>	<p>A Special Rating Area (SRA) refers to a clearly defined geographical area in which property owners contribute additional property rates to fund 'top up' services for that specific area as per an approved Business Plan. SRAs can focus on improving ecosystem services, for example by managing ecological infrastructure in a way that protects local recreational and visual amenity. See Case Example 3 on page 27 covering the Giba Gorge Special Rating Area, which was set up to protect and manage an area of local ecological and recreational importance.</p> <p>To establish a SRA, the majority of property owners in the defined area need to agree to its set up and to the amount of additional rates payable. The extra rates are paid to the municipality, which then transfers the funds to a Non-profit Company established to manage the SRA. SRAs are typically managed by volunteers from the community within the SRA area. The municipality exercises financial oversight and ensures legal compliance.</p> <p>SRAs are governed by Section 22 of the Municipal Property Rates Act (MPRA), the Municipal Finance Management Act (MFMA), the Companies Act (Non-profit Company – NPC), the South African Constitution and requires that the municipality has an approved SRA by-law.</p>
<p>Water pricing</p>	<p>South Africa has a Water Pricing Strategy that sets out how bulk and retail tariffs can be determined within each catchment management area, and by municipalities. In terms of this strategy, CMAs and municipalities can include costs associated with management of the ecological infrastructure system that delivers water in the bulk and/or retail prices charged for water. This means that it is possible to price-in the cost of water security enhancement through managing ecological infrastructure in water catchments.</p> <p>For example, the City of Cape Town is exploring the use of water pricing as a mechanism to help fund restoration and management of the river catchment areas supplying the Western Cape Water Supply System (see Case Example 1 on page 13).</p>

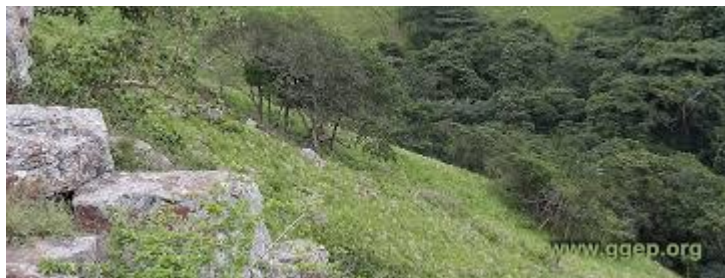
²⁶ The Rates Policy can be obtained at the following link:
<https://resource.capetown.gov.za/documentcentre/Documents/Financial%20documents/Budget%202018-2019%20Annexure%205%20Rates%20Policy.pdf>

CASE EXAMPLE 3: GIBA GORGE SPECIAL RATING AREA, DURBAN

Giba Gorge is a steep, forested valley lying on the edge of the suburb of Hillcrest in Durban. The land within Giba Gorge was donated by a private landowner to the eThekweni Municipality. Property owners surrounding Giba Gorge recognized the visual and recreational amenity offered to them by Giba Gorge, but also the risk that the isolated nature of the valley could lead to poor management and crime problems.

Property owners around Giba Gorge approached eThekweni Municipality with a proposal to establish a Special Rating Area (SRA) focused on environmental management in Giba Gorge. A minimum 60% positive vote from the 165 surrounding property owners was required for the SRA to be established, which was duly obtained and the Giba SRA established.

eThekweni Municipality collects a levy from landowners within the Giba SRA area in addition to their usual property rates. This funding is transferred into a Non-profit Company that was established to administer the SRA. This funding is used for IAP control and the maintenance of walking trails in Giba Gorge, which has also been declared a Nature Reserve. Both the SRA residents and eThekweni Municipality participate in a coordinating committee that oversees the management of Giba Gorge Nature Reserve. As the landowner within Giba Gorge, the eThekweni Municipality also contributes towards these management costs.



Read more here: <http://ggep.org/about/>

2.5.6 Market-based Instruments

Market-based Instruments (MBIs) use market mechanisms such as investment bonds, trading and price signals to shift investment patterns and people's behaviour. In the context of ecological infrastructure, MBIs can be used to incentivise landowners (as suppliers of ecosystem services) to participate in supply-demand relationships with ecosystem service users or buyers, for example through Payment for Ecosystem Services arrangements or carbon credit trading. One of the advantages of most MBIs is that they offer the opportunity to establish sustained sources of funding for ecological infrastructure investment over the long-term, as the buyers of the services from require these on a sustained basis (for example enhanced water security for Cape Town through managing water source catchments).

Table 5: Examples of Market-based Instruments that can incentivise / fund ecological infrastructure investments

MARKET-BASED INSTRUMENTS	HOW ECOLOGICAL INFRASTRUCTURE INVESTMENTS ARE INCENTIVISED / FUNDED
<p>Green Bonds</p>	<p>Green Bonds are typically 'government bonds', a form of debt incurred and underwritten by the government with a fixed interest payment and commitment to settle after a stipulated period (often 15 years). They are differentiated from conventional bonds in that the proceeds of Green Bonds are exclusively used to pay for projects that generate environmental benefits, for example in renewable energy production or climate adaptation.</p> <p>The City of Johannesburg issued a Green Bond²⁷ in 2014 worth R1.5 billion that is being used to fund the city's climate change response, including projects in water conservation and demand management, waste recycling, improving public transport systems and technologies, and energy conservation measures in low-income neighbourhoods. In 2017, the City of Cape Town issued a R1 billion Green Bond certified by the Climate Bonds Initiative²⁸, which will be used to fund its water infrastructure and a shift to low carbon transportation systems. In February 2021, the Development Bank of Southern Africa (DBSA) launched a €200 million Green Bond²⁹ that will be used to support the just transition to a low carbon economy.</p> <p>The International Capital Market Association (ICMA) has produced a set of Green Bond Principles that promote integrity in the development of Green Bonds through providing voluntary process guidelines for transparency, disclosure and reporting³⁰.</p> <p>If ecological infrastructure is recognised as a form of infrastructure, it is possible that money raised through a green bond could be used to establish and/or protect it. Effective green bond finance requires a 'bankable' entity which is administratively capable (with the requisite balance sheet) to issue the bond (e.g., a Provincial Department, well-run municipality or financially accountable water utility). A clear sense would be needed of how the invested money would either give rise to a revenue stream (e.g., increased water flows) or result in cost savings (e.g., reduce flood or fire damage, or reduce dam siltation) that can be used to service the debt. A 'proponent' (typically a commercial bank) would take the idea to the market in the hope of securing buyers of the bond.</p>
<p>Direct Markets</p>	<p>Direct markets refer to the trading of commodities and amenity value produced by ecological infrastructure, for example invasive alien plant biomass, compost, Honeybush tea, cut flowers and eco-tourism. The market value of these natural commodities and amenities creates incentives to sustainably manage the ecosystems that provide them, with the resulting trade revenue providing finance for management.</p> <p>An example is the Breede River Estuary, where the Lower Breede River Conservancy Trust (LBRCT) acts as the implementing agent for DEA&DP</p>

²⁷ https://www.joburg.org.za/media_/Newsroom/Pages/2014%20Articles/Joburg-pioneers-green-bond.aspx

²⁸ The Climate Bonds Initiative²⁸ is an international organisation that certifies Green Bonds in terms of their consistency with the goals of the Paris Climate Agreement to limit global warming to under 2 degrees Celsius. The Scheme is used globally by bond issuers, governments, investors and the financial markets to prioritise investments which genuinely contribute to addressing climate change. See: <https://www.climatebonds.net/>

²⁹ <https://www.dbsa.org/EN/DBSA-in-the-News/NEWS/Pages/20210203-Green-Bonds.aspx>

³⁰ <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/>

MARKET-BASED INSTRUMENTS	HOW ECOLOGICAL INFRASTRUCTURE INVESTMENTS ARE INCENTIVISED / FUNDED
	<p>and local municipalities in managing the estuary. There is a significant demand for recreational fishing and other water sports on the estuary, and LBRCT collects annual boat licensing fees, which it uses alongside government grant funding to implement management³¹. These management efforts are directed at conserving the nationally important biodiversity, recreational amenity and tourism value of the area. In this example, the buoyant market for recreational amenity associated with the Breede estuary is used to generate revenue from users that is directed back into management of the natural assets that provide the amenity.</p> <p>The Flower Valley Conservation Trust³² operates across the Agulhas plains and proactively works with farmers to promote conservation (i.e. through the Agulhas Biodiversity Initiative³³) and protect Fynbos as a biodiversity asset that can sustainably supply wild flowers for local and international cut-flower markets. The Trust helps farmers meet international standards for sustainably sourced, ethically produced cut flowers, by supporting sustainable management of Fynbos and wildflower farming activities. The increased income to farmers from accessing these discerning markets can be used to help pay for management of the Fynbos / farm landscape. The Trust has raised government and donor funding to control IAPs that degrade Fynbos habitats and have developed sustainable wildflower harvesting guidelines that promote landowner investment in Fynbos protection and management, as well as allow farmers to access high-value markets for their flower produce. The Trust provides extension support to farmers, helping them to better manage their natural Fynbos areas to optimise biodiversity, associated low impact eco-tourism opportunities and economic returns from cut flowers. DEA&DP is similarly working with Honeybush Tea³⁴ industry roleplayers to ensure that areas supplying wild harvested tea are suitably managed and protected.</p>
<p>Payment for Ecosystem Services</p>	<p>Payment for Ecosystem Services (PES) schemes involve beneficiaries, or users, of ecosystem services providing payment to the stewards, or providers, of ecosystem services. These are usually voluntary transactions between willing buyers and willing sellers and are established in a response to a recognised shortage of specific ecosystem services – most often water, biodiversity conservation or climate change regulation / risk mitigation. Payments may be based and measured on (i) the costs of implementing a specific management action (e.g., removing IAPs), (ii) maintaining the desired state of the ecological infrastructure (e.g., IAP free riparian areas), or (iii) quantifiable service delivery (e.g., additional water flows in a river). All PES schemes come with transaction costs relating to the mechanisms used to facilitate the payments and verifying delivery of the services paid for.</p> <p>An example of a municipality-led and funded PES is eThekweni Municipality's Sihlanzimvelo Stream Cleaning Programme³⁵. The focus of the Programme is on reducing recurrent damage costs to road culverts caused by solid waste and invasive alien plant debris build-up during flash</p>

³¹ Read more here: <http://www.hessequa.gov.za/wp-content/uploads/2018/08/Tripartite-SLA.pdf>

³² <https://www.flowervalley.org.za/>

³³ Read more here: <https://agulhasbiodiversity.co.za/>

³⁴ Read more here:

<https://www.westerncape.gov.za/eadp/files/atoms/files/EADP696%20An%20overview%20of%20the%20honeybush%20industry%2024October2017.pdf>

³⁵ Read more here: <https://ukzn->

[dspace.ukzn.ac.za/bitstream/handle/10413/17165/Gumede_Wendy_2019.pdf?sequence=1&isAllowed=y](https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/17165/Gumede_Wendy_2019.pdf?sequence=1&isAllowed=y)

MARKET-BASED INSTRUMENTS	HOW ECOLOGICAL INFRASTRUCTURE INVESTMENTS ARE INCENTIVISED / FUNDED
	<p>floods through managing stream areas on municipal land more effectively. Local community co-operatives are employed to implement the work, resulting in a labor-intensive municipal service delivery model that creates direct socio-economic benefits in vulnerable communities. The municipality self-funds the programme. Given its success, eThekweni Municipality plans to expand this programme across all rivers and streams in the municipal area (see Case Example 2, page 14).</p> <p>DEFF Natural Resources Management Programmes, including Working for Water, Working for Wetlands and Working on Fire, are also considered to be government-run PES schemes³⁶. In these examples, national funds are used to subsidise the cost of public and private landowner restoration and management of ecological infrastructure in priority locations. The express purpose of this support is to enhance the public ecosystem services benefits from well-managed ecological infrastructure on both public and private land. Importantly, private landowners are obliged to continue to manage areas for which support has been provided, helping to ensure sustained investment and associated benefit flows.</p>
<p>Tradeable Permits and Voluntary Offsets</p>	<p>Trade in environmental permits, such as carbon credits, can be used to raise revenue for ecological infrastructure restoration and management over the long term. For such trade to work, the property rights around the tradeable good (e.g., carbon sequestered in trees planted) need to be clearly defined. Equally, there is a direct need to verify delivery of the traded services, which can add significant transaction costs. The pricing of the tradeable permits also needs to provide sufficient incentive for sellers to engage.</p> <p>As part of its role in hosting events associated with the 2010 FIFA World Cup, eThekweni Municipality in Durban committed to voluntarily offsetting the carbon emissions of these local events through restoring an indigenous forest surrounding a new regional landfill site at Buffelsdraai³⁷, North of Durban. The project created much-needed jobs, skills and enterprise development opportunities as a co-benefit of the project, as well as created an ecological asset that has become an important educational and recreational resource. The project was funded by eThekweni Municipality and international donors.</p> <p>Another voluntary carbon credits initiative is the Gouritz Cluster Biosphere Reserve's Jobs4Carbon³⁸ programme, which is restoring degraded farmland in the Karoo through planting Spekboom (<i>Portulacaria afra</i>). Spekboom has a high capacity for sequestering and storing atmospheric carbon, and the project is creating much needed job opportunities in impoverished communities while restoring agricultural and eco-tourism value in the landscape. While the project has been funded mainly by donors, a substantial contribution was made by Cambridge University to voluntarily offset the carbon emissions associated with a student field trip. Similar initiatives have been implemented in the Baviaanskloof³⁹ and other parts of the Eastern Cape⁴⁰ province.</p>

³⁶ Read more here: <https://oneworldgroup.co.za/wp-content/uploads/2014/12/Chesterman-S.-Hope-E.-OneWorldRCCP,-2012.-Payment-for-ecos.pdf>

³⁷ Read more here:

http://www.durban.gov.za/City_Services/development_planning_management/environmental_planning_climate_protection/Projects/Pages/Buffelsdraai-Community-Reforestation-Project.aspx

³⁸ Read more here: <https://www.sanbi.org/cape/jobs-for-carbon-project/>

³⁹ Read more here: <https://core.ac.uk/download/pdf/145054816.pdf>

⁴⁰ Read more here: http://www.kuzuko.com/data/project_brochure.pdf

2.5.7 Assessing the potential suitability of different financing options

Each potential source of funding for investing in ecological infrastructure requires a unique approach. Accessing different sources of funding may require legislative changes, policy changes, or operational changes, or a combination of these.

When considering how to finance ecological infrastructure investment, identifying opportunities to obtain finance through existing government, donor and Corporate Social Investment programmes is often a “low hanging fruit”. This would entail an assessment of how these sources of funding align to the ecological infrastructure investment in question, whether there is a track history of these funding sources being used in the area / for the intended purpose, and whether funding is likely to be available from these sources within the desired timeframes. Potentially applicable Economic Policy Instruments and Market-based Instruments should be evaluated based on their feasibility of being successfully implemented in the specific project context.

Table 6: Guiding questions when assessing the potential of different financing options

SOURCE OF FINANCE / RESOURCES	GUIDING QUESTIONS TO ASSIST IN ASSESSING POTENTIAL SUITABILITY
Government	<ul style="list-style-type: none"> • How well do the ecological infrastructure investment needs and objectives align with the funders priorities? • Do the funders have a track history / presence in the target area? • Does the funder provide the level of funding needed for the initiative? • Do the timeframes of the funding align with the ecological infrastructure investment needs? • How onerous are the reporting requirements and can these be reasonably managed? • Does the funder have specific requirements with respect to the organisation that can receive the funding, and can these requirements be met?
Donors	
Corporates	
Economic Policy Instruments (EPIs)	
Market-based Instruments (MBIs)	

2.6 IDENTIFYING A SUITABLE ORGANISING MECHANISM

2.6.1 Organisational needs / gap analysis

The way ecological infrastructure investment is to be resourced and/or financed defines the type of organising structure required to facilitate effective implementation. An important first step is to assess the current mandates, roles and capacities of existing role players in relation to the roles and capacities required to implement the ecological infrastructure investment effectively. Establishing and operating new organising structures can be costly both in terms of time and funding, so if there are existing organisations or individuals that can perform all the required roles

and functions, it is usually best to make use of these. It is only where there are obvious gaps that the potential for new organising structures should be considered.

2.6.2 Voluntary structures

Voluntary organising structures are generally established to facilitate voluntary collaborative action between various role players toward a set of common objectives or overlapping interests. Examples include voluntary partnerships, working groups, communities of practice, forums and conservancies.

Voluntary organising structures do not usually require formal registration as a legal / business entity, and can set their own participation requirements, operating rules and levels of individual obligation. Owing to their voluntary nature, individuals, government and businesses are usually able to participate. The participants continue to function independently and within their existing organisational / legal mandates and identities. In most cases, participants raise and administer their own funding for ecological infrastructure restoration or management that contributes toward the broader objectives set by the group. Individual participants may also raise and administer funding on behalf of the broader group in some instances.

The administrative requirements of voluntary structures are generally limited, and these platforms are thus popular as organising platforms for new or emerging ecological infrastructure initiatives that have not yet raised the required finances for implementation at scale.

2.6.3 Legal entities

In the context of ecological infrastructure investments, legal entities are usually established to facilitate and ensure accountability in the raising and managing of joint funding and resources for implementation. The types of legal entities utilised for this purpose typically include non-profit companies, profit-making companies, trusts, co-operatives and Water User Associations. Each legal entity must operate within a clearly defined scope of business activities and is required to operate in terms of a range of legislated rules and regulations.

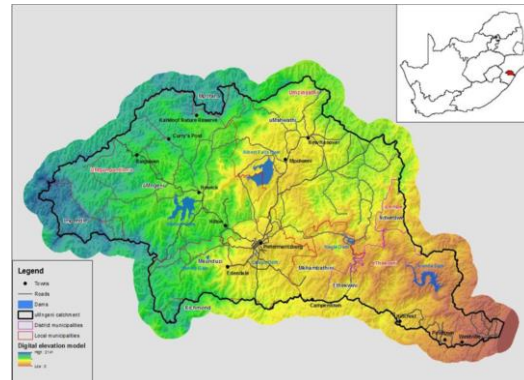
Under specific circumstances, non-profit companies can apply to the South African Revenue Service to become public benefit organisations (PBOs), which only undertake activities that are in the public interest. PBOs do not pay tax and may also apply for permission to issue certificates to donors who can use them to claim tax deductions for their contributions to the PBOs activities.

Depending on the type of legal entity, ownership may be restricted to individuals and other businesses, excluding government from participation. The owners, and in some instances shareholders, function as a jointly accountable collective.

Some types of legal entities are more able to access finance from certain sources than others. This is a critical consideration when deciding on a legal structure to use. For example, donor funders tend to favour non-profit companies and PBOs. The level of accountability within different legal entity types may also influence their suitability for raising funding, with co-operatives for example (having the lowest level of legal accountability and financial reporting requirements) being relatively unattractive to most funders, particularly when large amounts of money are involved.

CASE EXAMPLE 4: UMNGENI ECOLOGICAL INFRASTRUCTURE PARTNERSHIP

The uMngeni Ecological Infrastructure Partnership (UEIP) was formally established in November 2013 upon signing of a Memorandum of Understanding (MoU) by key organisations that are committed to finding ways of integrating ecological infrastructure solutions to support built infrastructure investments in addressing challenges of water security in the uMngeni River Catchment. A growing population and economic development in the catchment have led the uMngeni system being unable to meet the demand for delivery of water services in the area.



The partnership comprises over 20 organisations from national, provincial and local government departments, business and academic institutions as well as civil society. The South African National Biodiversity Institute (SANBI), as a co-founder of the UEIP, has been the centre of coordination for the partnership since its inception. The primary focus of the UEIP is to explore the role that ecological infrastructure can play in improving water security in the catchment.

The objectives of the UEIP are as follows:

- Strategic investment in ecological infrastructure contributing to enhanced water security in the uMngeni catchment
- Improved governance that is contributing to slowing the rate of degradation of ecological infrastructure
- Strengthened institutional capacity for the rehabilitation, maintenance and protection of ecological infrastructure
- An enabling policy environment for investment in the rehabilitation and management of ecological infrastructure in the catchment
- An improved knowledge base on ecological infrastructure that informs policy and practice
- Effective collaboration, coordination and co-learning that enables the UEIP to consolidate, grow and demonstrate its value

Read more here: <http://biodiversityadvisor.sanbi.org/participation/umngeni-ecological-infrastructure-partnership/>

2.6.4 Comparing options

Choosing which organisation type will best serve the coordination and financial management needs of each ecological infrastructure investment programme / project requires careful

consideration across a range of factors. Table 7 presents a high-level comparison of different voluntary organising structures and legal entities using the following criteria:

- Whether the organisation requires legal registration and/or is governed by regulatory rules of operation that define allowable ownership, accountability, liability, or the activities that the organisation can engage in;
- Whether there are any rules that exclude participation/ownership by groups such as government or other businesses,
- Whether the participants would carry any joint legal liabilities, which may influence who is prepared to participate,
- The potential for the organisation to be considered favourably for funding by government, donors, corporates or individual donors, which is important if the organisation needs to raise joint funding on behalf of the participants, and
- The administrative complexity and business, tax and accounting reporting requirements associated with the organisation type, which affect operational costs.

Table 7: Comparison of voluntary structures and legal entities for organising ecological infrastructure investments

Organisation Type		Legal requirements	Participation /Ownership			Joint liability	Fund raising potential	Admin/ reporting load
			Govt	NGOs	Private			
Voluntary Structures	Partnerships	No	Yes	Yes	Yes	No	High	Low
	Communities of Practice	No	Yes	Yes	Yes	No	High	Low
	Work Groups	No	Yes	Yes	Yes	No	Low	Low
	Forums (e.g., catchment / estuary)	Yes - DWS ⁴¹ / DEFF ⁴²	Yes	Yes	Yes	No	Low	Low
	Conservancies	Yes	Yes	Yes	Yes	No	Moderate	Low
Legal Entities	Non-profit Companies	Yes – CIPC ⁴³ , SARS ⁴⁴	No	Yes	Yes	Yes	High	High
	Co-operatives	Yes – CIPC, SARS	No	No	Yes	Yes	Moderate	Moderate
	For-profit companies	Yes – CIPC, SARS	No	Yes	Yes	Yes	Low	High
	Water User Associations	Yes – DWS, CIPC	Yes	Yes	Yes	Yes	High	High
	Trusts	Yes – CIPC, SARS	Yes	Yes	Yes	Yes	High	High

⁴¹ National Department of Water and Sanitation – pertaining to requirements / rules for catchment management forums

⁴² National Department of Environment, Forestry and Fisheries – pertaining to requirements / rules for estuary management forums

⁴³ Companies and Intellectual Property Office

⁴⁴ South African Revenue Services

3. CONCLUSIONS

The Western Cape's ecological infrastructure is an asset which delivers socially and economically essential goods and services, such as water supplies, natural products, tourism and recreational amenity, and protection from climate change impacts such as flooding and drought. The Western Cape EIIIF has set out clear priorities and pathways for protecting these assets and the services they deliver, and suggests a range of mechanisms that could be used to enhance investment ecological infrastructure restoration and management. DEA&DP is proactively supporting action on several of these EIIIF priorities and is encouraging wider action by others wherever possible.

Through lessons learnt from the process of mobilising stakeholders towards enhanced investment in ecological infrastructure in the Keurbooms River Catchment, DEA&DP has prepared this guide as a tool for use by others with similar objectives in mind for other regions of the Western Cape. The guide sets out information on the possible options for developing economic policy instruments and associated organising mechanisms that enable ecological infrastructure investment. Importantly, it recognises that contextual factors must be considered when planning such initiatives, and these instruments and mechanisms need to be shaped accordingly.

This work forms part of the Western Cape Government's efforts to empower and enable a wide range of actors to contribute towards the goals of the EIIIF, thereby supporting a more sustainable, climate resilient future for all in the province.

ANNEXURE 1 RESOURCES & MORE INFORMATION

A1. USEFUL INFORMATION / TECHNICAL RESOURCES

Cape Farm Mapper	https://gis.elsenburg.com/apps/cfm/
DEFF Natural Resources Management Programme – priority area maps	https://www.environment.gov.za/projectsprogrammes/nrm_maps
GreenBook climate risk profile maps	https://greenbook.co.za/
SANBI Biodiversity Advisor	http://biodiversityadvisor.sanbi.org/
Toolkit for Transformative Adaptation of Rivers	https://www.c40cff.org/knowledge-library/transformative-adaptation-of-rivers-in-an-urban-context-an-ecological-infrastructure-and-socio-ecological-toolkit
Water Research Commission Knowledge Hub	http://www.wrc.org.za/
Western Cape Biodiversity Spatial Plan	https://www.capenature.co.za/wp-content/uploads/2019/10/A-Summary-Overview-of-the-Biodiversity-Spatial-Plan_web.pdf
WWF Research Publications	https://www.wwf.org.za/our_research/publications/

A2. GOVERNMENT ORGANISATIONS

Department of Environmental Affairs & Development Planning	https://www.westerncape.gov.za/eadp/
Department of Agriculture	https://www.westerncape.gov.za/dept/agriculture
CapeNature	https://www.capenature.co.za/
National Department of Environment, Forestry & Fisheries	https://www.environment.gov.za/
National Department of Water & Sanitation	https://www.dws.gov.za/
South African National Parks	https://www.sanparks.org/
Breede Gouritz Catchment Management Agency	https://breedegouritzcma.co.za/
SANBI	https://www.sanbi.org/biodiversity/science-into-policy-action/mainstreaming-biodiversity/ecological-infrastructure/

A3. NON-PROFIT ORGANISATIONS

Biosphere Reserves in the Western Cape: <ul style="list-style-type: none"> • Cape West Coast • Cape Winelands • Garden Route • Gouritz Cluster • Kogelberg 	https://www.capebiosphere.co.za/ https://www.capewinelandsbiosphere.co.za/ https://gardenroutebiosphere.org.za/ https://gouritz.com/ https://www.kbrc.org.za/
BirdLife South Africa	https://www.birdlife.org.za/
C40 Cities Finance Facility	https://www.c40cff.org/
Conservation International, South Africa	https://www.conservation.org/
Eden to Addo Corridor Initiative	https://edentoaddo.co.za/
Endangered Wildlife Trust	https://www.ewt.org.za/
Flower Valley Conservation Trust	https://www.flowervalley.org.za/
ICLEI Africa	https://africa.iclei.org/
Living Lands	https://livinglands.co.za/
SouthSouthNorth	https://southsouthnorth.org/
The Nature Conservancy	https://www.nature.org/en-us/about-us/where-we-work/africa/south-africa/
WESSA	https://wessa.org.za/
Wilderness Foundation Africa	https://www.wildernessfoundation.co.za/
Wildlands Conservation Trust	https://wildtrust.co.za/
WWF South Africa	https://www.wwf.org.za/

A4. FUNDERS

Adaptation Fund	https://www.adaptation-fund.org/
DEFF Natural Resources Management Programme	https://www.environment.gov.za/projectsprogrammes
Development Bank of Southern Africa (DBSA)	https://www.dbsa.org/EN/Pages/default.aspx
GIZ	https://www.giz.de/en/
Global Environment Facility (GEF)	https://www.thegef.org/
Global Facility for Disaster Reduction and Recovery (GFDRR)	https://www.gfdr.org/en
Green Climate Fund	https://www.greenclimate.fund/

International Climate Initiative (IKI)	https://www.international-climate-initiative.com/en/
List of Philanthropies	https://www.arcolab.org/en/worlds-100-largest-philanthropic-foundations-list/
Nedbank Green Trust	https://www.greentrust.org.za/
Table Mountain Fund	https://www.thetablemountainfund.org.za/
World Bank	https://www.worldbank.org/
WWF South Africa	https://www.wwf.org.za/

ANNEXURE 2 TEMPLATE PES AGREEMENT

This template is provided as a tool that can be amended for context-specific use. All yellow-highlighted areas require detailing or amendment to fit each project's specific context and needs. However, it is recommended that all parts of the template agreement are reviewed and amended for project use as appropriate.

PAYMENT FOR ECOSYSTEM SERVICES (PES) AGREEMENT

[PROJECT NAME AND AREA]

entered into by

PARTY 1

and

PARTY 2

and

PARTY 3

and

PARTY 4

("the Parties")

THE PARTIES AGREE AS FOLLOWS:

1. PARTIES TO THE AGREEMENT

The Parties to this agreement are as follows:

1.1 BUYERS of ecosystem services generated by [project name]:

1.1.1 XXX (hereafter referred to as the "BUYER") OR XXXX, a legally constituted organisation with the registration number XXX, acting on behalf of XXX and XXXX (hereafter referred to as the "BUYER").

1.2 SUPPLIER of ecosystem services generated by [project name]:

1.2.1 XXXX, a legally constituted organisation with the registration number XXX comprising one or more landowners in the [project area] (hereafter referred to as the "SUPPLIER") OR XXXXX, registered owner of Farm XXXXX, located within the [xxx] Municipal Area, with South African Identity Number XXXXXXXX (hereafter referred to as the "SUPPLIER").

Hereinafter referred to as the "SUPPLIER".

2. DEFINITIONS

In this agreement, unless the context otherwise requires, the words and expressions listed in Appendix I shall have the meanings thus assigned to them.

3. INTERPRETATION

The rules of interpretation for this agreement are set out in Appendix II hereto.

4. PURPOSE OF THE AGREEMENT

This agreement is intended to facilitate implementation of a Payment for Ecosystem Services initiative for [project name] by defining the terms of contract between the BUYERS of ecosystem services generated by the project and the SUPPLIERS of such services. The overall purpose of the [project name] Payment for Ecosystem Services Initiative is to provide a mechanism for sustained investment in ecological infrastructure to [list intended project outcomes].

5. VISION, OUTPUTS & INTENDED OUTCOMES OF THE AGREEMENT

5.1 The vision of the agreement is for the BUYER to incentivise the SUPPLIER to manage or restore its/his/her propert(ies) in a manner that delivers [key project goals or targets, and who benefits from delivery thereon].

5.2 The outputs of the agreement include:

5.2.1. Sustainable funding being raised by the BUYER through one or more appropriate economic policy instruments to fund the [project name].

5.2.2. Appropriate ecological infrastructure management / restorative action being undertaken by the contracted SUPPLIER of ecosystem services in response to financial incentives / payments offered by the BUYER.

- 5.2.3. Defined monitoring, verification and reporting standards and procedures being implemented to validate actions taken by the SUPPLIER / of the delivery of the specified ecosystem services by the SUPPLIER / of changes in ecosystem condition as a result of the SUPPLIER's actions.
 - 5.2.4. Establishment of a Management Committee including representatives of both the BUYER and SUPPLIER to govern the Payment for Ecosystem Services initiative and all associated activities.
- 5.3 The intended outcomes of the agreement include:
- 5.3.1. [Unpack the outcomes listed in the purpose statement – section 4. - for example: Reduced coverage and intensity of invasive alien plants in the project area.]
 - 5.3.2. Improved control of vegetative fuel loads, resulting in improved ecosystem health and reduced fire risk, whilst not compromising the delivery of desired hydrological ecosystem services.
 - 5.3.3. Reduced water supply risk for all water users in the XXX Municipality, through elevated baseflows and / or water yields.
 - 5.3.4. Reduced wildfire risk to state, municipal and private infrastructure and settlement areas in the project area and adjacent lands.
 - 5.3.5. Improved ecosystem condition and health, resulting in reduced vulnerability of species and ecosystems in the project area and surrounding areas to climate change risks and impacts.
 - 5.3.6. Sustainable financing and investment in ecological infrastructure management / restorative action that secures key ecosystem services generated within the project area].

6. [PROJECT NAME] PAYMENT FOR ECOSYSTEM SERVICES INITIATIVE DESIGN

6.1 Transactional Structure

The design of the transactional structure is agreed as follows [select one option and add detail]:

OPTION 1 (One Buyer Vehicle – One Seller Vehicle)

XXXX acting as / on behalf of the BUYERS of ecosystem services from the [project name]

Contracting with

XXXX acting on behalf of SUPPLIERS of ecosystem services in the [project name].

OPTION 2 (One Buyer Vehicle – Multiple Sellers)

XXXX acting as / on behalf of the BUYERS of ecosystem services from the [project name]

Contracting individually with

XXXXX as SUPPLIER of services to the BUYER

XXXX as SUPPLIER of services to the BUYER

XXXX as SUPPLIER of services to the BUYER

.....

OPTION 3 (Transaction Facilitator between One or Multiple Buyers, and Multiple Suppliers)

XXXX, XXXX, XXXX, XXXX as BUYERS of ecosystem services from [project name]

Contracting with

XXXX registered [non-profit organisation / Watershed Trust / transaction facilitator] acting on behalf of the BUYERS and the SUPPLIERS to facilitate transactions between these two groupings and

Contracting with

XXXX, XXXX, XXXX, XXXX, XXXX as SUPPLIERS of ecosystem services from the [project name].

6.2 Service Traded, Contract Price & Payments

The agreed services to be traded, associated contract price and payment arrangements are as follows [select one option and add detail]:

OPTION 1 (Ecosystem Services Management Actions)

The SUPPLIER shall implement management / restorative action on their propert(ies) in accordance with the [For example: Alien Invasive Plant Management Unit Control Plan / Management Plan approved by the relevant environmental authority at provincial or national level].

SUPPLIERS shall record the labour days invested in the management / restorative action, cost of fuel, equipment and herbicide, and shall be remunerated on the basis of such actions taken and expenses incurred.

BUYERS shall remunerate SUPPLIERS [For example: 50% of the cost of labour, transport and equipment expended in each quarter] on ecological infrastructure management / restoration as listed above.

Payments will be made at [For example: the end of each quarter] as [For example: a direct financial payment into a designated account provided by each SUPPLIER / as a municipal rates rebate in each calendar year ...etc].

....

OPTION 2 (Ecosystem Condition – tiered payment)

SUPPLIERS shall implement management / restorative action on their propert(ies) in accordance with [For example: Alien Invasive Plant Management Unit Control Plan / Management Plan approved by the relevant environmental authority at provincial or national level].

A third-party monitoring and verification audit shall be conducted annually to measure ecosystem condition. The SUPPLIER shall be remunerated on the basis of ecosystem condition.

BUYERS shall remunerate SUPPLIERS on a tiered basis relating to the level of improvement in ecosystem condition relating to an agreed baseline that has been achieved each year.

Performance criteria linked to payments shall comprise the following [indicative performance targets listed below – these need to be determined for each project specifically]:

Performance Criteria	Performance Targets	Payment
Riverine areas clear of IAPS	50% 100%	25% of contract price 100% of contract price
Mountain source areas clear of IAPs	33% 66% 100%	25% of contract price 70% of contract price 100% of contract price
Fynbos areas clear of IAPs	33% 66% 100%	25% of contract price 70% of contract price 100% of contract price
Forests & thicket clear of IAPs	33% 66% 100%	25% of contract price 70% of contract price 100% of contract price

The contract price is determined as RXXXX for 100% achievement of performance targets.

Payments will be made [annually] as a [direct financial payment into a designated account provided by each SUPPLIER / as a municipal rates rebate in each calendar year ...etc].

.....

OPTION 3 (Service Delivery – tiered payment)

SUPPLIERS shall implement management / restorative action on their propert(ies) in accordance with [For example: Alien Invasive Plant Management Unit Control Plan / Management Plan approved by the relevant environmental authority at provincial or national level].

Water flows shall be measured at XXXX point every XXXX and additional flows above an agreed baseline shall be accordingly remunerated by the BUYER.

BUYERS shall remunerate SUPPLIERS on a tiered basis relating to the level of additional service attributed to the actions of the SUPPLIERS.

Performance criteria linked to payments shall comprise the following [indicative performance targets listed below – these need to be determined for each project specifically]:

Performance Criteria	Performance Targets	Payment
----------------------	---------------------	---------

KL of additional water delivered	100% of projected potential 70% of projected potential Etc OR Set actual KL targets based on modelled potentials of yield and baseflow	Can either set a fixed rate per KL or incentivise greater delivery by tiering the price paid to escalate with higher levels of delivery.
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Payments will be made [quarterly] as [a direct financial payment into a designated account provided by each SUPPLIER / as a municipal rates rebate ...etc].

....

OPTION 4 (Reverse Auction)

SUPPLIERS shall implement management / restorative action on their propert(ies) in accordance with an approved bid submitted through Reverse Auction to the BUYER in response to a Terms of Reference issued by the BUYER every [third year]. The bid shall specify the cost of actions that each SUPPLIER shall undertake to achieve a level of service delivery output. The BUYERS shall select and approve from all bids submitted by SUPPLIERS those bids that reflect best value for money or highest level of targeted services.

Service delivery against each approved bid shall be measured by a third-party verification agency, and provided the SUPPLIER has delivered, it shall be accordingly remunerated by the BUYER.

Payments will be made [annually] as a [direct financial payment into a designated account provided by each SUPPLIER / as a municipal rates rebate ...etc].

....

6.3 Governance

6.3.1. The BUYER(S) and the SUPPLIER(S) shall jointly govern the [project name] through a formally constituted Management Committee in which both groups shall be fairly represented.

6.3.2. The Management Committee shall act as the governing mechanism for steering and overseeing all activities, services traded, contract price and payments mechanisms forming part of the [project name].

6.3.3. The Management Committee shall set SMART (specific, measurable, attainable, relevant and time-based) goals, objectives and monitoring indicators for the PES.

6.3.4. The Management Committee shall be responsible for selecting, appointing and overseeing the activities of a transaction facilitator.

- 6.3.5. Additional members may be invited to join the Management Committee and where all members agree to this.
- 6.3.6. The Management Committee shall be responsible for selecting, appointing and overseeing the activities of third-party monitoring and verification agencies, or for authorising such appointments made by the transaction facilitator on behalf of the Management Committee.

7. RIGHTS AND OBLIGATIONS (RESPONSIBILITIES) OF THE PARTIES

7.1. The BUYER shall

- 7.3.1. Establish the contract price and performance criteria for the ecosystem services traded under this agreement, review this contract price and performance criteria on annual basis, and negotiate agreement on these with the SUPPLIER.
- 7.3.2. [Optional – include if relevant] Implement the following economic policy instrument(s) to generate a sustained source of funding for the [project name]:
- a) [For example: A user charge for catchment management / water security included within the municipal water charge levied to all domestic, business and industrial consumers by the XXXX Municipality;
 - b) Municipal property rates rebates for contracted ecosystem service suppliers that meet their ecosystem services delivery obligations under this agreement;
 - c) An annual budget allocation from the municipal fiscus to fund the [project name]].
- 7.3.3. Establish [supporting policies, structures, processes and capacity] for the necessary administration associated with collection and expenditure / transfer of funding to contracted ecosystem services SUPPLIERS / the transaction facilitator as specified in Section 6 of this agreement.
- 7.3.4. Pay the following:
- a) Costs of raising revenue as detailed in Section 7.3.1, including establishment of all required supporting policy and investigations leading to the setting, annual review and levying of user charges / rates rebates.
 - b) Costs to prepare and regularly review all models, plans and analyses that inform the setting of the contract price and SUPPLIER performance requirements.
 - c) Costs of contracting with SUPPLIERS of ecosystem services.
 - d) Costs of making payments to SUPPLIERS in accordance with the service contract agreement.

e) All costs associated with the buyer vehicle and transaction facilitator appointed by the Management Committee to facilitate BUYER and SUPPLIER transactions.

f) Costs of monitoring and verification of SUPPLIER actions, performance and ecosystem service delivery.

g) All costs associated with the BUYER's involvement in the initiative, including the Management Committee.

7.3.5. Appoint designated representatives to participate in the Management Committee for the [project name].

7.2. The BUYER may withdraw from this agreement under the conditions set out in Section 14.

7.3. The SUPPLIER shall

7.3.1. Review and negotiate the contract price and performance criteria with the BUYER on an [annual] basis.

7.3.2. Implement the necessary ecological infrastructure management / restoration actions to meet the agreed performance criteria under this agreement [or in the case of a SUPPLIER REPRESENTATIVE ORGANISATION – ensure that individual SUPPLIERS do this].

7.3.3. Ensure that the appointed third-party monitoring and verification agencies have free and unrestricted access to the SUPPLIERS propert(ies) to undertake the necessary monitoring and verification processes.

7.3.4. Pay the following:

a) Costs of contracting labour, buying equipment and herbicide as required to meet the performance criteria and targets.

b) All other costs associated with implementing the ecological infrastructure management / restoration activities as required to meet the performance criteria and targets.

c) All costs associated with the SUPPLIER REPRESENTATIVE ORGANISATION.

d) All costs associated with the SUPPLIER's involvement in the initiative.

7.3.5. Appoint designated representatives to participate in the Management Committee for the [project name].

7.4. The SUPPLIER may withdraw from this agreement under the conditions set out in Section 14.

8. MANAGING RISKS AND UNCERTAINTIES

8.1. The BUYER's risks are as follows:

8.1.1. Failure to raise sufficient revenue to cover the cost of payments to the SUPPLIER or other transaction costs.

- 8.1.2. Failure of the SUPPLIER to deliver, resulting in under-expenditure by the BUYER, with associated implications for future budgeting, water security and the sustainability of the initiative.
- 8.1.3. Failure to reach agreement between the BUYER and the SUPPLIER on the contract price or performance criteria.
- 8.1.4. Non-performance by the BUYER vehicle.
- 8.1.5. Non-performance by the appointed transaction facilitator.
- 8.1.6.
- 8.1.7.
- 8.2. The BUYER shall manage these risks as follows:
 - 8.2.1. Ensuring that the agreements are adaptive and flexible enough to engage with ecological variations, such as fire, droughts and floods.
 - 8.2.2.
 - 8.2.3.
- 8.3. The SUPPLIER's risks are as follows:
 - 8.3.1. Unforeseen events, such as wildfires and droughts, which may alter baseline conditions or anticipated service supply levels or the costs of supplying the contracted services.
 - 8.3.2. Actions by others that result in the additional water yield and baseflow generated by the SUPPLIER not reaching the BUYER.
 - 8.3.3. Non-payment or late payment by the BUYER.
 - 8.3.4. Failure to reach agreement between the BUYER and the SUPPLIER on the contract price or performance criteria.
 - 8.3.5. Non-performance by the SUPPLIER vehicle.
 - 8.3.6. Non-performance by the appointed transaction facilitator.
 - 8.3.7.
 - 8.3.8.
- 8.4. The SUPPLIER shall manage these risks as follows:
 - 8.4.1. Ensuring that the agreements are adaptive and flexible enough to engage with ecological variations, such as fire, droughts and floods.
 - 8.4.2.
 - 8.4.3.

9. BREACH

- 9.1. The Parties agree to act in good faith and reasonability at all times; and warrant they shall not do anything to prejudice or detract from the rights or obligations of each other.
- 9.2. Should any party to this agreement breach any provision of the agreement, the aggrieved party shall give the party in breach fourteen days written notice in which to rectify the breach.
- 9.3. Should the party alleged to be in breach disagree, the matter shall be referred to arbitration for resolution as provided for in terms of clause 10.
- 9.4. Subject to **clause 9.3**, failure to rectify the breach within the specified time period shall entitle the aggrieved party to withdraw from this agreement by written notice

addressed and delivered to the domicilium citandi et executandi of the party in breach and the other party thereto.

10. DOMICILIUM CITANDI et EXECUTANDI

10.1 The parties record their addresses for purpose of giving notice, for the serving of any process and for any other purpose arising from this agreement as follows:

XXXX:

[Physical address; fax number and email address]

Email:

XXXX

[Physical address; fax number and email address]

Email:

10.2 Notice to change the above addresses to any other physical address in South Africa may be given in writing to each other.

11. NOTICES

11.1. Notices in terms of this agreement are required to be in writing which shall include electronic communication.

11.2. All notices given shall be presumed, until proven to the contrary by the other party; to have been received by the addressee:

11.2.1. at the time of delivery, if delivered by hand at the addressee's domicilium; and

11.2.2. seven days after the date of posting, if posted by prepaid post from an address within South Africa; and

11.2.3. within 48 working hours after electronic transmission.

12. ARBITRATION

12.1. Disputes on any matters arising out of this agreement between the parties which cannot be settled after all reasonable efforts to settle such disputes through consultation and negotiation have failed can be referred to arbitration by any party.

12.2. Written notice of arbitration setting out the particulars of the dispute must be given to the other party.

12.3. Arbitration hearing shall be conducted under the auspices of the Association of the Arbitration Foundation of Southern Africa (AFSA) and commence not later than 3 days after receipt of notice to that effect and shall be completed within 14 days after notice of arbitration has been given.

12.4. All parties must agree to the appointment of a suitable arbitrator, failing which an arbitrator shall be appointed by the chairman of AFSA.

12.5. The decision of the arbitrator shall be final and binding for both parties. Either of the parties shall be entitled to have such a decision be made an order of the court with competent jurisdiction.

13. DURATION OF THE AGREEMENT

13.1 This agreement shall commence on XXX and shall terminate on XXX, irrespective of its date of signature.

13.2 The parties shall have the option to extend this agreement for further periods and shall exercise this option by giving written notice to the other parties not later than one month before the aforementioned termination date.

14. TERMINATION THE AGREEMENT

14.1 The Parties shall have the right to terminate the agreement at any time provided that [.....]

THUS DONE AND SIGNED BY REPRESENTATIVES OF THE PARTIES WHO WARRANT THAT THEY ARE DULY AUTHORISED THERETO ON THIS XX DAY OF XXX 2021.

As witnesses:

1. _____

2. _____

PARTY 1

As witnesses:

1. _____

2. _____

PARTY 2

As witnesses:

1. _____

2. _____

PARTY 3

As witnesses:

1. _____

2. _____

PARTY 4

Appendix I: Definitions

Appendix II: Rules of Interpretation

Appendix I

DEFINITIONS

The following words and expressions shall have the following meanings in this agreement, unless otherwise required by the context in which they are used:

Agreement refers to this agreement and all schedules, appendices, attachments, addendums and variations or amendments thereof, duly effected in terms of this agreement.

Ecosystem Services are the benefits derived from the natural environment.

Payment for Ecosystem Services is a scheme involving incentives offered to farmers or landowners in exchange for managing their land to provide desired ecosystem services.

Signature Date refers to the date of signing of this agreement by the last party signing it.

[project name – define the project technical focus and spatial or physical boundaries, timeframes etc]

.....

Appendix II

RULES OF INTERPRETATION

1. Unless inconsistent with the context in which it is used in this agreement, a word or expression which denotes:
 - 1.1 Any gender includes the other gender;
 - 1.2 A natural person includes a corporate body, all forms of firms or associations and vice versa;
 - 1.3 Singular includes the plural and vice versa;
 - 1.4 Time shall be referred to in South African time;
 - 1.5 A day shall be reference to a calendar day;
 - 1.6 A month shall reference a calendar month.
2. Derivatives of any word or expression shall have corresponding meanings, unless inconsistent with the context in which they are used in this agreement.
3. Headings of paragraphs and/or clauses shall not be used in the interpretation thereof.
4. Any number of days prescribed in this agreement shall be considered inclusively of the first and last day.
5. When figures are referred in numerals and words, the words shall prevail if there is any conflict between the two.
6. All reference to a statutory provision or enactment shall include references to any amendment, modification or re-enactment of any such provision or enactment, whether before or after the date of signature, to any previous enactment which has been replaced or amended and to any regulation or order made under such provision or enactment.
7. All appendices are and shall remain an integral part of this agreement.

Chief Directorate: Environmental Sustainability

Directorate: Biodiversity & Coastal Management

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Environmental Affairs and
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