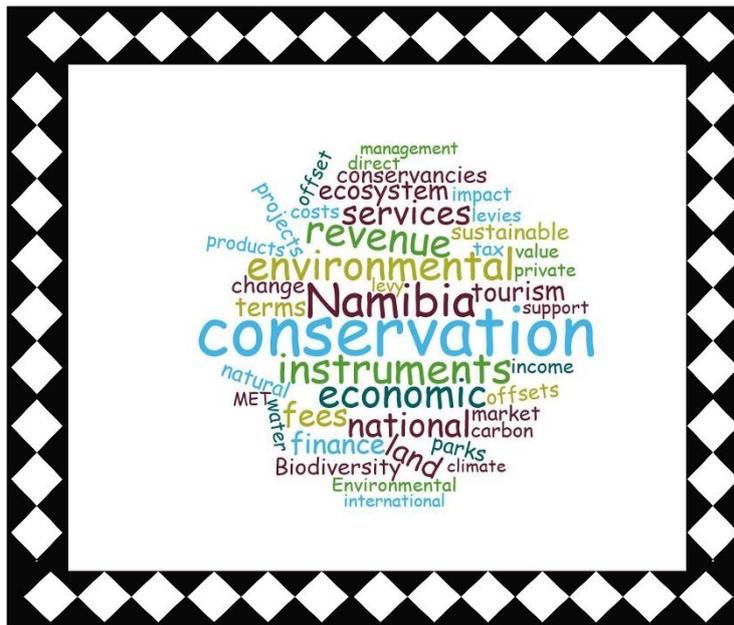

Baseline Assessment of Economic Instruments for Biodiversity Conservation in Namibia

Matthew Gaylard



Environmental Economics Unit
Department of Environmental Affairs
Ministry of Environment and Tourism
Private Bag 13306, Windhoek, Namibia
Tel: +264 (0)61 284 2701 Fax: +264 (0)61 22 9936
E-mail: info@resmob.org
<http://www.met.gov.na>

This series of Research Discussion Papers is intended to present preliminary, new or topical information and ideas for discussion and debate. The contents are not necessarily the final views or firm positions of the Ministry of Environment and Tourism. Comments and feedback are welcomed.

Contact details: Resource Mobilisation for Biodiversity Conservation Project
Ministry of Environment and Tourism,
Private Bag 13306, Windhoek, Namibia
Email: info@resmob.org
Tel: +264 61 284 2052
Web: www.resmob.org

Cover illustrations by: Mathew Naule

Contents

Abbreviations.....	4
1 Introduction	5
2 Background	6
2.1 Priorities for biodiversity conservation in Namibia	6
2.2 Economic instruments as a strategy for addressing biodiversity priorities.....	7
2.3 Putting economic instruments into action	9
2.3.1 Namibian Institutions.....	9
3 Methodology.....	12
4 Market Mechanisms	17
4.1 Payment for Ecosystem Services	18
4.1.1 PES Options for Namibia	21
4.1.2 Summary evaluation of PES	23
4.2 Direct Biodiversity Fees.....	25
4.2.1 Options for direct biodiversity fees in Namibia	27
4.2.2 Summary Evaluation of Direct Biodiversity Fees	32
4.3 Biodiversity offsets.....	33
4.3.1 Biodiversity offset options for Namibia	35
4.3.2 Summary Evaluation of Biodiversity Offsets.....	36
4.4 Green products	37
4.4.1 Green product options for Namibia.....	40
4.4.2 Evaluation of green products.....	40
5 Market regulation and environmental fiscal reform	42
5.1 Environmental levies.....	43
5.1.1 Options for environmental taxes and levies in Namibia.....	47
5.1.2 Evaluation of options for levies and taxes	47
5.2 Fiscal incentives and subsidies.....	48
5.2.1 Options for fiscal incentives and subsidies in Namibia.....	50
6 Non-market mechanisms.....	53
6.1 Philanthropy.....	54
6.2 Options for Namibia.....	55
7 Conclusions and Recommendations.....	56

7.1	Implementation priorities for economic instruments	56
7.1.1	Biodiversity levy on international tourists	56
7.1.2	Increases to national park entry entrance fees	56
7.1.3	Diversify PES income to CBNRM	57
7.1.4	Biodiversity offsets from the mining industry	57
7.2	Institutional Arrangements and Policy Reform.....	58
7.2.1	Establish a central CBNRM Trust.....	58
7.2.2	Establish a dedicated fund under the EIF for biodiversity conservation	58
7.2.3	Policy reform in relation to the financing of national parks	58
8	Bibliography	59

Abbreviations

CBD	Convention on Biological Diversity
EIF	Environmental Investment Fund
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
MET	Ministry of Environment and Tourism
MAWF	Ministry of Agriculture, Water and Forestry of the Government of Namibia
MFMR	Ministry of Fisheries and Marine Resources of the Government of Namibia
NBSAP2	Second National Biodiversity Strategy and Action Plan (2014)
ResMob	Resource Mobilisation for Biodiversity Conservation Programme
UNFCCC	United Nations Framework Convention on Climate Change

1 Introduction

As per its commitments to the Convention on Biological Diversity, the government of Namibia prepared a revised National Biodiversity Strategy and Action Plan (NBSAP2) in 2014. The Ministry of Environment and Tourism (MET) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH are jointly implementing the Resource Mobilisation for Biodiversity Conservation (ResMob) Programme with the intention of mobilising resources for the implementation of the NBSAP2. As per the Terms of Reference, the objectives of this report are to support the ResMob project by:

1. Identifying the existing economic instruments in place that impact on biodiversity conservation in Namibia. This includes both instruments that have a negative impact on biodiversity conservation, e.g. perverse incentives or subsidies, as well as those that contribute to biodiversity conservation;
2. Determining the options available to Namibia to introduce further economic instruments for biodiversity protection. This is based on a review of international best practice and state of the art approaches to financing biodiversity protection; and
3. Presenting recommendations for the adoption of new, or adjustment of existing, economic instruments to support biodiversity conservation in Namibia. These recommendations are to be based on an analysis of the effectiveness, efficiency and feasibility of the different options.

The Biodiversity Expenditure Review undertaken by the Ministry of Environment and Tourism (MET) through ResMob programme has analysed budget and expenditure data which shows that three Ministries: Environment and Tourism (MET); Agriculture, Water and Forestry (MAWF); and Fisheries and Marine Resources (MFMR); account for more than 90% of biodiversity-related expenditure. The report further showed that although the donor community and private investors contribute significant amounts, the bulk of biodiversity expenditure is provided by the three ministries mentioned above. Biodiversity expenditure in Namibia is significantly less than that on defence, health and education, and from 2010/11 onwards represents a decreasing proportion of total government expenditure (from 2.4% to 1.7%).

Together with a decline in donor funding, these trends suggest that despite an existing resource gap in relation to the NBSAP, real expenditure is likely to decrease in the coming period unless action is taken to avert this. It should be noted that the establishment of the conservancy system in Namibia depended heavily on donor finance, and that as these funding cycles are in many cases drawing to a close, this presents real challenges to conservation finance.

Accordingly, the intention of this study is to explore a range of possible economic instruments, leveraging both the public and private sector, which can potentially be used to address the resource gap in relation to the expenditure requirements for Namibia's NBSAP in particular, and mobilise resources for biodiversity conservation in general.

The report is structured as follows:

- Section 2 provides context to the analysis of economic instruments by providing:
 - An overview of the priorities for biodiversity conservation in Namibia; and
 - A motivation for the use of economic instruments and overview of how they would be implemented within the institutional landscape of Namibia.
- Section 3 presents the methodology used to describe and evaluate economic instruments.
- Sections 4 to 7 provide descriptions and evaluations of categories of economic instruments.
- Section 8 summarises the key findings and recommendations arising from the study.

2 Background

Meaningful discussion of economic instruments for biodiversity conservation needs to be grounded in the local context of Namibia. To this end, this section provides a high-level overview of the priorities for biodiversity conservation in Namibia, framed in terms of the key threats to biodiversity identified in the NBSAP2. Further, the motivations for using economic instruments as a strategy for biodiversity conservation in Namibia are explained and a broad overview is provided of the manner in which economic instruments are implemented in terms of Namibian institutions and their potential roles.

2.1 Priorities for biodiversity conservation in Namibia

Namibia's wildlife assets are its primary attraction for foreign tourism. According to a study by the World Travel and Tourism Council, the total contribution of tourism, including investment, supply chain and induced income multipliers, was 14.8% of Namibia's total GDP in 2013, and 4.6% of total employment. These figures are projected to rise significantly in future (World Travel and Tourism Council, 2014) and represent one of many possible indicators of the importance of biodiversity to the Namibian economy.

Although Namibia has made significant progress in biodiversity conservation, challenges remain. The NBSAP2 identifies the following critical threats to biodiversity in Namibia (in no particular order), which in summary are:

- Unsustainable water uses including irrigation, pollution, damming and over-abstraction of groundwater
- Urban expansion and industrialisation resulting in increased demand, waste, and pollution
- Climate change, resulting in increased variability and extreme weather events, as well as shifts in distribution of fauna and flora and impacts on vulnerable ecosystems
- Unsustainable land management practices contributing to soil erosion, deforestation, and bush encroachment
- Uncontrolled bush fires threatening national parks and damaging large areas
- Alien invasive species and illegal use and trade leading to loss of biodiversity and ecosystem degradation, as well as loss of income and inequitable benefit sharing.
- Human wildlife conflict arising from damage to community livelihoods and lives.

Addressing these threats is a key priority of the NBSAP2 (3.3.3), and should be an important consideration in the design of economic instruments. Other key priorities as referenced in the NBSAP2 include the need to:

- (3.3.1) Mainstream biodiversity across government and society and (3.3.2) improve communication and awareness of biodiversity-related issues, (3.3.9) taking into account the critical role gender plays in the natural resources sector, with women often being the main managers of biodiversity resources.
- (3.3.6) Generate reliable baseline information and (3.3.5) strengthen the policy-making framework for Biodiversity Management – which relates to the following linked priorities:
 - (3.3.7) taking advantage of cross-cutting synergies between the international conventions related to biodiversity that Namibia is a signatory to with the Convention on Biological Diversity (CBD); and
 - (3.3.8) enhancing regional cooperation to support transboundary management of natural resources.

Importantly for the design of economic instruments, the NBSAP2 prioritises the need to (3.3.4) contribute to National Development Objectives, as articulated in Vision 2030 and the 4th National

Development Plan, and which include economic growth, job creation, and the reduction of income inequality.

Engagements with stakeholders and experts, as well as the findings emerging from a parallel study on the development of an inventory of ecosystem services in Namibia, suggest a critical challenge for biodiversity conservation is competing land and water use pressures from agriculture, particularly stock farming. The ability of conservancies to deliver tangible socio-economic benefits to the communities involved has been uneven, and there is growing pressure within some rural communities to transfer land under conservation to what are perceived as being more economically productive uses. This in turn points to the need to promote sustainable agricultural practices both in rangeland management and cropping.

Bush encroachment has cross-cutting implications, and is a consequence of an array of factors that include overgrazing of livestock, anthropogenic changes to natural fire regimes, and carbon fertilisation due to the elevated levels of atmospheric CO₂ driving climate change. The economic and environmental consequences of bush encroachment are severe – it has been estimated that more the N\$700 million is lost annually due to the impact of bush encroachment on livestock farming (De Klerk, 2004).

2.2 Economic instruments as a strategy for addressing biodiversity priorities

Table 1 provides a framework for understanding the set of policy instruments available to support environmental goals such as biodiversity conservation:

Table 1: Policy Instruments

Policy Instruments	Description/Examples
Regulations and Standards	“Command and Control” – permits, fines, legislated environmental standards, and procedural requirements such as Environmental Impact Assessments
Voluntary/Cooperative Instruments	Commitments and agreements e.g. the CBD, action plans, voluntary standards, research
Information	Education and awareness campaigns, product labelling
Economic instruments	Direct and indirect markets for biodiversity-based products and services, fiscal reform, environmental offsets, donor finance

In the past, environmental policy has often been conceptualised in terms of a set of mandated environmental standards established and enforced through legislation and regulations – for instance, regulations such as those restricting the use of persistent organic pollutants are a necessary component of environmental policy. While necessary, this so called “command and control” approach to environmental protection does not directly address the need to fully account for biodiversity in economic decision-making and can lead to the perception of the environment as a constraint on development and economic decision-making (Panayatou, 1994: p1-3).

Command and control measures can be complemented and strengthened by the use of voluntary instruments, cooperative agreements, persuasive use of information, and economic instruments that seek to integrate biodiversity into economic policy by creating market signals that support the

protection and wise use of natural resources and biodiversity rather than their over-exploitation and degradation. Principle 16 of the Rio Declaration on Environment and Development (which is a voluntary commitment to which Namibia is a signatory) from the 1992 United Nations Conference expresses this as follows:

“National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.”

Economic instruments can be used to conserve biodiversity by:

- generating revenue to support biodiversity conservation;
- discouraging behaviours, economic activities and land use changes that undermine biodiversity; and
- encouraging behaviours and economic activities that reduce damage to biodiversity or promote biodiversity.

Natural capital and ecosystem services

Natural capital refers to the natural assets that generate the flow of natural products and services – known as ecosystem services – on which economies depend (Parker, 2012). The Economics of Ecosystems and Biodiversity (TEEB) global initiative categorises ecosystem services as follows:

- **Provisioning** services – these include outputs from ecosystems such as food, raw materials, fresh water and medicines.
- **Regulating** services – these consist of functions performed by ecosystems that regulate aspects of the environment such as local climate and air quality, carbon sequestration and storage, mitigation of extreme events such as floods, storms and landslides, pollution control, pollination and biological control of pests and disease vectors.
- **Supporting** services – ecosystems provide habitats that support species and maintain genetic diversity
- **Cultural** services – these consist of culturally valuable services such as recreation, mental and physical health, tourism, and inspiration for art and design.

Although biodiverse ecosystems support a greater quantity and quality of ecosystem services than degraded ecosystems (Nelleman, 2009), natural capital is seldom adequately factored into economic decisions. Ecosystem services are often treated as “free” public goods, resulting in unsustainable use and loss of biodiversity (Sukhdev, 2014). Economic instruments can be used to translate the economic and social benefits provided by healthy, biodiverse ecosystem services into finance for biodiversity conservation and behaviour change to promote sustainable use and conservation of biodiversity.

In practice, the effective implementation of any particular economic instrument may rely on any combination of regulatory instruments, voluntary and cooperative instruments, and persuasive use of information.

2.3 Putting economic instruments into action

The implementation of economic instruments for biodiversity conservation can be understood in terms of three building blocks:

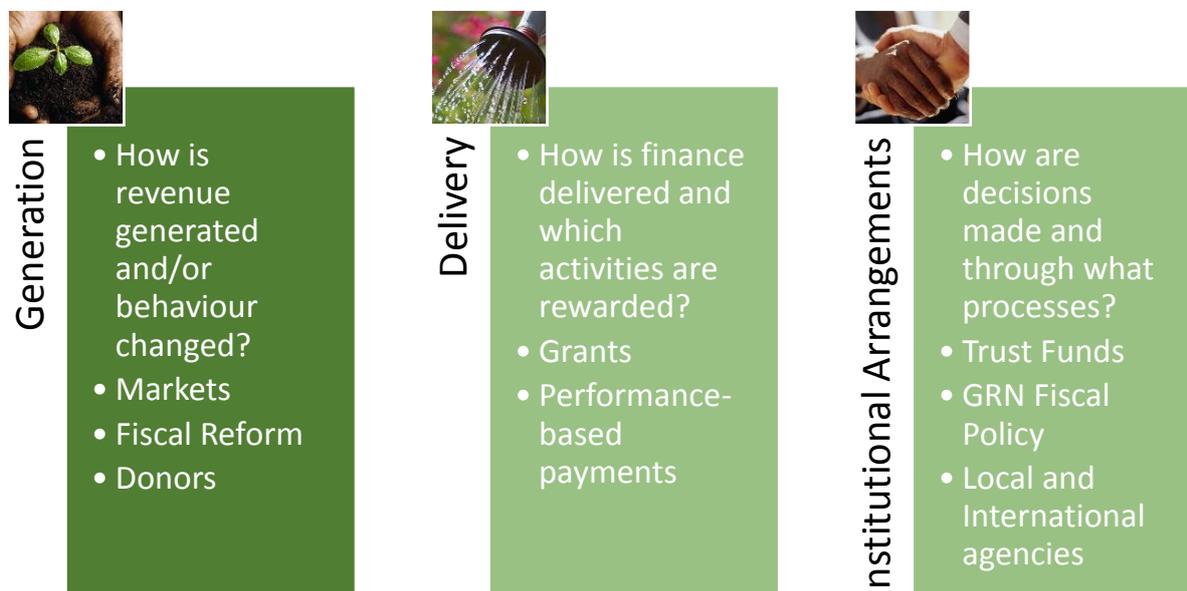


Figure 1: Building blocks for implementation of economic instruments – adapted from The Little Biodiversity Finance Book, 3rd Edition

In general, the steps in implementing a new instrument or making adjustments to the implementation of an existing instrument should include the following:

- Using available data and modelling to determine potential for revenue generation and behaviour change.
- Evaluating social, environment and economic impacts, including engaging stakeholders to gather information and determine social perceptions.
- Identifying options for managing delivery of the benefits involved, and determining what adjustments might need to be made to existing mechanisms.
- Analysing institutional requirements and determining what new policies and institutions might be required in conjunction with institutional stakeholders.

A process of public consultation should be undertaken prior to implementation of an instrument at national level, particularly where implementation involves public finance, or changes to government policy, regulations or legislation. Where implementation happens at the level of a sub-national programme or a project, a process of consultation and participatory engagement with the affected communities should be undertaken.

2.3.1 Namibian Institutions

Although this report primarily concerns economic instruments that are used to generate finance for biodiversity conservation or change behaviour and expenditure through creating economic disincentives to biodiversity loss and incentives for conservation, delivery mechanisms and institutional arrangements represent important aspects of the implementation of these instruments.

In Namibia, the state has constitutional responsibility for the protection of biodiversity, which is exercised primarily through the Ministry of Environment and Tourism, but with some functions and programmes relating to biodiversity also performed by other ministries, particularly the Ministries of Agriculture, Water and Forestry and Ministry of Fisheries and Marine Resources. Financial allocations from the national fiscus to programmes that support biodiversity conservation take place on the basis of parliamentary votes on the budgets of the respective departments, which are coordinated through the Ministry of Finance.

Historically, donor finance has made an important contribution to the biodiversity sector, particularly in relation to supporting Community-Based Natural Resource Management (CBNRM) with respect to establishing and extending the system of community wildlife conservancies in Namibia. The Global Environment Facility (GEF) which serves as a financial mechanism to support the CBD, has been a particularly important source of biodiversity finance, along with bilateral funding from the German and United States governments. Namibia has recently been classified as an upper-middle income country based on its per capita income, and this is likely to have an impact on the availability of donor finance which is anyway being impacted by relatively low levels of global economic growth causing the traditional donor countries to recalibrate their priorities.

In terms of institutional arrangements for supporting the dedication of land to biodiversity conservation, the three principle mechanisms are:

1. **National Protected Areas** (National Parks) and Transfrontier Conservation Areas. Approximately 17% of the country is currently formally protected under the National Parks system. An evaluation of the economic contribution of protected areas undertaken in 2009 estimated that they contributed 3.8 % of the country's Gross National Income, representing some N\$ 2,048 million and delivering a 42% return on investment (MET, 2010).
2. **Community-Based Natural Resource Management** (CBNRM – wildlife conservancies). The legal framework for CBNRM was accomplished through legislation which devolved rights over wildlife to residents of communal areas organised into legally gazetted conservancies. Conservancies are responsible for sustainably managing wildlife resources for the benefit of their members. The conservancy movement receives support from the Namibian Association of CBNRM Support Organisations (NACSO), an umbrella body of NGOs and CBOs primarily funded through donor finance, particularly the WWF and USAID. Together, CBNRM and national parks collectively account for 42% of Namibia's landmass being under conservation, which is significantly above global targets in terms of the CBD.
3. **Private landowner investment in biodiversity** in Namibia is significant, with a large portion of privately-owned land being used for wildlife based purposes.

Namibia has some existing national finance institutions that can be leveraged for biodiversity conservation, such as the Game Products Trust Fund and the Environmental Investment Fund (EIF).

- The **Game Products Trust Fund** now operates under the mandate of the EIF and provides financing for wildlife conservation and rural development. It is financed from the proceeds of the sale of game products belonging to the state as well as parliamentary appropriations and can also receive other donations.
- The **EIF** has a broad mandate to invest in the sustainable use and management of natural resources and ecosystems and to promote sustainable rural and urban development. Although the EIF has some focus on protected areas and direct biodiversity conservation, much of its potential for raising domestic revenues lies in levies which can in the future be used to address gaps in pollution and waste management, biosystematics, biotechnology, and traditional knowledge. Having recently been accredited by the Green Climate Fund, a mechanism for financing climate change actions in developing countries, the EIF may also in the future become an important conduit for climate finance.

These institutions potentially serve as mechanisms through which revenue generated from economic instruments can be directed towards projects that support biodiversity conservation. They may provide concessional loans or grants to finance some of the costs of setting up economic instruments that support biodiversity conservation – by funding a feasibility study, for instance.

In terms of organisations that directly stand to benefit from economic instruments for biodiversity, may be a source of revenue, or the otherwise be involved in implementation, the following are noted:

- There are large number of private sector tourism and hunting businesses, organised through (amongst others); the Namibian Professional Hunting Association (NAPHA); the Federation of Namibian Tourism Associations (FENATA); Namibia Wildlife Resorts (NWR) operates tourism concessions in national parks; and the Sustainable Tourism Certification Alliance Africa is an alliance of sustainable tourism certification stakeholders in Africa, with a presence in Namibia. The Alliance aims to enable an integrated approach to sustainable tourism certification throughout the continent.
- In addition to international NGO's such as WWF, there are a number of NGO's that involved in biodiversity conservation, particularly in relation to supporting CBRNM. The umbrella network for these organisations is the Namibia Non-Governmental Organisation Forum (NANGOF).
- There are a number of research institutions and NGO's that provide technical support for biodiversity conservation, including the Namibian Nature Foundation; the Namibia Maritime and Fisheries Institute; Namibia Botanical Research Institute; and the Desert Research Foundation of Namibia (amongst others).

3 Methodology

In this chapter the approach to describing and evaluating economic instruments for biodiversity conservation in Namibia used in this chapter is documented and explained.

The project team undertook an extensive desktop review of relevant local and international literature in producing this report, as recorded in the Bibliography. This included economic reports and analysis relevant to biodiversity conservation to gain insight into the potential impact of different instruments in relation to revenue raised or economic expenditure redirected to biodiversity conservation.

A number of interviews were undertaken with Namibia-based experts attached to government departments, research institutions, donor organisations, and non-governmental organisations. The purpose of these interviews were to understand the existing institutional landscape in terms of biodiversity conservation, policy priorities, financing challenges for conservation, and existing or emerging approaches to economic instruments.

A member of the project team (and hence the project) also benefited from participating in a workshop on environmental fiscal reform that was hosted by GIZ as part of the ResMob project. Further, criteria and priorities for describing and evaluating economic instruments were discussed in a stakeholder workshop and an internal workshop with GRN staff.

Based on the direction received at the project inception meeting from the MET and GIZ, The Little Biodiversity Finance Book, 3rd Edition, published by the Global Canopy Programme and the BIOFIN methodology have been of particular importance in informing the methodology used in this report.

Drawing on the Little Biodiversity Finance Book, economic instruments have been grouped according to a typology based on the underlying mechanisms used to generate finance or effect behaviour change and described in the table below:

Table 2: Typology of mechanisms for implementing economic instruments

Mechanism	Description	Examples
Direct Market Mechanisms	Payments made for biodiversity conservation by those benefiting from biodiversity and related ecosystem services or as compensation for loss of biodiversity by those causing the loss	Park entrance fees, Biodiversity offsets
Indirect Market Mechanisms	Instruments that indirectly link the value of biodiversity to products	Eco-labelling
Market Regulation	Includes environmental fiscal reform and consists of public sector interventions to generate revenue or change behaviour.	Subsidies, levies and taxes
Non-Market/Philanthropy	National budget allocations, International finance and voluntary contributions from individuals and foundations	Official Development Assistance and NGO finance

Section 4, 5, and 6 of this report deal with economic instruments based on: market mechanisms (direct and indirect); market regulation; and non-market/philanthropy mechanisms respectively. The focus of the report is on instruments over which the MET has some leverage, or a direct role to play in terms of design and implementation. As a consequence, eco-labelling instruments in which the MET has a limited role to play are examined in less detail.

The analytical framework for describing the economic instruments discussed in this report has been adapted from this source, as presented in the table below:

Table 3: Descriptive framework for economic instruments

	Criterion	Description/Example
Generation	Type	Direct Market/Indirect Market/Market Regulation/Non-market
	Scale	The potential amount of revenue generated /extent to which behavior change positively impacts on biodiversity
	Timeframe	Short, medium or long term
	Sector	Private/Public (National/International)
	Payer	Polluter/Beneficiary/Other
	Value	Use or Non-Use of nature
Delivery	Delivery Theme	Conservation, Sustainable Use, Capacity Building and Technology Transfer
	Delivery Mechanism	Grant, Incentive, Performance-based payment,
	Performance-based	Yes/No – how measured?
Institutions	Level	National Programme or Project
	Institutions and mechanisms	Will new institutions/administrative mechanisms be required or can existing ones be improved (and how)?

The first 6 criteria are used to discuss instruments in terms of the dynamics of the underlying mechanism for generating finance for biodiversity conservation or affecting behaviour change:

- Type – the reasons for categorising each instruments as per the typology in Table 2 are explained in terms of the manner in which the instrument operates.
- Scale – the extent of the potential impact of the economic instrument is discussed, both in relation to the costs associated with its implementation and the benefits in terms of revenue generated and/or the impact of behaviour change.
- Timeframe – instruments that are likely to deliver most of their benefits within 5 years are considered short term instruments, those that operate for periods from 5 to 10 years are considered medium term and those operating over periods beyond 10 years are considered long term instruments.
- Sector – each instrument is described in terms of the sectors involved in its implementation.
- Payer - each instrument is described in terms of the source and flow of finance that sustains its operation.
- Value – the extent to which the value generated by each instrument is based on the sustainable use of biodiversity, or its existence value (non-consumptive use) is discussed.

A further set of criteria are used to characterise the manner in which activities related to biodiversity conservation and behaviour change are delivered:

- Delivery theme – describes whether the benefits to biodiversity from each instrument are primarily through funding activities directly related to:
 - conservation e.g. erecting game fences;
 - sustainable use e.g. promoting cheetah friendly stock farming; or
 - capacity building and technology transfer e.g. fisheries research or promotion of environmentally friendly fertilisers.
- Delivery mechanism – describes the mechanisms used to fund activities promoting biodiversity conservation or behaviour change, such as grants or tax incentives.
- Performance-based – the extent to which delivery of finance or provision of incentives for behaviour change is linked to actual performance in relation to biodiversity conservation is discussed for each instrument.

The following criteria are used to describe the institutional arrangements pertaining to each instrument:

- Whether the instrument is implemented at a project level, or as a national intervention.
- The institutions and mechanisms involved in implementing the instrument are described.

The purpose of this report is not simply to describe a set of instruments available for biodiversity conservation in Namibia, but also to provide a framework for evaluating the instruments and a set of provisional recommendations as to which instruments should be prioritised. The evaluation criteria used in this report are intended to assist the MET in assessing potential and current economic instruments in terms of:

- The **type of impact** each instrument has – for instance, whether the impact is primarily in terms of raising revenue, changing behaviour, and how direct the impact on biodiversity conservation is.
- The **efficiency** of each instrument in terms of biodiversity outcomes, and whether or not it is likely to be cost-effective in the Namibian context in terms of the transaction costs associated with implementation.
- The **relative ease or difficulty of implementing** particular instruments, including the extent to which the instrument is aligned with existing policy and priorities, its complexity, and the extent to which new regulations or legislation and additional research will be required for its implementation.

To accomplish this, the identification of evaluation criteria has been informed by the guidance on screening financial mechanisms provided in the BIOFIN workbook, which includes the following considerations:

- Financial: such as amount of revenue likely to be generated, initial costs, and economic and environmental returns on investment
- Legal: including alignment with existing legal frameworks
- Administrative: including complexity of implementation requirements and existing capacity
- Social: positive and negative social impacts, equity and access in terms of beneficiaries and payment
- Political: political will and ability to monitor and enforce appropriate implementation
- Environmental: intended and unintended impacts and ability to manage risks

With input from stakeholders, these considerations have been reframed as evaluation criteria organised within the following themes:

- The Governance theme focuses on political, legal and administrative considerations relating to the complexity of implementing the instruments.
- The Social theme is primarily concerned with behaviour change and social impact associated with the instruments.
- The Economic theme focuses on financial considerations
- The Environment theme focuses on benefits and risks to the environment

The evaluation criteria within each theme are described in the tables below.

Table 4: Governance

Criteria	Evaluation
Alignment	Are there already policies, legislation, and institutional experience and capacity to support the instrument?
Sustainability	Are their significant administrative hurdles or transaction costs associated with implementing the instrument such as programme management costs, institutional arrangements?
Transparency	Is the instrument likely to be implemented in a transparent manner in which the benefits are easily understood and appreciated by stakeholders? Will local communities participate in decision-making and be empowered in the process?

Table 5: Social Theme

Criteria	Evaluation
Behaviour change	Will the instrument result in behaviour change that directly and/or indirectly contributes to biodiversity conservation? Are there potentially negative impacts that need to be considered? How will such change be measured?
Social Impact	Will the instrument delivering tangible social benefits, especially with respect to rural livelihoods and are there potentially negative social consequences that need to be considered?

Table 6: Environmental theme

Criteria	Evaluation
Land use:	Will the economic instrument increase the quantity and/or quality of land directly managed for biodiversity?
Ecosystem services	Will the instrument lead to an improvement in valued ecosystem services?
Habitat and Species	Will the instrument contribute to the protection of threatened habitat and species?

Table 7: Economic Theme

Criteria	Evaluation
Generation	How much revenue will the instrument raise that is allocated directly to biodiversity conservation?
Source	Does the instrument generate new revenue from the private sector, public sector or depend on allocating existing fiscal resources? Will the costs be borne by the “polluter”/beneficiary or the taxpayer/donor or a combination

	of both?
Economic impact	To what extent does the instrument have positive or negative economic impacts? Will it create new jobs and stimulate local and/or foreign investment and create businesses in biodiversity conservation or will it result in job losses and decrease competitiveness?

The evaluation of the economic instruments is informed by the stakeholder engagements, expert interviews and desktop research undertaken by the team and represents a rough baseline of the status and potential of each instrument in the context of Namibia.

The final chapter synthesises the key findings from the previous chapters to develop a set of recommendations around which instruments should be prioritised, and the steps that need to be taken to ensure that they are implemented effectively.

4 Market Mechanisms

This chapter describes market-based instruments that directly or indirectly leverage biodiversity in terms of a framework of descriptive criteria, and applies a framework of evaluation criteria in order to understand their relevance to Namibia. The primary focus is on market instruments that directly leverage biodiversity (direct market instruments) rather than markets which indirectly capture the value of biodiversity (indirect market instruments). The reason for this focus is that the opportunities for the MET to influence direct market instruments such as park fees and concessions are significantly greater than is the case for indirect market instruments.

Direct market instruments

These are a set of instruments that generate revenue through the direct payment for the conservation of biodiversity to relevant providers from either:

- a) *Parties that directly benefit from the ecosystem services or biodiversity.* For instance, tourists commonly pay park fees for access to national parks, and typically this source of revenue is used to offset the costs of conserving biodiversity through the system of national parks. A related example would be the concession fees paid by private concessionaires to community-based conservancies in return for communities managing conservancy land to promote biodiversity.
- b) *Parties that are responsible for polluting or degrading ecosystem services and biodiversity.* This may be a voluntary market supported through corporate social investment and incentivised by global reporting standards for corporates, but is often a market created by state intervention – for instance, through regulations requiring companies to undertake measures to conserve and restore biodiversity in order to offset the negative impacts of their activities.

In Namibia, the primary economic return from dedicating land use to biodiversity conservation – whether it be privately held freehold land, communal land managed under conservancies, or national parks – is derived from direct market instruments involving the payment of user fees associated with access to or use of biodiversity resources. For instance, user fees are generated through tourism and resource extraction in the form of hunting.

While direct market instruments are commonly implemented for particular projects through voluntary arrangements involving the private sector, they can also involve government intervention at either the national or local level (Parker, C. et al, 2012). A variety of delivery mechanisms and institutional arrangements are possible in each case, and are discussed here in the context of particular instruments.

Indirect market instruments

Indirect market instruments seek to integrate the value of biodiversity and ecosystems services into related markets, particularly where those markets involve potential destruction of biodiversity and ecosystem services, to internalise the costs of mitigation measures.

These instruments link existing markets for commodities and services derived from natural resources to ecosystem services and biodiversity by creating demand or charging a premium for products or services that are sourced and produced in a sustainable manner. The consumer of such products is not directly paying for biodiversity or ecosystem services, but instead is indirectly subsidising or incentivising activities and practices in the product value chain that aim to conserve biodiversity and minimise harmful environmental impacts from economic activity. Various forms of environmental certification are a key mechanism for indirect market instruments.

4.1 Payment for Ecosystem Services

Payment for ecosystem services (PES) consists of direct ecosystem service fees as compensation made by ecosystem service beneficiaries directly to ecosystem service providers for the continued flow of those services (Parker et al., 3rd Edition, 2012). The most common example of PES are payments for watershed services (PWS) and carbon sequestration (Turpie et al. 2008). In the case of PWS, businesses or municipalities that consume water pay farmers or communities located upstream to undertake initiatives to maintain the quality and quantity of water supply. This can include the clearing of invasive alien plants that negatively affect the water balance, or refraining from agricultural activities that consume water or degrade water quality.

In the case of carbon sequestration, this can involve payments from emitters of greenhouse gases to communities, organisations or private sector companies that biologically sequester carbon by restoring woodlands or forests that sequester carbon or for preventing land use change that would disrupt the sequestration potential of natural ecosystems. Such payments often take place through carbon credits, which can either be administered as voluntary schemes, or within the context of a regulatory framework such as a national carbon tax or cap-and-trade system, or the international UNFCCC framework, such as REDD+ (the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries).

In general, PES schemes are regarded as having the following characteristics (Wunder, S., 2007):

1. The environmental service for which payment is being received is well-defined (e.g. specific impacts on stream flow) or a suitable proxy for the service is identified (e.g. hectares reforested).
2. There is at least one beneficiary / potential buyer of the service.
3. There is at least one seller of the service.
4. Transactions between buyers and sellers are voluntary.
5. Payments are conditional on the environmental service or its proxies actually being supplied.

Although PES has generated considerable interest, there have proven to be significant obstacles to its widespread adoption in terms of all of the requirements listed above. For instance, assigning a monetary value to the ecosystem service that is sufficient to support the conservation activities and land use options required to support delivery has proved challenging. The payment landowners or communities receive for preserving ecosystem services must compensate them for the loss of income that they would have otherwise received – for instance, from logging or farming. This loss of income can be considered the **opportunity cost** of using the land for biodiversity conservation rather than resource extraction. The willing buying, willing seller model does not consistently produce well-established markets for PES.

Any economic exchange, such as those that take place under PES, has **transaction costs** attached to it. In the case of PES, these are the costs associated with identifying the ecosystem services and potential market participants (buyers and sellers), negotiating the terms of the scheme with all stakeholders (including getting state approval where necessary), and monitoring and enforcement of the scheme (monitoring performance of the ecosystem service and ensuring payment takes place). PES schemes are relatively complex to set up as there are usually multiple stakeholders involved and require ongoing monitoring of performance with the respect to delivery of the ecosystem services involved. The transaction costs are therefore relatively high, and in many cases PES schemes have required initial donor funding (Jindal, 2007).

From the perspective of biodiversity conservation, the fact that PES is **performance based** is attractive – it creates an economic incentive for behaviour change amongst land owners that is linked to concrete outcomes in relation to biodiversity conservation. Where it does not depend on public finance to achieve these outcomes, it represents a **fiscally efficient** solution to financing

biodiversity conservation. Although the transaction costs for PES may be prohibitively high for small projects, as the scale of projects increase, the relative transaction costs tend to drop.

Box 1: PES Case Study 1 – Pimampiro, Ecuador

Located in the Andes of northern Ecuador, the municipality of Pimampiro draws most of the water for its 13,000 inhabitants from the 630-hectare Palahurco watershed. An external grant of US\$37,000 to CEDERENA, a local NGO, was used to develop a PES programme to finance the protection and regeneration of natural forests and páramos (alpine grasslands) in the watershed and reduce the use of water for cultivation purposes.

Participants in the scheme all belong to the Nueva América Cooperative. Monthly payments are made to landowners for allowing cultivated land to revert to natural vegetation or maintaining natural forests and grasslands in a pristine condition. The compensation payments are financed through a 20% surcharge on all metered municipal water bills to participating households and businesses, whose participation is voluntary. The surcharge is allocated to a dedicated municipal account from which it is disbursed to participating landowners.

Conditionality of the payments is maintained by the monitoring of farmers' land use by CEDERENA and the municipality. As a result of the scheme, timber extraction from the watershed has virtually ceased, and agricultural land use has dropped, with a corresponding increase in natural vegetation (Southgate, 2007).

PES Case Study 2 – Working for Water, South Africa

The introduction of non-native trees to South Africa poses a direct threat to biological diversity, water security, the ecological functioning of natural systems and the productive use of land. As well as impacts on soil fertility and erosion, it is estimated that invasive alien plants have reduced South Africa's mean annual runoff by approximately 7%.

The Working for Water programme (WfW) was developed with a dual function of controlling invasive alien plant species and providing employment. With an annual budget of over R400 million it is the largest single natural resource based poverty relief and public works expenditure in South Africa. Although WfW does not meet all the criteria of a "pure" PES scheme, it shares many features. Unlike most PES schemes, in WfW the sellers are not landowners, but contractors who bid for contracts to remove alien invasive species – initially primarily from public land and national parks. The contractors are obligated to train and employ previously unemployed people, in alignment with quotas for gender and youth, within a specified salary range.

Although the "buyer" was initially in almost all cases central government (on behalf of the general public, as taxpayers), the programme has progressively sought to become more sustainable by selling services to private landowners (who are legally obligated to clear invasive alien species from their property), Water Services Authorities and municipalities. Furthermore, additional income for the programme has been created through the development of value-adding industries, such as furniture, fuelwood, and charcoal that use alien vegetation. (Turpie, 2008)

Table 8: Descriptive criteria for PES

	Criterion	Description
Generation	Type	<p>PES is a direct market instrument – Communities or businesses that benefit from ecosystem services pay service providers to ensure the continued flow of these services by undertaking activities that conserve productive, biodiverse ecosystems. Possible examples of such activities include:</p> <ul style="list-style-type: none"> • Restoring cultivated land to its natural state or refraining from cultivating land that is already in a natural state in order to enhance carbon sequestration or improve downstream water availability. • Clearing invasive alien vegetation and/or reducing bush encroachment to improve streamflow and/or enhance grazing potential. • Actively managing land for biodiversity conservation to enhance revenue opportunities for tourism or hunting concessions.
	Scale	PES schemes are typically linked to a particular natural asset such as a forest or a catchment area that provides the ecosystem service for which payment is received, and the amount of revenue generated depends on the value and extent of the ecosystem services provided. At a minimum the scale needs to be sufficient cover the transaction and opportunity costs.
	Timeframe	PES schemes are relatively complex to set up as there are usually multiple stakeholders involved and require ongoing monitoring of performance with the respect to delivery of the ecosystem services involved. They should be regarded as medium to long term programmes.
	Sector	Beneficiaries of payments for ecosystem services are usually communal or private landowners, although there are PES or PES-like schemes that take place on public land.
	Payer	Payment is made by those consuming or otherwise benefiting from the ecosystem services.
	Value	Revenue is generated from the use value of biodiversity.
	Delivery	Delivery Theme
Delivery Mechanism		Performance-based payments, typically to landowners or communities for maintaining or conserving ecosystem services.
Performance-based		Performance is either measured through directly monitoring the relevant ecosystem services, or by a suitable proxy – such as the extent of forestation as a proxy for carbon sequestration.
Institutions	Level	Typically implemented at a Project level, although PES-like scheme have been implemented as national programmes.
	Institutions and mechanisms	A variety of different institutional mechanisms have been used, but typically, some organization or body will be required to administer the PES scheme on behalf of beneficiaries, and there may be a requirement for independent monitoring of ecosystem service performance.

4.1.1 PES Options for Namibia

Namibia's community-based natural resource management programme (CBNRM) meets most of the formal criteria of a PES programme. The CBNRM programme was officially initiated in 1996 by the passing of the Nature Conservation Amendment Act of Namibia that provided for communities with customary land tenure to form communal conservancies which were granted rights to benefit from wildlife that would otherwise have been the property of the state.

In the context of CBNRM, communal conservancies are the sellers of ecosystem services. The buyers are:

- eco-tourism and hunting operators who compete for the right to operate concessions within the conservancies;
- where conservancies operate their own tourism facilities, tourists; and
- buyers and distributors of natural products and craftwork derived from these, including thatching, plant-derived oils and medicines.

In the case of eco-tourism and trophy-hunting, the ecosystem service that is being sold is a cultural service. In the case of natural products and craftwork, the ecosystem service is a provisioning service i.e. the material products resulting from ecosystem processes, sometimes referred to as "ecosystem goods". The transactions between the buyer and seller are voluntary in that there is no legal requirement enforcing the exchange. However, since the conservancy is a collective entity entering into transactions on behalf of a community, the beneficiaries do not participate on a voluntary basis as individuals. A conservancy's decision to zone lands for ecosystem service-producing activities may not reflect the perceived best interests of every community member, and where some community members would prefer to allocate land for agricultural purposes, this may be a source of tension – and interviews with stakeholders suggest that this is the case in some areas.

In the case of eco-tourism, payment is not usually based on directly measurable ecosystem performance, although the success of tourism may depend on the presence of intact biodiversity – particularly charismatic species such as rhino, elephants and cheetah. There are ways ecosystem performance can be more directly leveraged – for instance the presence of rhinos in an area can support guided rhino-tracking as a source of payment. Conditionality of payment on ecosystem performance is more directly measurable in the case of trophy hunting, where a concessionaire will usually be granted hunting rights to particular numbers of particular species, with a portion of the payment to the conservancy being conditional on a percentage of allocated quotas actually being killed.

The transaction costs associated with CBNRM – and particularly those associated with the initial establishment of conservancies – have in the past been borne in large part through donor finance. With many of these programmes having reached their end, there is some pressure on the CBNRM movement to deliver value for members through biodiversity conservation that exceeds the perceived opportunity costs of displacing agricultural activities. In part, some of this gap may be filled by projected future increases in tourism and more effective exploitation of concessions, but there is also a need for the CBNRM movement to explore possible new ways of leveraging ecosystems services to generate revenue.

Additional ecosystem service potential

The biological sequestration of carbon in plants and soils is a regulatory ecosystem service. Namibia's greenhouse gas (GHG) inventory for 2000 suggests that the country is a net sink for CO₂ i.e. the country sequesters more CO₂ than it emits. While the agriculture and energy sectors are estimated to be the largest GHG emitters, bush encroachment represents a significant GHG sink,

estimated in 2000 at some 10,960 kilotons of carbon from bush encroached areas. Namibia's bush resource is the country's biggest carbon sink (Von Oertsen, 2009), although recent research has also demonstrated that microbial activity in arid desert soils in Namibia also serves to sequester carbon.

At the same time, bush encroachment represents a significant cost to the economy in terms of loss of grazing land. The annual loss in agricultural output, primarily due to loss of grazing, was estimated at N\$ 700 million in 2004 (de Klerk, 2004). Furthermore, Namibia is amongst the world's most water scarce countries and it is likely that overall precipitation will both decrease and become more variable under climate change. Bush encroachment, which itself is in part believed to be driven by carbon fertilisation from elevated atmospheric levels of CO₂, reduces the recharge of groundwater resources. Furthermore, bush encroachment results in a loss of biodiversity in the encroached environment.

Collectively, these negatives are believed to outweigh any positives associated with the GHG mitigation benefits of bush encroachment and point to the fact that climate change adaptation and mitigation option-taking may actually involve trade-offs rather than synergies in some contexts. As such, it is unlikely that afforestation through bush encroachment in Namibia represents a useful opportunity for climate finance through the Land Use, Land Use Change and Forestry (LULUCF). The LULUCF framework of the United Nations Framework Convention on Climate Change's (UNFCCC) Clean Development Mechanism (CDM) provides for countries like Namibia to undertake GHG mitigation projects that qualify for climate finance through the sale of carbon credits to first world countries.

However, there is potential for climate finance involving biomass to energy projects that make use of biomass from bush clearing projects, for which there are accepted CDM methodologies and for which projects have already been registered in Namibia. The transaction costs of CDM projects are relatively high as the design, implementation, and monitoring of these projects is complex. However it is possible to bundle individual projects into CDM programmes and thereby reduce transaction costs. Considering the extent and serious environmental and economic consequences of bush encroachment, there is a case to be made for further information gathering in relation to opportunities for climate finance linked to bush clearing, and for Namibia to play an active role in the UNFCCC negotiations around the LULUCF framework. There may well be opportunities to obtain climate change adaptation funding for bush clearing projects through the UNFCCC Green Climate Fund, for which the Environmental Investment Fund is an accredited distributor of finance.

There are also opportunities to generate revenue from bush clearing that are already being exploited and have potential for further expansion without climate finance. These include the production of charcoal and wood fuels from invasive bush. Biochar, which is a methodology for enriching soils and improving their water retention capacity through burying charcoal that has been "charged" by being soaked in water with vegetable waste and compost, is another potential use for biomass from bush clearing projects. Although it is believed that Biochar sequesters carbon over longer time frames and arguably with more certainty than many current LULUCF CDM methodologies, it is currently still controversial and not an accepted CDM methodology – in part because of the perceived risks of destruction of existing forests should biochar projects be taken up on a large scale on the back of climate finance.

South Africa's Working for Water (WfW) programme provides a useful model for how bush clearing could be programmatically implemented by the CBNRM movement to deliver on both biodiversity objectives and social objectives in terms of rural livelihoods. Some of the key lessons to be learned from WfW include:

- In the case of WfW, the main "buyer" for invasive plant clearing activities is still central government, but the programme is refocusing towards local government and private landowners as buyers. Although the value proposition for bush clearing as a public

investment is also strong in Namibia, it is likely to be desirable to rely less directly on the national fiscus from the outset.

- South Africa introduced legislation requiring private landowners to clear alien invasive species, but this is seldom enforced. The insurance industry and property market is however placing increasing pressure on landowners to comply. Namibia should consider (a) legislation, and (b) fiscal incentives, such as tax concessions to landowners who pay conservancies for bush clearing.
- Concessional finance for biomass to energy and other value adding projects involving biomass from bush clearing should be considered.

4.1.2 Summary evaluation of PES

Governance Theme

Namibia already has well established institutional arrangements for payment for ecosystem services in the form of the CBRNM – it is therefore **well aligned** in terms of existing policy, legislation and institutional experience. Expanding the scope of ecosystem services that are used to generate revenue will however require new policies and institutional capacity.

Sustainability of the CBRNM movement is under threat due to reduced availability of donor funding. The impact of this across conservancies will be uneven. Although the transaction costs associated with establishing the conservancies have largely been incurred already, the determining factor for sustainability of zoning land for biodiversity conservation through conservancies is its ability to overcome the opportunity costs of alternative land uses, particularly agriculture. This may require some investment in the development of supplementary strategies for extracting payment. CBRNM is by now a well understood mechanism by stakeholders and can therefore be considered **transparent** in its operations. However, attempts to leverage new revenue from ecosystems, possibly involving climate finance, or biomass to energy projects, may require novel arrangements that will need careful consultation with stakeholders.

Social Theme

Historically, the CBRNM movement has contributed significantly to **behaviour change** resulting in more sustainable use of biodiversity and greater tolerance of wildlife. In terms of **social impact**, to date the CBRNM movement has delivered significant tangible benefits to most members of conservancies although this performance is uneven, and depends to some extent on the underlying biodiversity assets, location and topographical features of particular conservancies which influence their tourism potential. However, there are ongoing risks of tensions within conservancies where there is the perception amongst some members that the opportunity costs of biodiversity conservation are too high i.e. other forms of economic development would deliver them better outcomes.

Environment Theme

With respect to **land use**, the CBRNM movement has already significantly increased the amount of land available for biodiversity conservation and provided protection to threatened **habitat and species**, conserving ecosystem services based on their cultural value as well as their provisioning value. Since the establishment of the Nyae Nyae conservancy in 1998, the movement has expanded to a total of 79 conservancies by 2013, covering almost 20% of Namibia and half of all communal land (NACSO, 2013). With respect to bush encroachment, there is a trade-off between climate change adaptation and mitigation, due to bush encroachment serving as a carbon sink, but having significantly maladaptive impacts on water availability, biodiversity, and the availability of grazing for livestock.

Economic Theme

NASCO estimate the total value of cash income and in-kind benefits generated by conservancies to have been N\$ 87,310,745 in 2014/15. In a sense, this total amount can be considered a return on investment in biodiversity conservation. Since 1998 the average total cash income per conservancy has increased from N\$ 220,759 to N\$1,385,885 in 2014/15. The largest single source of income in 2014/15 is joint venture tourism (with concessions as the major instrument) at 45.3% of total income. Trophy hunting is the second largest, at 27.6%. Community based tourism and other small to medium enterprises account for only 4% of the total, suggesting that considerable scope exists to expand on local economic development. The bulk of conservancy income is therefore derived from income generated through sales to beneficiaries of the ecosystem goods and services provided by conservancies.

Box 2: Communities and Conservation

Namibia's implementation of CBNRM through conservancies is unique in its regulatory scope and geographical extent. Since the establishment of the Nyae Nyae conservancy in 1998, the movement has expanded to a total of 79 conservancies by 2013, covering almost 20% of Namibia and half of all communal land (NACSO, 2013). The success of conservancies is predicated on the ability of communities to extract returns from sustainable management of natural resources and biodiversity. There are diverse sources of income and benefits that conservancies provide members, with the most significant of these being income derived from hunting and tourism concessions, employment opportunities in tourism and conservation, income generated from the sale of indigenous plants and crafts, and in-kind benefits such as the distribution of game meat to conservancy members. NASCO estimate the total value of cash income and in-kind benefits generated by conservancies to have been N\$ 72,158,768 in 2013.

The environmental benefits of conservancies in terms of improved biodiversity in areas zoned for wildlife conservation are significant, with levels of key game species and predators having improved. Inevitably, this has resulted in some human-wildlife conflict, particularly in relation to stock and crop losses. These have been addressed through practical prevention measures in the first instance, but also through the Human-Wildlife Self Reliance Scheme which makes compensation payments for verified losses, through the Game Products Trust fund set up by the MET.

An underlying challenge to the conservancy movement lies in the extent to which the economic benefits delivered by conservancies through dedicating land for conservation management, as opposed to livestock farming or crop cultivation, represents an economically efficient allocation of land. Especially with the rapid extension of the number and extent of conservancies, some conservancies are located in areas which do not currently have significant potential for income derived from hunting and tourism. Furthermore, there is growing political pressure to commercialise livestock and crop farming. There is some pressure to deproclaim areas within national parks in the northern provinces in order to make land available for alternative uses, including agriculture and mining. The issues this raises are complex, as rural communities are not homogenous, nor are all members of these communities equally vocal in stating their interests. Further research is likely to be needed to inform policy decisions, particularly in terms of equity and social cohesion within rural communities and environmental implications and risks – particularly in relation to climate change and the risks of livestock overstocking.

4.2 Direct Biodiversity Fees

These are payments for access to or for the direct use of biodiversity, most frequently associated with tourism and recreation (Parker et al, 2012). The particular instruments include park entrance fees, licences, and permits. Direct biodiversity fees can only be considered an effective economic instrument for financing biodiversity conservation where policies and mechanisms are in place that ensure revenue generated from such fees is in fact directed towards biodiversity conservation.

Understanding of the different levels of willingness to pay and price elasticity for visitors of different origins and characteristics can be very useful in setting revenue maximising entry fees that capture as much consumer surplus as possible. The **Consumer surplus** is the difference between what consumers would be willing to pay, and what they are actually charged – visitors often pay less than they would be willing to pay for the use of protected areas. Park pricing strategies may thus entail raising prices in order to capture the differential, thereby increasing revenues. A number of studies (Mmopelwa, 2006; Tisdell, 2003) have suggested that willingness to pay is directly influenced by whether or not visitors perceive that their payment will contribute directly to the biodiversity conservation or visitors facilities:

- Where park fees are perceived to be a general government tax that is not ring-fenced for park maintenance, willingness to pay is reduced, particularly amongst domestic visitors who already pay tax.
- Where visitors are aware that entrance fees contribute directly to biodiversity conservation and park maintenance, willingness to pay is increased – particularly where park fees contribute to an independently managed body.

At the same time, pricing needs to be informed by the ecological carrying capacity of the parks concerned and the tourist experience, which declines when certain levels of visitation are exceeded. Consequently, revenue optimisation is not the only factor to be taken into account when planning income from park fees.

In the case of charges for accommodation and campsites, access fees in the private sector for comparable products in close proximity to the reserve are likely to affect willingness to pay although visitors are often willing to pay a premium for park accommodation, dependant on the nature of the park and services.

In general, key factors that determine what the market will support include: the accessibility of the park in terms of distance from major centres and airports; the quality of access roads; the presence or absence of charismatic species; as well as the nature of the facilities and services provided in the park.

The implementation of an efficient and robust fee collection system is another important component of this instrument to consider as these systems can be susceptible to error and theft. Revenue can be increased by up to 10% just by increasing the safety and efficiency of a system (Sustainable Financing Plan for Namibia's Protected Area System, 2012). When choosing a payment method, consideration needs to be given to weighing up the benefits of the efficient and safer payment system against the cost of implementing and managing this system.

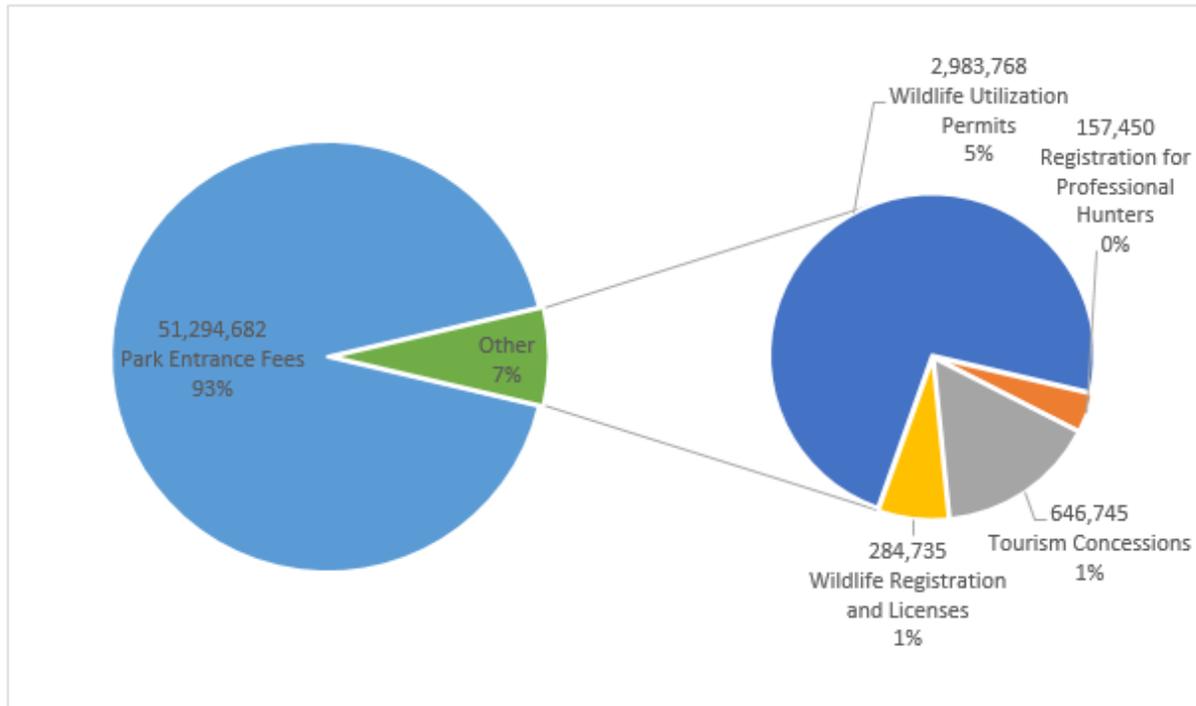
Table 9: Descriptive criteria for Direct Biodiversity Fees in Namibia

	Criterion	Description
Generation	Type	Direct Biodiversity Fees are direct market instrument , consisting of payment for use of or access to biodiversity assets. Examples relevant to Namibia include: <ul style="list-style-type: none"> • Park entrance fees • Licenses, registration fees and permits for hunting and utilization of wildlife.
	Scale	National Park entrance fees represented almost 92% of non-tax revenues collected by the MET in 2013/14m, generating over N\$ 51 million.
	Timeframe	Currently park entrance fees are reviewed every 5 years.
	Sector	In Namibia data is only available for direct biodiversity fees collected by the state, which is likely to represent the majority of such fees.
	Payer	Payment of direct biodiversity fees is made by the beneficiaries i.e. tourists, hunters and those making use of wildlife, including owners of tourist concessions.
	Value	Revenue is generated from the use value of biodiversity. Revenue from park entrance fees is bounded by the “willingness to pay” of tourists, which is in turn influenced by natural topology, the presence of charismatic species, and tourism facilities amongst others.
Delivery	Delivery Theme	Conservation and Sustainable Use.
	Delivery Mechanism	The bulk of direct biodiversity fees collected by the Parks and Wildlife directorate is transferred to the State Revenue Fund, and is therefore not directly allocated to biodiversity conservation, apart from revenue from hunting, concessions and game sales which is transferred to the Game Product Trust Fund (GPTF) from which it is reinvested in conservation, particularly projects involving communities and conservancies
	Performance-based	Payment of park entrance fees, licenses, registration fees and permits is not performance based, although the sustainability of these revenue streams is dependent on the conservation of the biodiversity assets concerned.
Institutions	Level	Although park entrance fees are collected locally, they are set nationally, and revenue is distributed at a national level.
	Institutions and mechanisms	The majority of direct biodiversity fees collected as non-tax revenue by the MET’s Parks and Wildlife Directorate are only indirectly reinvested through the MET’s budget vote. A smaller portion of this revenue is allocated directly to the GPTF, some of which is distributed to projects involving conservancies. Most concessions in the National Parks are operated by a state-owned company, Namibia Wildlife Resorts.

4.2.1 Options for direct biodiversity fees in Namibia

Figure 2 below graphically represents the contribution of various direct biodiversity fees to non-tax revenue collected by the MET in 2013/14, as reported in the Namibian Government’s Accountability Report for the Financial Year 2013/14 (excluded are non-tax revenues not regarded as direct biodiversity fees, including fines, gambling licenses, and film fees).

Figure 2: MET Income from Direct Biodiversity Fees in N\$ and as percentages



Park Entrance Fees

According to the Sustainable Financing Plan for Namibia’s Protected Area System park entrance fees represent the main source of revenue from the country’s national parks (MET, 2010). Broadly speaking, Namibia is pursuing a high-value, low-impact approach to tourism with evidence suggesting that international eco-tourism is relatively price inelastic – i.e. raising prices usually increases revenue, more than compensating for any drop in demand. Namibia’s parks differentiate between foreign and domestic tourists, reflecting both the fact that Namibians already contribute to the costs of maintaining national parks as tax payers as well as the reality that many foreign tourists are willing and able to pay higher park fees. Furthermore, in terms of maintaining a ‘social licence to operate’ it is important that Namibia parks are accessible to local citizens.

Park pricing strategies need to take social equity and ecological sustainability into account. Pricing structures can be used to promote self-sufficiency of protected areas, to manage visitor numbers, to reduce congestion and ecological impacts (e.g. variable prices for parks of different popularity and ecological sensitivity), and to smooth seasonal patterns through low and high-season prices (Sustainable Financing Plan for Namibia’s Protected Area System, 2012). Park fees should be structured to ensure Namibia does not subsidise tourists from wealthier countries at the expense of local visitors and should compete with neighbouring countries (Brown, 2001).

Table 10 below shows that foreign visitors to South Africa’s Kruger Park pay 100% more than SADC residents, whereas in Namibia’s premier parks, foreign nationals pay only 33% more than SADC residents. Furthermore, foreign nationals pay 70% lower entrance fees to Namibia’s premier parks

than they would pay to visit Kruger Park. According to the MET’s Report on the Namibia Tourist Exit Survey for 2012-2013, 22% of tourists visit Etosha. If as a rough approximation we assume 22% of park entrance fees are derived from Etosha, doubling entrance fees at Etosha (which would still make them lower than Kruger for all visitors) would amount to approximately N\$ 11 million in additional revenue were tourist numbers to remain constant.

Table 10: Park Fee Structures

Visitor Category	Etosha, Fish River Canyon, Ai-Ais, Skeleton Coast, Sesriem, Sossusvlei, Waterberg	Other National Parks	Kruger Park (South Africa) – Adult prices
Citizens	N\$30	N\$10	R66
SADC Resident	N\$60	N\$30	R132
Foreign Nationals	N\$80	N\$40	R264

In setting tourism charges, the MET should formulate objectives for fee collection with respect to particular parks, for instance (Lindberg, 2001):

- Cost recovery – what costs need to be recovered (i.e. costs associated with creating, operating or maintaining tourism infrastructure in the park), and over what time period does the MET seek to recover these costs? Does the MET intend to recover “profit” to finance conservation activities?
- Is it important to generate local business opportunities and maximise opportunities for learning and appreciation of the natural resources in the park? Maximising visitor numbers may involve lower or no fees.
- Is it important to control congestion and environmental damage from tourism? Increasing visitor fees can be used to reduce numbers.

To achieve the objectives, fees must also be informed by an understanding of the market and must be implemented in conjunction with a marketing strategy. For this to happen, the MET will need to undertake some research, which could include:

- Engaging with stakeholders such as tourism operators and monitoring levels of demand for different products and locations.
- Conducting surveys of visitors or potential visitors in the target market to project the effects of different pricing levels on demand.

Furthermore, the effects of price changes for particular parks needs to be monitored in the context of the entire portfolio of national parks, to determine the extent to which demand for higher priced assets is redirected towards lower priced assets.

Box 3: Case Study - SANParks Wild Card Loyalty Programme

Having overcome some initial implementation issues by replacing the contracted service provider, the South African National Parks Board's Wild Card programme has proven to be an effective alternative instrument for collecting direct biodiversity fees from both domestic and international tourists. It functions in parallel to collection of entrance fees at park gates. Tourists have the option of paying an annual fee to receive a micro-chipped card that provides them with free access to parks and nature reserves (excluding costs of accommodation and services). Wild Card members also have access to special offers and discounts as part of the Loyalty Programme.

Both national and provincial Wild Card packages are available, providing access to different clusters of parks. Packages are differentiated in price according to the cluster, and the nationality of the tourist, and whether the wild card is for an individual, couple or family.

The 2016 price schedule for the domestic and international All Parks cluster, which includes more than 80 parks in South Africa and Swaziland, is provided below:

Type	Individual	Couple	Family (2 adults + 5 children)
Domestic (SA residents only)	R470	R770	R945
International	R1,920	R3,005	R3,590

In the 2014/15 financial year, SANParks income from the Wild Card increased from R61 million in 2013/14 to in excess of R72 million, with overall revenue from conservation fees (including both gate fees and wild cards) increasing by 16.5%, despite the number of guests only increasing by 6.6%. SANParks figures suggest that revenue generated from the Wild Card Loyalty Programme is greater than that which would have been generated only by collection of conservation fees at park gates.

The potential for instituting a loyalty programme along the lines of the SANParks Wild Card Programme is worth investigating. Apart from the convenience for visitors to national parks and the improvements in revenue described in the Wild Card case study (Box 3 above), it also partially addresses the issue that there is no system for on-site collection of gate fees at a number of the national parks, and reduces the risks of leakage associated with weak controls at collection points.

Hunting licences and permits

Namibia issues licenses for trophy hunting and (marine) recreational angling. There is currently no differentiation between the cost of these permits for national residents and international tourists. As with park entrance fees, the potential for price differentiation between residents and international tourists needs to be investigated, along with the extent to which pricing strategies are aligned with the willingness to pay of permit users.

Although hunting licenses represent a relatively small proportion of direct biodiversity fees collected by the MET, income from trophy hunting is extremely important to the CBNRM movement, as discussed under the section on Payment for Ecosystem services. Currently there is the threat of a ban on the import of hunting trophies by the European Union, which could have very negative consequences for the industry.

In terms of fisheries, Namibia is unusual in not having an artisanal fishing industry, and the commercial levies that are applied to the fisheries sector are more extensively discussed in Section 5: Market regulation and environmental fiscal reform.

Concessions

These typically involve a negotiated contract between a company and a national government or local authority that gives the company the right to operate a specific business within the authority's jurisdiction, subject to certain conditions. A concession agreement may also refer to an agreement between the owner of a facility and the concession owner or concessionaire that grants the latter exclusive rights to operate a specified business in the facility under specified conditions. Regardless of the type of concession, the concessionaire usually has to pay the party that grants it the concession ongoing fees that may either be a fixed amount or a percentage of revenues.

A concession may include the right to use some existing infrastructure required to carry out a business (such as a water supply system); in some cases, such as mining, it may involve the transfer of exclusive or non-exclusive easements.

- **Hunting concessions:** Must ensure that the proposed level of hunting would not interfere with wildlife viewing tourism or biodiversity conservation goals. Hunting concessions on state-owned land can be issued by the MET to commercial hunting operations, and 9 such concessions were auctioned in 2009. More commonly though, hunting concessions are managed by conservancies - in 2014 there were 48 hunting concessions operating in conservancies. Conservancies receive compensation for hunting contracts with commercial hunting operators, trophy fees, meat, and employment of local members, training of these members. Strict quotas are set by the MET to ensure that all hunting is sustainable. In 2014/15 the conservancy movement generated N\$24,106,436 from hunting, representing 27.6% of total income generated.
- **Tourism concessions:** A state-owned enterprise, Namibia Wildlife Resorts (NWR), has been established with the mandate to run tourism facilities within Namibia's protected areas and operates 21 tourism concessions in Namibia's national parks. As well as creating employment and local economic development opportunities, tourism facilities operated by NWR pay park royalties and rentals to the MET, which should amount to between 10-15% of turnover – in 2014/15 this amounted to N\$ 646,745 in total. Development for the generation of income should not compromise the conservation objectives of the parks. Factors that need to be taken into consideration include roads, water supply and electricity, and potential levels of congestion on the road networks.
- **Mining concessions:** Mining is significant contributor to Namibian GDP, but also has serious environmental consequences. Although nominally the assent of the Directorate of Parks and Wildlife under the MET is required for the granting of mining licenses in protected areas, in practice the Minister of Mines and Energy determines whether such licences are approved or not. While there is a general requirement for an environmental impact assessment to be undertaken before the granting of mining licences, there is no specific requirement for any compensation to national parks or conservancies (Carpenter, 2005). The Sustainable Financing Plan for Namibia's Protected Areas nevertheless proposes that mining in protected areas be regarded as a form of concession, and user fees/royalties should be due to the national parks concerned. This needs to be properly and strictly monitored in terms of the type of mining activity and possible environmental impact of the concessions (Wyman M et al, 1999). Given that approximately 42% of Namibia's land area is protected for biodiversity, it is unlikely to be possible to prevent all exploration and mining in these areas (Schneider). The following protected areas currently are subject to mining concessions:
 - **Diamonds:** Skeleton Coast Park, Sperrgebiet Park, Namibian Islands Marine Protected Area

- Uranium: Dorob National Park, Namib-Naukluft Park
- Zinc: Sperrgebiet Park
- Salt: Dorob Park
- Dimension Stone: Dorob Park, Namib Naukluft Park
- Gypsum: Namib Naukluft Park
- Copper: Namib Naukluft Park
- Phosphate: Namibian Islands Marine Protected Area
- Semi-precious stones: Brandberg Monument and Spitzkuppe Heritage Area

Private sector tourism concessions can contribute significantly to the financial sustainability of protected areas and provide an effective means of leveraging private sector investment in tourism infrastructure. At the same time, it is important to ensure proper management of the concessions to avoid the degradation of the natural resources on which tourism depends. Best practice guidelines need to be applied in terms of the legal and policy framework, the identification and pricing of concession opportunities, and contract management and oversight:

- Concessionaire contracts involving infrastructure development should include measures to minimise environmental impacts based on a thorough risk analysis. For instance, they should require the implementation and monitoring of water, waste management and sustainable energy plans.
- Community empowerment and social responsibilities need to be considered in the awarding of concessions on the basis of an assessment of community risks and benefits that includes criteria such as capacity building, employment, revenue sharing and local business involvement.
- The financial capacity and demonstrated ability of concessionaries to generate profits should be central considerations in the awarding of concessionaire contracts. Protected area management authorities need to have the capacity and will to enforce environmental, legal and financial frameworks that clearly define concessionaire's responsibilities and include a range of compliance mechanisms ranging from fines to termination of contract.

There are also tourism concessions in national parks that have been issued to conservancies, which in turn sign operator contracts with private sector partners, or that have been entered into as public-private partnerships with private operators. Outside the national parks, conservancies have issued concessions to private companies to set up and operate tourism facilities, as well as camps that are run directly by the conservancies themselves. Revenue generated from joint-venture tourism is a critical source of income for many conservancies, amounting to N\$ 39,586,078 in 2014/15, representing 45.3% of total income generated by conservancies. Community based tourism was responsible for 4% of total income generated during the same period.

A key issue in relation to Namibia's use of concessions to develop tourism infrastructure is the extent to which appropriate opportunities for private sector concessions are constrained by the involvement of the state-owned NWR in the running of tourism facilities within Namibia's national parks. Linked to this is the question of whether the requisite capacity exists within the parks system and conservancies to manage the expansion of private sector concession opportunities in a manner that will not only generate more tourism revenue to support the biodiversity conservation functions and protected areas management authorities, but that also delivers improved socio-economic benefits to stakeholder communities and is accomplished in an environmentally responsible manner.

4.2.2 Summary Evaluation of Direct Biodiversity Fees

Governance Theme

Institutional arrangements for the management of direct biodiversity fees are currently not **well-aligned** with biodiversity conservation priorities, with the exception of those fees which are collected through the CBNRM movement, for the following reasons:

- A large proportion of direct biodiversity fees associated with the National Parks are not directly reinvested in the National Parks themselves or biodiversity conservation in general, but instead are returned to the national fiscus. This reduces incentives for efficient management of these revenue sources and creates a **lack of transparency** around the **financial sustainability** of protected areas due to the lack of a relationship between revenue generated by the protected areas and costs incurred in managing them.
- Similarly, there is an urgent need to establish mechanisms for mining concessions in protected areas that enable a direct financial contribution to biodiversity conservation in the relevant protected areas.
- Finally, the virtual monopoly of the state-owned NWR over tourism concessions in the National Parks and failure to create competitive incentives in this regard is likely to lead to underperformance of these concessions.

Social Theme

The extent to which direct biodiversity fees contribute to **behaviour change** that promotes biodiversity is limited by the lack of transparency with which these are currently implemented in Namibia, which reduces incentives for efficient management of these resource streams. It appears the management of direct biodiversity fees by conservancies is far more transparent, and leads to more positive **social impacts** than is the case for national parks.

Environment Theme

Currently park entrance fees are the primary source of revenue generated by National Parks and therefore help to balance the MET's budget allocation for this **land use**. However, the activities for which direct biodiversity fees are charged – whether they be tourism, hunting, or mining – need to be carefully managed in terms of their impacts on **habitat and species**. Available evidence on levels of wildlife in the conservancies and national parks suggest that the MET is largely succeeding in this.

Economic Theme

The larger contribution of joint ventures with the private sector to income generation by conservancies in both absolute and relative terms as compared to the contribution of tourism concessions to the revenue generated by the National Parks suggests that consideration should be given to providing greater opportunities for the private sector in the national parks. Comparing prices of park entry fees to neighbouring countries suggest there is considerable scope to increase the revenue generated from this income stream.

4.3 Biodiversity offsets

Biodiversity offsets are intended to address the residual environmental impacts of development on biodiversity that cannot be avoided or effectively mitigated, with the intention of ensuring that the net impact of the project on the environment is to contribute to biodiversity, or at least not result in a net loss (DEA, 2015). As such they are intended to give effect to the 'Polluter Pays' Principle, and generally consist of the developer contributing to the rehabilitation, restoration or protection of an area with similar species and ecosystem functions to those impacted by development.

Text Box 4: Best Practice Standards and Guidelines for Biodiversity Offsets- BBOP

The Business and Biodiversity Offset Programme (BBOP), a collaboration of leading companies, financial institutions, government agencies and civil society organisations, have developed best practice standards and guidelines for biodiversity offsets (BBOP, 2012). The principles they promote include (in summary):

- *Adherence to the mitigation hierarchy* – offsets should only be contemplated for those adverse impacts that cannot be avoided or minimised through on-site measures.
- *Limits to what can be offset* – damage to irreplaceable or highly vulnerable species cannot be offset.
- *Offsets should be implemented with a landscape context* – taking into account the full range of biological, social and cultural values and should support an ecosystem approach.
- *Offsets should have a long term impact* – the impact of land use pressures in relation to future development pressures should be taken into account.
- *No net loss of biodiversity* - Offsets should provide measurable conservation outcomes that amount to no net loss (or a net gain) in biodiversity.
- *Stakeholder participation* – stakeholders affected by the development itself and the biodiversity offset should be involved in the design and implementation of the offset.

(BBOP, 2012)

Businesses may undertake voluntary offsets as a form of self-regulation in order to pre-empt possible government regulation, or as a consequence of their social and environmental policy and good practice commitments. While voluntary offset programmes have achieved positive conservation benefits, systematic private sector investment in offsets require a compliance-driven regulatory framework. Examples of international regulatory frameworks exist for carbon offsets that have potential biodiversity benefits. Linked to the UNFCCC, the REDD+ mechanism focuses on biological sequestration of carbon through conserving forests and preventing land-use changes that degrade the carbon sequestration potential of healthy, biodiverse ecosystems and has potential to provide international flows of finance in the context of a regulated market.

Although the principle of environmental offsets was pioneered in the United States as a habitat-specific measure around wetlands, it has more recently been taken up in regulatory frameworks for Environmental Impact Assessments (EIAs) by a number of countries, including Australia and the United Kingdom. There is a further category of countries that require financial compensation for biodiversity impacts, which is then reinvested in biodiversity and community development projects that includes Chile, Mexico, Argentina and China. While biodiversity offsets are not an explicit requirement in South Africa's EIA regulations, it is at the discretion of the environmental authority to stipulate them as a requirement for approval of an Environmental Management Plan arising out of

an EIA. As such, offsets in South Africa are implemented as a result of an enabling regulatory environment, rather than a regulatory requirement.

Text Box 5: Case Study - Shaw's Pass Biodiversity Offset, South Africa

Shaw's Pass is a Critical Biodiversity Area with an exceptionally high number of endemic plant species (including more than 35 plant species of conservation concern). An EIA was conducted for the realignment of the road in the area to improve its safety and economic efficiency.

The assessment revealed that the realignment would impact on at least 1 ha of unique and irreplaceable habitat, including populations of critically endangered plants. CapeNature objected to these impacts as they would be of a very high negative significance.

As an outcome of negotiations with the Department of Transport and Public Works, a biodiversity offset was agreed to, involving at least 30 ha of the remaining habitat being secured and managed for conservation. The offset agreement provided for an amount of R7.5 million to establish a Conservation Trust Fund to be administered by CapeNature and used for the management of the offset area and surrounding habitat in perpetuity. It is hoped to be a catalyst for further conservation initiatives in the area. This represents a precedent whereby the financial burden of land management, which is usually borne by the Conservation Management Authority (in this case CapeNature), is transferred to the developers.

The final Environmental Management Plan for the upgrade also included measures to avoid and mitigate the environmental impact of the construction of the new road as well as restoration of the old road to a natural state.

In some cases, regulations specific to biodiversity offsets are promulgated for particular industries. For instance, Madagascar is in the process of developing biodiversity offset regulations for the mining and logging industry on the basis of their experience of the positive outcomes from a biodiversity offset undertaken by Rio Tinto on a voluntary basis as a consequence of the company's environmental policy of "Net Positive Impact". The Rio Tinto offset was triggered by the unavoidable negative environmental impacts of its Ilmenite mine involving three sites in south-eastern Madagascar which contained threatened littoral forest habitat. The offset was accomplished on the basis of quantified losses and gains using transparent accounting of each affected biodiversity feature and resulted in the creation of 5 new legally protected areas. In total 1900 ha of littoral forest were protected in a "like for like" offset involving protection of a similar ecosystem (littoral) to that impacted, and a further 10,000 ha of rainforest were protected to provide a net positive impact on biodiversity. Although not considered part of the offset itself, the project also included experimental restoration of impacted littoral forest.

Biodiversity offsets have encountered criticism from some quarters of the conservation movement, being characterised as a "license to pollute". To some extent this criticism must be understood in the context of developed countries in which biodiversity has already been very extensively impacted by development, and the scope for restoration or conservation of ecologically pristine areas may be limited (DEA, 2015). Were an old growth forest to be destroyed in the United Kingdom to make way for a housing estate, for instance, it is hard to see how the local impact on biodiversity could be credibly offset. At the same time, the institutional and capacity requirements for an effective offsets regime may be high, and in the absence of these there may be a risk of offsets corrupting environmental authorisations in planning processes.

Table 11: Descriptive Criteria for Biodiversity Offsets

	Criterion	Description
Generation	Type	Biodiversity Offsets are a direct market instrument , consisting of an investment in biodiversity conservation that is intended to ensure that no net loss or a net gain in biodiversity is accomplished as an outcome of economic activity (such as mining) that impacts biodiversity.
	Scale	Biodiversity offsets are implemented at a scale that is commensurate with the environment damage incurred by the activity.
	Timeframe	The need for biodiversity offsets should be identified in an EIA before an activity is undertaken, and should in principle ensure the protection of biodiversity in perpetuity.
	Sector	Biodiversity offsets can be required as an outcome of an EIA as a prerequisite for an activity to be licensed, but responsibility for implementing the offset rests with the party wishing to undertake the activity that is to be offset, whether it be a government agency or private company.
	Payer	Financial responsibility for the design and implementation of the offset rests with the party undertaking the activity that requires offsetting (the polluter).
	Value	Biodiversity offsets are predicated on the existence value of biodiversity, although the use value of biodiversity may be taken into account in compensation requirements that may also arise from an EIA.
Delivery	Delivery Theme	Polluter Pays.
	Delivery Mechanism	In many cases, the long term costs of managing a biodiversity offset are accomplished with the interest from an endowment fund set up for that purpose.
	Performance-based	The implementation of the biodiversity offset should be monitored and reported on in terms of the environmental management plan of the activity that is being offset to ensure that the desired biodiversity conservation benefits are achieved and sustained over the long term.
Institutions	Level	Biodiversity offsets are implemented at a project level, but may be mandated by national policy and regulations.
	Institutions and mechanisms	Typically, offsets are required by the competent environmental authority (in the case of mandatory offsets) or officer (in the case of voluntary offsets). An independent agency or consultant may be involved in the design and/or monitoring of an offset, although the associated costs should be borne by the party undertaking the activity that is to be offset. This function is sometimes performed by the company or institution that undertakes the EIA for the project developer.

4.3.1 Biodiversity offset options for Namibia

Biodiversity offsets deserve consideration as an instrument for securing investment from mining (and other development) projects in biodiversity conservation given the political imperative for Namibia to exploit its natural assets in the cause of development, its extensive biodiversity assets, and the challenges in adequately financing their management.

Although there is no explicit regulatory framework for biodiversity offsets in Namibia, the regulatory framework that requires environmental impact assessments (EIAs) for significant development projects such as mines, provides a potential basis for requiring offsets as part of Environmental

Management Plans. South Africa provides a useful and nearby example of this approach, with guidelines for biodiversity offsets and wetland offsets at a relatively advanced stage and being used to inform environmental management plans required in EIAs. There are a number of examples of on the ground biodiversity offsets that provide useful insights into both potential pitfalls and benefits of this instrument.

The “Uranium Rush” Strategic Environmental Assessment (SEA) undertaken by the Southern African Institute for Environmental Assessment on behalf of the Namibian government includes the recommendation that biodiversity or heritage offsets be considered where the impacts of uranium mining cannot be avoided or losses restored, particularly where those losses involve tourism sites. Further, the SEA recommends that certain conservation areas be declared off limits for mining as a result of their irreplaceable biodiversity or heritage value, and that the identification of an extinction risk for any species in an environmental impact assessment for a proposed mining activity should lead to the mining license being withheld.

The SEA also suggests that uranium mines should fund long-term research into desert life, mine rehabilitation, and species rescue and relocation, although this should be regarded as a form of compensation rather than as an offset mechanism.

4.3.2 Summary Evaluation of Biodiversity Offsets

Governance Theme

Whilst there is little direct institutional experience of biodiversity offset requirements within the MET, the requirement for EIAs and environmental management plans as a condition for the granting of mining licenses is well established. The “Uranium Rush” Strategic Environmental Assessment provides useful guidance for **aligning** policy for biodiversity offsets. The success of biodiversity offsets depends on **transparency** in the accounting of biodiversity losses and biodiversity gains and is a technically demanding task requiring specialist skills. Local capacity exists in the South African Institute for Environmental Assessment, and additional specialist experience can be contracted in by the mining companies involved. Some capacity in oversight of the offset process will need to be created within the MET. Correctly implemented, biodiversity offsets are a **financially sustainable** mechanism for securing long term investment in biodiversity conservation from the private sector.

Social Theme

As part of a rigorous requirement for environmental management planning, biodiversity offsets contribute to **behaviour change** in the private sector, but have little impact on the general public. Intrinsically, biodiversity offsets narrowly target biodiversity outcomes rather than social outcomes, although their design should at least avoid negative social outcomes. However, some **job creation and tourism co-benefits** may be expected from biodiversity offsets that result in the establishment of new protected areas or contribute to biodiversity gains in conservancies. Negative social consequences of mining activity should be addressed using separate compensation mechanisms as part of environmental management plans. Some elements of the environmental movement are opposed to biodiversity offsets in principle, regarding them as a license to pollute.

Environment Theme

The intention of biodiversity offsets is to ensure **no net less or a net gain** in biodiversity, but there are some risks:

- The **efficacy** of biodiversity offsets involving solely restoration activities is impossible to determine in advance and should be considered unproven.
- It is difficult to accomplish biodiversity offsets in environments in which there is a high level of **endemism**, and in which wildlife is under-researched, which is true of large parts of the

desert regions of Namibia. At the same time, significant **gains in knowledge** of local biodiversity can be achieved in the process of designing offsets.

- Biodiversity offsets are not appropriate in situations where the activity that is being offset creates a risk of species extinction.

Economic Theme

Biodiversity offsets contribute to the transactional costs associated with undertaking a commercial venture such as mining, and so are potentially a deterrent to investment. However, in the case of the mining sector the costs of biodiversity offsets are typically small relative to the total capital investment required to set up a mining operation. Biodiversity offsets are not designed to generate ongoing revenue, but instead to cover the costs of securing biodiversity. Any revenue generation opportunities created by a biodiversity offset must not impact on the integrity of the biodiversity protected or restored by the offset. In as much as biodiversity offsets reserve land for biodiversity conservation, there may be opportunity costs associated with that land not being available for other purposes, such as agriculture.

4.4 Green products

A set of closely related indirect market instruments exist that seek to reduce negative environmental and social impacts associated with the production of particular products by ensuring that sustainable production practices are adhered to. These market instruments are “indirect” in the sense that consumers are not directly paying for ecosystem services or for the use of biodiversity, but instead supporting production practices that reduce the environmental footprint of certain products.

The development of national and global platforms for the environmentally and socially sustainable production of commodities such as agricultural products and timber is emerging as a key strategy for addressing both environmental concerns and issues of economic equity associated with imbalances in trade between developed and undeveloped countries. Such platforms coordinate stakeholders, such as smallholding farmers, commercial farmers and industry associations, national and multinational businesses, national governments and NGOs to establish environmentally sustainable production.

In some instances, government regulation can be used to enforce particular practices, but unless carefully applied this can potentially lead to affected national agricultural sectors becoming uncompetitive within global markets. Voluntary measures such as agricultural extension programmes can be undertaken in partnership with the private sector. Product labelling, where commodities are certified as green based on environmentally sustainable practices being implemented by producers, may allow a premium to be charged to consumers that supports better prices for producers and thereby incentivises agricultural practices that minimise impacts on biodiversity. However, an equally important outcome for producers may simply be improved market share through product differentiation, particularly for products targeting consumers in the developed world.

In the absence of globally enforced standards, eco-certification depends on the credibility of the labelling schemes and consumer awareness generating a market for goods that are charged at a premium to reflect the public benefits that are encapsulated in the commodity and products derived from it. It has been estimated that by 2020, certified agricultural products worldwide could generate between US\$10.4 and US\$30 billion per annum in finance for biodiversity (Parker et al, 2013). A limitation of eco-certification is that there tends to be a much larger market for goods that are not certified, and may have negative impacts on biodiversity. Furthermore, the process of achieving and maintaining eco-certification can be expensive and as a consequence may require levels of vertical

and/or horizontal cooperation that may be difficult to accomplish with small-holders in particular national and local contexts.

Text Box 6: Case Study - The Global Roundtable for Sustainable Beef

WWF is leading attempts to reduce the environmental impact of the beef industry in terms of loss of biodiversity, land use, GHG emissions, and water use and pollution while supporting sustainable livestock production by indigenous people traditionally reliant on livestock. It has worked with stakeholders across the beef production value chain to establish the Global Roundtable for Sustainable Beef to promote sustainable practices, with the objective that 10% of beef production should be certified as sustainable by 2020.

The Global Roundtable for Sustainable Beef does not at this point intend to create a global certification standard for beef production, as it recognises that the diversity of beef production systems requires local initiatives. However, it has released a set of core principles and criteria that it believes should inform local initiatives. The principles are:

1. The global beef value chain manages natural resources responsibly and enhances ecosystem health.
2. Global sustainable beef stakeholders protect and respect human rights, and recognize the critical roles that all participants within the beef value chain play in their community regarding culture, heritage, employment, land rights and health.
3. Global sustainable beef producers and processors respect and manage animals to ensure their health and welfare.
4. Global sustainable beef stakeholders ensure the safety and quality of beef products and utilize information-sharing systems that promote beef sustainability.
5. Global sustainable beef stakeholders encourage innovation, optimise production, reduce waste and add to economic viability.

(Global Roundtable for Sustainable Beef, 2015)

Case Study – Green Mohair Production in South Africa

South Africa produces approximately 53% of total global production of Mohair, a high quality natural fibre derived from the wool of Angora goats. Much of this production is centred in the Sarah Baartman district of the Eastern Cape Province. The district is strongly impacted by bush encroachment, which negatively affects grazing, water availability, and biodiversity.

Gucci approached the South African Mohair Grower's Association and indicated that it was willing to make volume commitments at a premium price for the purchase of "Green Mohair" i.e. Mohair produced in an environmentally sustainable manner. With support from partners, the SA Mohair Grower's Association has developed sustainable production guidelines that address climate change adaptation and mitigation, water conservation, biodiversity conservation, as well as social issues and animal well-being.

Sarah Baartman district has prioritised Green Mohair and is working with farmers to unlock a range of local economic development opportunities arising from greening the agricultural value chain. In particular, the biomass derived from bush-clearing as an adaptive response to climate-change induced bush encroachment will be combined with abattoir waste to produce biogas at a facility in a green agriculture industrial park in Somerset East. This biomass is also being used to produce biochar, which is sold as a soil fertiliser.

The primary economic incentive for Mohair farmers to participate in green certification is not the price premium, which is not particularly large, but access to a guaranteed market and the positive productivity benefits of applying environmental principles to farming.

(Interview with Eddie Russell, USAID South Africa Low Emissions Development Programme)

Examples of environmental labelling schemes include labels that:

- Specify that the consumption of goods is less detrimental to the environment than would otherwise be the case (e.g. environmentally friendly detergents and labelling of recyclable packaging).
- Specify particular production methods and standards that have environmental benefits.
- Certify adherence to independent environmental standards in the production, distribution and consumption of a product or service.

Environmental certification is provided by a range of international bodies, and may be a requirement of entry into certain export markets. Examples of certification schemes include Fair Trade Certification, Naturland, Global G.A.P., and a range of organic certification schemes for agricultural labels. International certification can be expensive and require significant capacity in terms of standards compliance, in some cases serving as a barrier to entry into markets. An alternative is to develop domestic labelling schemes, which are usually more affordable for producers.

Table 12: Descriptive Criteria for Green Products

	Criterion	Description
Generation	Type	Green products are an indirect market instrument , in which biodiversity conservation benefits are embedded in products through adherence to guidelines and standards for sustainable production.
	Scale	Certification typically takes place for particular producers, although they may be organized into collectives. Both international and local certification standards for green products can be used.
	Timeframe	Identifying and realizing opportunities for environmental certification of products involves research and stakeholder engagement. Greening value chains in agricultural production can take several years. Green products should be regarded as a medium to long-term strategy.
	Sector	In general, product greening involves the private sector and NGOs, but government can play a facilitating role.
	Payer	The economic feasibility of green products depends upon the existence of a consumer market for them.
	Value	Green products depend on consumer perceptions based on the existence (non-use) value of biodiversity.
Delivery	Delivery Theme	Sustainable Use and Biodiversity Conservation.
	Delivery Mechanism	In many cases, producers of green products rely on off-take agreements which include a price premium.
	Performance-based	Adherence to certification requirements is monitored.
Institutions	Level	Green certification applies to producers, but impacts on entire value chains. Certification standards can be local or international, depending on requirements for securing access to markets and premium prices.
	Institutions and mechanisms	A number of international certification standards exist. The transactional costs of compliance with these standards are often high, as some agency needs to be accredited to monitor compliance. Producers may organize into co-operatives to distribute these costs.

4.4.1 Green product options for Namibia

In a policy brief, Andee Davidson argues the case for the development of carbon neutral products and services in the Namibian tourism industry on the basis that carbon footprinting is likely to become increasingly important for nature based tourism (Davidson, 2009). This potentially includes product or organisational level carbon neutral certification, achieved through a range of possible interventions, including technology interventions in renewable energy and energy efficiency to reduce emissions. Where emissions cannot be avoided, offsetting them through conservation projects involving biological sequestration of carbon such as prevention of woodland degradation could be an option, although the transaction costs of certifying carbon credits according to widely recognised international standards are high.

Agricultural production in much of Sub-Saharan Africa, including Namibia, is threatened by climate change, water scarcity, competition and ecosystem degradation – with bush encroachment representing a particular problem in Namibia (Bovarnick, 2012). Furthermore, during interviews with expert stakeholders undertaken for this project, it was stated that there is growing tension over the management of land for biodiversity conservation as opposed to agricultural production. Some members of rural communities perceive agriculture and biodiversity as a trade-off, and feel that managing land to conserve biodiversity delivers fewer financial benefits for them than managing the land to optimise agricultural output would. In this context, the ability to promote environmentally sustainable agricultural practices that minimise impacts on biodiversity through securing improved access to markets and potential premium prices on the basis of green certification is attractive.

Namibia has already developed a number of local labels that could be seen as addressing environmental concerns in the production of agricultural products, particularly beef:

- **Cheetah-friendly** beef, developed by the Cheetah Conservation Fund to certify beef produced by farmers who adopt livestock-rearing practices that avoid killing cheetahs.
- **Nature's Reserve**, a premium brand for marketing Namibia's free range beef.

It should be noted that none of the domestic eco-labelling schemes amount to certification based on a comprehensive set of ecological standards for sustainable rangeland management by livestock farmers. While this reduces the costs of compliance, it also limits credibility and impact in the broader value chain. There may be value, particularly in relation to beef production, in seeking to use eco-labelling as a strategy for promoting sustainable agricultural practices in Namibia and at the same time positioning Namibian products favourably in international markets.

4.4.2 Evaluation of green products

Governance Theme

Implementing credible certification schemes for agricultural products is complex and can require coordination with **global certification bodies**, establishing **local capacity to audit compliance**, and organising and training local producers and value chains to achieve compliance. Especially in sectors where well-capacitated **industry associations** exist, it is not necessarily dependent on government policy and support, although this can facilitate the process. The potential for developing the labelling schemes for CBNRM products should be explored. Although certification requirements by their nature should be transparent in order to ensure credibility, the manner in which some certification schemes are implemented in terms of costs to producers and the flow of benefits to producers is often criticised for a lack of transparency.

Social Theme

In most cases, environmental certification schemes also address social issues – for instance, by requiring **fair labour practices**. In the case of Fair Trade certification, environmental issues are secondary to social issues. Well marketed green products increase **consumer awareness** of environmental issues and influence **consumer behaviour** through providing them with an opportunity to exercise their purchasing power to support sustainable production and conserve biodiversity

Environment Theme

Reducing GHG emissions from agriculture and improving its environmental footprint is a critical global challenge. Green certification and product labelling can contribute to establishing agriculture practices that achieve these outcomes, although industry regulations and standards often have a wider impact. Brazil, for instance, uses regulations to require all commercial farms to allocate a percentage of the total land to biodiversity conservation. Approaches to greening production are primarily focused on **mitigating** impacts on biodiversity rather than securing land use for biodiversity conservation. Labelling schemes often target agricultural practices that minimise **human-wildlife conflict**, in particular strategies for avoiding the destruction of predators, with cheetah-friendly beef being an example of a labelling scheme local to Namibia. Generally, though, the potential for environmental certification and greening of products to contribute to biodiversity conservation in Namibia has not been fully developed and scope exists for the MET to engage with organisations such as the WWF, NASCO and industry associations to increase the impact of these instruments.

Economic Theme

The economic case for green certification is often linked to particular high-end luxury products such as coffee and chocolate in which consumers are more likely to be willing to pay a price premium for green products. Organic free range beef and venison fit this profile. The value of beef exports in 2010 amounted to more than N\$ 842 million and it contributes significantly to the country's export earnings. However, the industry is vulnerable to international and regional price pressures, and green certification may assist in establishing access to lucrative niche markets. Similarly, seafood exports from the Namibian off-shore fishing industry are even more significant, with an export value of N\$ 10 billion in 2015/16. In both cases, there are pressing practical reasons for ensuring that the underlying marine and terrestrial biodiversity supporting these industries is sustainably managed.

5 Market regulation and environmental fiscal reform

This section describes a set of economic instruments that are driven by fiscal policy and public sector regulation of markets. The impacts of these instruments on the financing of biodiversity conservation are not necessarily direct, and in general these instruments should not only be viewed as revenue generating instruments, but also as mechanisms for shaping consumer behaviour and economic activity.

Since biodiversity is a public good, it is appropriate that national governments and international bodies such as the CBD, to which national governments are signatories, have a central role to play in biodiversity conservation through regulating markets and shaping fiscal policy.

Economic instruments available to governments to support biodiversity conservation can be considered in terms of the following categories, some of them dependent on international cooperation:

- Environmental Fiscal Reform consists of a set of fiscal tools and policies that can be used to promote biodiversity, such as: direct allocations to biodiversity from the national fiscus; environmental taxes, levies, and user charges; and fiscal incentives and subsidies for biodiversity conservation.
- As well as limiting damage to biodiversity, legislation and regulation can be used to generate revenue for biodiversity conservation and create or strengthen markets for services and products that support biodiversity conservation.
- There are also specific public sector financing instruments, such as debt-for-nature swaps and natural capital bonds, which are potentially available to governments.

National budgets are primarily funded by taxation raised against personal income and private sector profits. Environmental fiscal reform seeks to shift the burden of taxation from labour and towards environmentally damaging activities and energy use. The intended effect is to provide price signals to markets within the formal economy that incorporate environmental costs and the need to conserve energy (GIZ, 2014).

Internationally, the bulk of finance for biodiversity conservation is derived from direct allocations from national budgets to this function – and this is currently the case in Namibia. As such, biodiversity must compete with a range of social priorities for resources, many of which may seem more politically attractive in the short term.

One of the risks associated with the introduction of new economic instruments for biodiversity conservation is of them being coupled with reductions in the direct allocation to this function in the national budget – this was repeatedly raised as a concern by Namibian stakeholders involved in the management and implementation of biodiversity conservation during expert interviews undertaken during this project. This concern needs to inform the design of fiscal policy, delivery mechanisms and institutional arrangements for environmental taxes and levies. Unless these are in place, there is a risk of revenue generated from such taxes being redirected towards social priorities other than biodiversity.

It is worth noting that decisions on overall levels of taxation within an economy are informed by constraints in terms of the competitive positioning of the national economy in relation to international markets and the need to attract economic investment. As such, new environmental taxes should not usually be framed as a strategy for increasing overall levels of taxation, but rather in terms of adjusting the allocation of the existing tax burden.

5.1 Environmental levies

In theory, markets provide an efficient means of allocating scarce resources, although not necessarily the most equitable - competitively determined prices create incentives for all market participants to maximise the productive use of resources. However, in many cases markets fail to accurately value environmental goods and services which results in loss of biodiversity and reduced supply of ecosystem services due to a lack of incentives for their conservation and preservation. Therefore a strong rationale exists for governments to use instruments such as taxes and levies to create price signals that incentivise more efficient resource use and mitigate the environmental externalities caused by the economic activities to which taxes or levies are applied.

Although the definition of a “levy” varies somewhat under different fiscal regimes, in general it is useful to regard a levy as an additional charge on the use of a resource, or on a product or service. Levies are often regarded as being temporary (Taylor, 2013). The revenue derived from a levy is dedicated to a particular purpose, usually related to the resource, product or service that is being taxed and is often linked to specific funding instruments. For instance, Namibia’s Environmental Investment Fund is mandated to raise revenue through environmental levies.

In contrast to levies, taxes such as income tax and taxes on property or profits are not ring-fenced for particular purposes, but feed into the general fiscus which is allocated to particular purposes in the national budget. Taxes therefore provide governments with greater flexibility in the social allocation of revenue than do levies. However, revenues from levies raised against the use of a natural resource can be directed towards conservation of the resource, in addition to incentivising efficient use of the resources. Levies ensure that those benefiting from the economic exploitation of a resource pay for its conservation and management and may therefore be perceived as an equitable way of incorporating environmental costs into the market. However, there may be social resistance to levies on products or services on which poor people rely.

Environmental levies are also particularly relevant in terms of economic activities that involve the extraction of natural resources or in other ways damage the environment, such as terrestrial or offshore mining, and the fishing and timber industries. This is because:

- It may be possible to calibrate levies at a level that limits the risk of unsustainable extraction of the natural resource involved while maximising revenue generation opportunities. For instance, it has been suggested that the extent of competition for fishing quotas in Namibia implies that the fishing levy and quota fees are too low (Sahlen, undated). Quotas are a mechanism for limiting extraction of a natural resource by defining an absolute limit – usually determined annually – on the extent to which a resource can be exploited, and allocating portions of that amount to holders of fishing rights as quotas. In the case of Namibia’s fisheries, companies wishing to obtain fishing rights must submit an application describing their investment in the fishing value chain and the jobs created. The Minister of Fisheries and Marine Resource allocates quotas on the basis of determinations of environmentally sustainable species specific total catch limits, and fairness and equity in relation to the extent of onshore investment and jobs created by rights holders.
- Proceeds from a levy can be reinvested in monitoring, research and protection of the underlying natural resource to ensure that it is sustainably managed. If levies are set at appropriate levels, this ensures a direct relationship between the economic value of a resource, and the availability of finance to secure the protection of the resource that is not at risk of redirection for other purposes. Consequently, particularly where the relevant industry is consulted in the implementation of delivery mechanisms (such as trust funds) and institutional arrangements, levies are often supported by the private sector.

In implementing taxes and levies, international experience suggests that consultation with stakeholders is key to their success in terms of helping to evaluate the potential and actual economic impacts. A key factor in the design of these instruments is the degree to which supply and demand respond to price signals, coupled with the objectives of the proposed instrument.

In this regard, policy makers need to identify whether the objective of a levy is primarily to generate revenue, or whether it is primarily to promote behaviour change. For instance, the objective of a levy charged to tourists would be to generate revenue rather than to reduce tourism, and needs to be set at a level that will not deter tourists. By contrast, a levy on plastic bags may be primarily intended to reduce the use of plastic bags. Where a tax or levy is intended to substantially reduce demand for a product or curb an undesirable behaviour, its success in relation to the primary objectives usually negatively impacts on the revenue that will be generated.

Table 13: Descriptive Criteria for Levies and Taxes

	Criterion	Description
Generation	Type	Levies and taxes are fiscal instruments used to regulate markets. Revenue derived from levies is usually ring-fenced for a particular purpose. Taxes contribute to the national fiscus.
	Scale	Levies and taxes are implemented nationally, but local authorities are also able to implement certain levies and taxes.
	Timeframe	Levies can be implemented over a short time frame to raise revenue for a specific purpose, or over a longer period to finance the sustainable management of natural resource extraction. Environmental taxes are usually implemented on a medium to long term basis, but need regular review in terms of whether revenue and environmental objectives are being achieved.
	Sector	Levies and taxes are usually public sector instruments, with the exception of levies raised from members of a body corporate or similar collective entity.
	Payer	Levies and taxes can be targeted at the general public, or more narrowly targeted at particular industries that have biodiversity impacts.
	Value	Environmental levies and taxes on natural resource extraction are based on the use value of biodiversity. However levies can also be used as a mechanism for raising revenue to leverage the cultural or non-use value of biodiversity, for instance revenue from a biodiversity levy on international tourists can be directed to biodiversity conservation projects.
Delivery	Delivery Theme	Sustainable use and capacity building.
	Delivery Mechanism	Revenue from environmental taxes can be earmarked for biodiversity projects by the Minister of Finance. In the case of environmental levies, a particular institution or fund is identified as the recipient responsible for allocating funding to biodiversity conservation projects and initiatives.
	Performance-based	In the case of natural resource extraction, levies can be calibrated and monitored to manage pressure on underlying biodiversity assets.
Institutions	Level	Environmental taxes and levies are usually implemented as national policy.
	Institutions and mechanisms	The Game Products Trust Fund is the recipient of levies on terrestrial use of biodiversity, including levies on hunting and use of wildlife. The Marine Fisheries Fund, an account managed by the Ministry of Fisheries and Marine Resources, is used to finance research to determine sustainable levels of resource extraction for marine fisheries.

Box 7: Case Study: Ireland Plastic Bag Levy

Preparations for the plastic bag levy in Ireland were very thorough. In 1996, framework legislation was enacted in which the government was empowered to impose environmental levies on retailers and others. A consultancy report in 1999 recommended that an upstream levy (on producers and importers) of approximately €0.035 per bag be imposed. But the Minister for the Environment, Heritage and Local Government wanted a strong signal to be given directly to consumers. He insisted on a downstream charge on consumers. In March 2000, a proposal was accepted by the Irish cabinet and the government introduced a levy of € 0.15 per plastic bag charged to shoppers at the point of sale in retail outlets.

All revenue raised by the plastic bag levy is remitted to the Environment Fund which is used to support waste management, including: planning; projects; research and development; education and awareness – as well as community initiatives for the protection of the environment more broadly.

The main concern of retailers was that they would be blamed for ‘profiteering’. The solution was a strong publicity campaign by the Department, which succeeded in conveying the reasons why the levy was being introduced. Butchers were particularly opposed to a levy that would apply to all plastic bags, on the basis that meat purchases need to be wrapped separately for reasons of hygiene. For this reason, an exemption was given to plastic bags below a certain size when used for purposes of hygiene.

The Irish Business and Employers Confederation (IBEC), and leading retailers, notably grocery stores, were extensively consulted during the design and implementation of the scheme. Securing support from the Minister for Finance and the Revenue Commissioners was crucial to the successful implementation of the levy.

The effect of the levy on the use of plastic bags in retail outlets has been dramatic: a 90% reduction in the use of plastic bags and associated gains in the form of reduced littering and negative landscape effects. Costs of administration have been very low, amounting to about 3% of revenues generated, because it was possible to integrate reporting and collection into existing Value Added Tax reporting systems. Response from the public and the retail industry has been overwhelmingly positive. The Irish plastic bags levy has proved so popular with the Irish public that it would be politically damaging to remove it.

Case Study - Belize conservation levy

Similar to Namibia, Belize is a developing country with a rich variety of wildlife that underpins an economically significant tourism industry. In order to protect and conserve its biodiversity and cultural resources the government, with support from environmental NGO’s, established the Protected Areas Conservation Trust (PACT) which is financed through a conservation fee of US\$7.50 levied on all foreign tourists visiting the country. The PACT funds projects and capacity-building in: Protected Areas Management and Conservation; Protected Areas Promotion and Development; Environmental Education and Awareness; and Community Development around Protected Areas. See www.pactbelize.org for more information.

Box 8: Case Study: South Africa's Carbon Tax proposals

As part of the implementation of South Africa's National Climate Change Response Policy, approved by cabinet in October 2011, South Africa's National Treasury has committed to introducing an economy-wide tax on CO₂ emissions and circulated implementation proposals for public comment. The tax has been framed as being "revenue neutral", i.e. any new revenue generated by the tax would be offset by tax reductions elsewhere, so although particular companies might experience an increase in levels of taxation, the overall impact of the tax is not intended to increase levels of taxation across the economy as a whole.

While business and civil society stakeholders have in general responded favourably to the principle of pricing carbon, repeated and wide-spread concern has been raised about the absence of mechanisms that would ring-fence revenue from a carbon tax for reinvestment in renewable energy, energy efficiency and climate change initiatives.

The South African government, like many other governments, is in general reluctant to ring-fence tax revenue for particular purposes, for the following reasons:

- It constrains the ability of government to use cross-subsidisation as a strategy for pursuing particular social and economic objectives – in particular, it may have unintended consequences in terms of limiting the opportunities for pro-poor fiscal interventions.
- Linked to the above, ring-fencing tax revenues may result in an overly rigid fiscal framework that is unable to flexibly respond to market fluctuations with the consequence that tax revenue becomes unstable.

South Africa's national treasury has attempted to address stakeholder concerns by proposing "soft earmarking" in terms of a policy commitment to redirecting some or all of carbon tax revenue to climate change initiatives, however stakeholders in the private sector and civil society continue to propose more direct ring-fencing mechanisms, such as carbon tax revenue being used to finance a National Climate Change Fund which could be used to support climate change mitigation and adaptation projects by providing grants and concessional finance.

South Africa's Carbon Tax Proposals also provide for the creation of a domestic carbon offset market that can potentially be used by companies to reduce their carbon tax obligations. This market is envisaged to include biodiversity conservation projects involving the biological sequestration of carbon. The private sector has responded enthusiastically to this aspect of the carbon tax proposals, with their main concerns being related to the scope of the proposed offset market and the limitations on the extent of tax liabilities which can be offset in the current proposal.

5.1.1 Options for environmental taxes and levies in Namibia

In Namibia, over 93% of the national fiscus is raised through various forms of taxation. At the national level, a 2% tourism levy is raised on all tourism accommodation. According to a study by the World Tourism Council, approximately 80% of tourism to Namibia is recreational in nature, and the majority of this is nature-based tourism. It is therefore reasonable to characterise the tourism levy as substantially representing a charge to users for access to biodiversity resources, and appropriate that some of this revenue be directed towards biodiversity conservation.

A range of additional environmental taxes and levies are already in place, or are contemplated by the EIF, which may wholly or in part be used to raise revenue for biodiversity conservation, including.

- **Fishing quota levies** have been set that are used to generate revenue for the Marine Fisheries Fund to finance fisheries research. A Bycatch fee is intended to act as a disincentive to quota holders to prevent them targeting species for which they are not licensed. Despite these taxes on the fishing industry (including license fees and quota fees), historically the levels of taxation have led to high profits and consequent demands for expanded quotas (Sahlen, undated).

Environmental taxes being considered as potential sources of revenue for the EIF include:

- **Plastic bag levy** of N\$0.20 per bag, which is intended to reduce litter and waste to landfill. Evidence from other countries, including South Africa, suggests that this will lead to a drop in the use of plastic bags by consumers, and therefore revenue from this tax will decline and stabilise at a lower level.
- **CO₂ emissions tax** on motor vehicles, which serves as a market signal to promote more fuel-efficient, low emissions vehicles, thereby serving as a climate change mitigation measure.
- **Levy on non-returnable bottles and cans**, proposed at N\$1 per can, to promote reuse and recycling.
- **Levy on incandescent light bulbs**, proposed at N\$3 per light bulb to encourage a switch to energy efficient light bulbs, thereby reducing electricity demand and GHG emissions.

A further option for raising finance to directly fund biodiversity, with the EIF being a potential institutional mechanism through which to manage delivery to biodiversity projects, would be the imposition of a Biodiversity levy on international tourism, such as that implemented by Belize. Based on World Bank 2013 figures of 1,176,000 international arrivals in Namibia and an exchange rate of 15NAD:1USD, a levy of \$10 United States dollars would raise approximately 176,400,000 Namibian dollars.

5.1.2 Evaluation of options for levies and taxes

Governance

Namibia already has experience of implementing environmental levies and taxes, and institutions in place such as the Game Products Trust Fund, Marine Fisheries Fund and the Environmental Investment Fund that can be used to administer revenue for levies that has been ring-fenced for biodiversity conservation or revenue from taxes that has been earmarked for this purpose by the Ministry of Finance. The introduction of new environmental levies needs to be preceded **by public consultation and awareness campaigns**, and the mechanisms through which revenue from these levies is directed towards biodiversity need to be **transparent and accountable**. In the case of the EIF, for instance, **annual reports with audited financial statements** are publically accessible from their website – this is not the case with the Game Products Trust Fund.

Social

The environmental levies currently being implemented in Namibia are intended to change **consumer and producer behaviour** and, if successful, will lead to declines in revenue from these taxes over time. This is particularly true in the case of the levies on plastic bags, non-disposable bottles, and incandescent light bulbs where it is relatively easy for producers and consumers to change their behaviour. Levies on basic consumer goods are relatively indiscriminate instruments that disproportionately affect the poor, for whom the increased costs represent a greater proportion of disposal income. At the same time, poor consumers almost invariably have a smaller environmental footprint than wealthy consumers. There is therefore a risk that this will negatively affect public perceptions of the role of biodiversity in government policy that needs to be managed through effective awareness campaigns.

Environmental

Although indirectly the behaviour changes targeted by the proposed levies should benefit biodiversity through reduced GHG emissions, and there is a direct (but limited) benefit in terms of **reduced pollution** from plastic bags and bottles, they are likely to have limited direct impact on Namibian biodiversity conservation in terms of land use, habitat, and species except as a source of revenue for the EIF. Furthermore, while compact fluorescent light bulbs are a much more energy efficient alternative to incandescent light bulbs, they need to be safely disposed of as they can contain up to 5mg of mercury per light bulb. Mercury is a highly toxic metal that accumulates in the food chain. Producers and retailers should have systems in place to accept returned light bulbs at the end of their life span, and there needs to be public awareness of the disposal requirements.

Economic

The environmental levies currently in place or proposed function both as instruments for generating revenue for the EIF, and as instruments for promoting behaviour change. In as much as the instruments succeed in changing behaviour, the revenue they generate can be expected to decline over time. In that they encourage reuse and recycling of plastic bags and bottles, they can be expected to slightly reduce waste disposal costs associated with landfills and provide stimulus for growth and job creation in the recycling industry. However, it is possible that a biodiversity tax on international tourist arrivals could generate similar or greater revenue with less consequences for poor households than levies on consumer products, and would also be politically easier to ring-fence as finance for biodiversity conservation.

5.2 Fiscal incentives and subsidies

Environmental fiscal reform also includes the potential for using fiscal incentives in the form of reducing or eliminating taxes as a consequence of undertaking particular activities that promote biodiversity conservation, or refraining from activities that damage biodiversity. For instance, landowners in the United States who dedicate land to biodiversity conservation in what is known as a conservation easement are incentivised in the form of reductions on income tax, estate taxes, and reductions in state property taxes.

Fiscal incentives are particularly appropriate for encouraging biodiversity conservation in that they allow private individuals and companies to be compensated for land use management decisions and practices that support ecosystem services that provide public goods and services. As an example, it has been argued that despite the existence of legislation requiring land owners to eliminate certain alien invasive species on their lands in South Africa, biodiversity stewardship programmes that indirectly provide a tax incentive for these activities by eliminating property taxes on private land included in biodiversity stewardship agreements are actually proving more effective than the legislation in reducing alien plant infestations (National Treasury, 2009). It is often more

economically efficient to provide fiscal incentives for non-state actors to undertake biodiversity conservation activities than it is for the state to undertake these functions.

Government can also subsidise the provision of particular goods and services from the general fiscus or through trade tariffs and export subsidies. The costs of managing catchments and managing bulk water supply are often not fully recovered from user fees to end consumers, but funded from the general tax base. Subsidies can take a number of forms:

- **Direct subsidies** are given to specific individuals or categories of persons – for instance, in South Africa indigent households have a legislated right to a free basic allocation of water.
- **Indirect subsidies** include:
 - **Operational subsidies** accomplished through transfers to producers, operators or service providers to lower the cost of products or services to end consumers.
 - **Capital subsidies** involving public investment in the capital assets needed to produce or deliver products and services.
- **Cross subsidies** occur when losses in providing services to one area or population group are offset through gains made by charges to another area or population group. Cross subsidies can be used to create more uniform pricing or to ensure that wealthier consumers subsidise those who are unable to afford basic services.
- **Trade subsidies** consist of import and export subsidies. High import tariffs can be used to subsidise a local industry by protecting it from international competition – conversely, low or no import tariffs on a good or service encourage its import. Similarly, export subsidies are payments made to producers for exporting products or services, to promote export industries. Such subsidies might be in the form of direct payments, concessional loans, or tax relief.

Subsidies incentivise the production and consumption of the subsidised goods or service. For instance, the cheaper water or electricity is, the less resource conscious consumers are likely to be in their use of water or electricity. However, there may be compelling social and economic arguments for subsidies to basic services. For instance, Resolution 64/292 of the United Nations General Assembly formally recognises access to water and sanitation as a human right.

Both fiscal incentives and subsidies can have either positive or negative consequences for biodiversity, depending on how they are applied. Subsidies on water, for instance, are usually used to make it more affordable but can have the unintended consequence of encouraging wasteful use of a scarce resource, and lead to depletion of the environmental reserve for water. The environmental reserve (also known as the ecological reserve) refers to the water that is required to maintain functioning aquatic ecosystems such as rivers, wetlands, and estuaries. Failure to protect the environmental reserve due to over-consumption by humans leads to degradation of critical ecosystem services and loss of biodiversity.

Table 14: Descriptive criteria for fiscal incentives and subsidies

	Criterion	Description
Generation	Type	Fiscal incentives can be used to encourage behavior and economic activities that conserve biodiversity. Subsidies are used to make a product or service more affordable, and encourage its production and consumption. While incentives and subsidies can be used to promote biodiversity conservation, they can also have negative (usually unintended) consequences for biodiversity by encouraging wasteful use of natural resources or encouraging land use decisions that run counter to biodiversity conservation.
	Scale	Fiscal incentives and subsidies are implemented nationally, but local municipalities may also have some authority to implement subsidies for particular services.
	Timeframe	Imposition of incentives and subsidies need to be preceded by careful analysis of the consequences – both intended and unintended – and these should be carefully monitored. In many cases, incentives and subsidies are short term instruments that can be stopped once their objective has been achieved.
	Sector	Fiscal incentives and subsidies are public sector instruments.
	Payer	The state (or in some cases, local government) is responsible for payment of fiscal incentives and subsidies, although cross subsidization might be managed by a private company.
	Value	Where fiscal incentives and subsidies are designed to promote biodiversity conservation, they can target either use or non-use values. However, they can also have unintended consequences on biodiversity where the value of biodiversity is not properly considered in implementing these instruments.
Delivery	Delivery Theme	Conservation and Sustainable use.
	Delivery Mechanism	Tax concessions or subsidies for particular land uses, or land use practices can be used to incentivize biodiversity conservation. Particular institutions that promote biodiversity conservation can be directly subsidized by the state.
	Performance-based	Incentives and tariffs should be closely monitored to determine whether they are achieving the desired outcomes, and to determine the impact of possible unintended consequences.
Institutions	Level	National and local government programmes.
	Institutions and mechanisms	Fiscal incentives and subsidies are primarily determined as national policy, implemented through the tax code, tariff regimes and policy governing public services. Some subsidies are implemented through municipal tariffs. National Parks, some research institutions, and the CBNRM are subsidized by the state.

5.2.1 Options for fiscal incentives and subsidies in Namibia

Currently, the Namibian government subsidises National Parks and the CBNRM movement through transfers to these functions from the national fiscus and technical and administrative support. The exact extent of these subsidies is difficult to pin down, due to the fact that revenue derived from these sources is also received by the MET and transferred back to the national fiscus. The use of

fiscal incentives in the form of tax concessions within the Namibian economy is largely restricted to the manufacturing sector and Export Processing Zones, which may have some negative local consequences for biodiversity.

Namibia is one of the driest countries in the world, and has a stated policy of full recovery of water supply costs from end consumers with cross subsidisation to ensure access to the poor, with the result that it has amongst the highest water tariffs in Africa. It is state policy that charges to domestic water users should not subsidise industry consumers. The primary water users in Namibia are agriculture, mining and municipalities (domestic household use). Agriculture is the most water intensive activity in Namibia and yields a contribution to GDP of around 10 %, while using over 60 % of the nation's water. In 2001 the value-added per cubic metre of water in agriculture, and more specifically irrigation, was very low compared to the manufacturing and service sectors: N\$7.2/m³ compared to N\$272/m³ and N\$574/m³ respectively (MET,2001).

The principal threat to biodiversity conservation both globally and in Namibia is habitat destruction and loss of biodiversity due to land use changes associated with agriculture. In Namibia's context of water scarcity, subsidies for agricultural irrigation schemes incentivise agriculture at the expense of biodiversity in terms of water and land use. Similarly, drought relief to livestock farmers risks the unintended consequence of encouraging unsustainable levels of stock during wet periods, with long term consequences for habitat degradation that can be expected to be exacerbated by climate change. The MET should rather work with the Ministry for Water, Agriculture and Forestry to design incentive schemes for sustainable livestock farming.

Globally, government subsidies of fossil fuels in the electricity and petroleum products sectors have come under scrutiny as a result of the need for climate change mitigation. These subsidies reduce the incentives to explore energy efficiency and low carbon fuels as measures to reduce GHG emissions. While the impact of success or failure in efforts to reduce the emissions causing anthropogenic climate change are experienced globally rather than locally, as a water scarce country that is already subject to climate variability in the form of droughts, Namibia experiences particular local risks as a consequence of climate change. As a consequence, energy subsidies for fossil fuels should be regarded as a threat to biodiversity conservation, even if the impact is long term and indirect (WWF, 2014). Conversely, subsidies and incentives for low carbon energy can be regarded as indirectly supporting biodiversity conservation.

Namibia's largest source of GHG emissions is transport (MET, 2008). Since 1996 Namibia has been attempting to progressively deregulate fuel prices in order to reduce the burden of subsidies for petrol and diesel on the national fiscus. This has taken the form of a transparent formulae for the pricing of liquid fuels that more closely links those prices to the international market, while employing a degree of price smoothing accomplished through a slate account to shield the economy from fluctuations, as well as maintaining some subsidisation of the costs of fuel distribution in remote rural areas through the imposition of fuel levies. This last point is of particular importance in terms of the government's social objectives. These reforms have led to a gradual reduction in subsidisation of petrol and diesel in Namibia while avoiding social and economic disruption (IMF, 2013). The participation of the state-owned NAMCOR in the import and supply of petrol and diesel is responsible for most of the subsidisation that occurs, as losses experienced by NAMCOR have to be covered by transfers from the fiscus and therefore result in trade-offs with other fiscal priorities, including allocations to biodiversity conservation.

In 2011 almost 60% of Namibia's electricity was imported, primarily from South Africa where electricity is overwhelming generated by coal-fired power stations and therefore has a large carbon footprint (Heinrich Böll Stiftung, 2013). Despite the fact that Namibia has amongst the world's best solar resources, as well as significant wind and biomass potential for electricity generation (particularly from invasive aliens and bush encroachment), there are still relatively low levels of

investment in renewable energy for electricity generation. Furthermore, considering that the expansion of Namibia's national grid to many poor rural communities is unlikely to take place, there is significant potential for off-grid renewable solutions for electricity generation. Off-grid and mini-grid renewable energy solutions could potentially make use of biomass from bush clearing activities, thereby having a positive impact on biodiversity by reducing loss of grasslands to bush encroachment. Regional electricity shortages have resulted in price pressures, serving as an incentive to act on Namibia's stated policy objective of energy independence. Critical to increasing investment in renewables as a source for electricity is establishing a transparent regulatory framework for procurement that allows for feed-in tariffs that will attract finance. Namibia has begun this process, with assistance from USAID, GEF and the UNDP, but further progress is needed.

6 Non-market mechanisms

Voluntary financing instruments for financing biodiversity conservation often target the legacy value of biodiversity as represented by the cultural and spiritual ecosystem services it provides. These instruments are often closely linked to international institutions and are currently second only to national budget allocations in terms of their contribution to biodiversity conservation globally. In the main, the delivery mechanisms and institutional arrangements for these instruments are implemented at the level of programmes or projects, and involve grants managed by different categories of donors. A further delivery mechanism is Debt for Nature swaps, which allow contributing countries to cancel a portion of a (usually non-performing) debt obligation of a recipient country in exchange for the indebted country undertaking an investment in environmental projects in that country (Parker et al., 2012). Given Namibia's status as a middle income country with low levels of international debt, Debt for Nature swaps are of little relevance to this report.

Official Development Assistance (ODA) comprises of official financing by foreign aid agencies and multi-lateral institutions, typically administered with the promotion of the economic development and welfare of developing countries as the main objective, and which is concessional in character with a grant element of at least 25 percent. By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries ("bilateral ODA") and to multilateral institutions such as the Global Environmental Facility (GEF). ODA financing is delivered through disbursements by bilateral donors and multilateral institutions. Biodiversity conservation has become an important target for ODA.

In 2013, Germany contributed a total of Euro 552 million in bilateral and multilateral finance for biodiversity to projects across the globe. In 2010/11, total biodiversity-related aid commitments by members of the OECD's Development Assistance Committee (DAC) reached USD 6.3 billion, representing 5% of total bilateral official development assistance (ODA).

The ability of countries to access ODA for the financing of biodiversity projects and programmes is closely linked to the existence of stable and coherent national environmental policy – indeed, to this end a significant proportion of ODA is devoted to creating these conditions.

Whilst the eligibility requirements and funding priorities for bilateral and multilateral agencies vary, the following general principles and trends apply (DEA, 2015) and should inform the MET in collaborating with ODA partners:

- Government owned entities with an established independent legal identity, such as national or provincial parks and tourism agencies, are more likely to be eligible as recipients of donor funding than government departments, although endorsement from national and/or sub national government may strengthen applications.
- The existence of partnerships or alliances, particularly with civil society organisations such as NGOs and evidence of coordination to reduce duplication of effort is desirable.
- For many agencies, projects that involve community-based or co-management activities and that support the tenure and resource use rights of local communities are preferred.
- The existence of co-funding or ability to leverage additional finance is a requirement in many cases.
- As noted by the IUCN, the focus of ODA aid to protected areas, in terms of both goals and target beneficiaries, has tended to diversify beyond 'pure' biodiversity goals and increasingly addresses sustainable development and poverty reduction.
- Transboundary projects involving more than one national authority are attractive targets for international finance.
- The existence of a well-defined exit point for the ODA, after which the project or programme should be able to continue without additional ODA support.

Donor countries are most commonly compared by the amount of Official Development Assistance given and their quantity of aid as a percent of GDP. However, there is an increasing focus placed on the quality of aid, rather than simply the quantity. The Commitment to Development Index is one such measure that ranks the largest donors on a broad range of their "development friendly" policies.

6.1 Philanthropy

The contribution of philanthropy in the form of non-governmental global vertical funds, contributions from high net-worth individuals, and crowd-sourcing of small donations has increasingly tremendously in terms of its overall share of voluntary finance for development in general and biodiversity in particular.

Some of the key emerging trends in philanthropy include:

- While not strictly philanthropy, **impact investing** prioritizes social and environmental returns before financial returns. It offers the potential of unleashing a significant base of capital to fund sustainable market solutions. By investing in companies that actively contribute to society, impact investing is contrasted with socially responsible investing, which aims to avoid certain companies, sectors or regions.
- **Collaborative philanthropy** and the sharing of data, best practices, needs and skills has become increasingly important in the fragmented landscape of voluntary finance. Autonomous and independent entities such as private foundations are increasingly seeking to collaborate and share information with each other, multilateral ODA agencies and national government as a strategy for creating impact at scale and incubating innovative ideas.
- **Systems change approaches** that address the root causes of problems rather than simply mitigating symptoms have become increasingly influential, which is having a positive effect on the profile of ecosystem services programmes within the sector.
- In terms of strategies for raising philanthropic finance, social networking has both increased the amount of finance from small donations and **crowd-funding** platforms have also begun to change the way in which such funding is delivered, allowing for direct relationships between small donors and projects that are not necessarily mediated through traditional donors.
- Not only has **corporate social investment** continued to increase, with a growing share of this finance available to projects with environmental impact, but the role of **small businesses**, social and **environmental entrepreneurs** as well as **volunteerism** is receiving increasing focus within the philanthropic community.

This makes different approaches relevant in relation to the delivery and institutional arrangements for philanthropic financing of biodiversity conservation. There is increased scope for government to coordinate with large private foundations and to participate in joint programme drawing from a combination of ODA and private donors. On the other hand, at the level of projects there is increasing scope to appeal directly to individual small donors using Internet-based fund-raising strategies.

6.2 Options for Namibia

As has already been discussed in the overview of financing levels for biodiversity provided in the Background to this study, Namibia has benefited from relatively high levels Official Donor Assistance – indeed, the likelihood of such levels declining in future is a significant issue in terms of the overall level of finance available for biodiversity that needs to be planned for.

To leverage and access the best and most viable opportunities it is advised to establish an accessible and up-to-date database of ODA agencies that have programmes related to conservation and biodiversity, and develop technical capacity in identifying funding opportunities and developing applications and proposals for finance.

One area in which there is a possibility of future levels of ODA increasing that has potential for financing biodiversity-related projects is finance for climate change adaptation and mitigation. Climate finance is primarily generated through contributions from developed countries with obligations to provide climate finance to developing countries in terms of the UNFCCC. Several climate finance initiatives involving both climate change adaptation and mitigation have the potential to generate finance for biodiversity conservation. In this regard, the recent accreditation of the Environmental Investment Fund by the Global Climate Fund, and UNFCCC mechanism, presents an opportunity to identify climate change projects and programmes that promote biodiversity conservation for access to climate finance.

According to research undertaken as a joint initiative by the Heinrich Boll Stiftung and the Overseas Development Institute, the 2015 Climate Funds Update indicates that Namibia has received USD 4.3 million in adaptation finance. Adaptation Finance is primarily channelled through (in order of size): the Pilot Program for Climate Resilience; the Least Developed Countries Fund; Adaptation for Smallholder Agriculture Program; the Special Climate Change Fund; and the Adaptation Fund. Namibia's Desert Research Foundation is the accredited national implementing entity for the Adaptation Fund.

Reduction of Emissions from Deforestation and Degradation is a United Nations programme that seeks to create financial value from biologically sequestered carbon in forests as a climate change mitigation measure. REDD+ extends this to take into account the role of active conservation and sustainable management in enhancing forest carbon stocks. The fundamental premise of the REDD+ is that financial incentives must be created in developing countries to conserve forests, rather than to convert them to other land uses. As such, REDD+ seeks to create a market environment that supports the conservation of forests and woodlands, rather than simply dispense project-level finance.

In Namibia, woodlands are currently lost at a rate of 217,000 ha per year (Bond, 2010), although the opportunity costs associated with preventing the conversion of woodlands to agriculture or their destruction for charcoal are relatively low. GIZ have been working with the Southern African Development Community, including Namibia, to develop consistent Monitoring, Reporting and Verification (MRV) systems for REDD+ in the region that will be compliant with the International Panel on Climate Change (IPCC) requirements. This represents an opportunity to source climate finance for forest conservancies that should be pursued.

7 Conclusions and Recommendations

This section summarises some of the key recommendations arising this report, and draws some conclusions that arise from a synthesis of the key findings.

7.1 Implementation priorities for economic instruments

In terms of generating new revenue for economic instruments, the following instruments should be prioritised on the basis that they will deliver significant revenue for biodiversity conservation and/or promote relevant behaviour change; are likely to have positive socio-economic impacts; and are relatively easy to accomplish.

7.1.1 Biodiversity levy on international tourists

A Biodiversity levy on international tourist should be considered as a primary source of biodiversity conservation finance for the Environmental Investment Fund, and a dedicated account should be created under the EIF to receive income from such a levy that is ring-fenced for biodiversity conservation activities.

There are international precedents for levies of this type, and previous research conducted on willingness to pay amongst tourists to Namibia suggests it would be well received. Even a relatively low levy of \$US 10 would generate substantial revenue and would have little if any negative social consequences. The environmental levies currently in place and being considered are not ring-fenced for biodiversity conservation and the behaviours that are targeted are carbon emissions reductions and waste reduction that only indirectly relate to Namibia's biodiversity conservation priorities.

As a first step towards implementing the levy, the MET and EIF should commission a formal feasibility study that includes a survey of international tourists to Namibia to determine the factors affecting willingness to pay and obtain insight into an acceptable level for the levy. The study should also model scenarios for projected income from the tax taking into account existing projections for tourism, global economic scenarios, and the impact of different levels of levy on international and SADC tourism. The study should also propose institutional arrangements for the administration of a dedicated biodiversity conservation fund under the EIF, scope funding priorities, and identify a set of delivery options relating to each priority. The outcomes from this work can form the basis for engagement with stakeholders in the public and private sector on a final proposal to cabinet.

7.1.2 Increases to national park entry entrance fees

Available evidence, including comparisons to neighbouring countries, suggest that current national park entrance fees are too low for international and SADC tourists. This is the primary source of non-tax revenue for the MET, and there is significant scope to increase income.

An investment should be made in systems and analytical frameworks to support evidence-based policy for setting national park fees and establishing a loyalty card programme. Work has already been done for the Directorate of Environmental Affairs in this regard that can be leveraged, including the discussion paper by Turpie et al on "Namibia's protected areas: Their economic worth and the feasibility of their financing", however there is a need to systematically undertake annual exit surveys of visitors at national parks to provide ongoing data points to inform decision making. Setting entrance fees at a park level can be used to optimise income and manage environmental impact by impacting tourism levels across the different parks. Existing work done by Larson and Jarvis: "Towards a Pricing Policy for Namibia's Game Parks" provides a framework for a differentiated pricing model that could be further developed.

There is uncertainty about the costs and benefits of implementing a loyalty card programme in Namibia. One possible option is to include some or all of the national parks in South Africa's Wild Card programme (which already includes some parks in neighbouring countries). Additionally, the Ministry of Environmental Affairs could issue a Request for Proposals without binding itself to procurement to gather information from the market.

7.1.3 Diversify PES income to CBNRM

Termination of donor funding cycles for the CBNRM presents a challenge to conservancies to diversify sources of income from the ecosystem services that are protected and enhanced by sustainable management of natural resources, and there is pressure in the northern and central areas of the country to convert land currently dedicated to biodiversity conservation to agriculture. In not all cases will it be possible or desirable to resist such changes, but there may be scope to use indirect market instruments targeting agriculture to mitigate negative impacts on biodiversity.

In particular, it is suggested that the MET undertake further detailed research to investigate options and feasibility for "green" certification of agricultural products, particularly meat. The value in green certification is not necessarily in the ability to charge a premium price, but in access to markets and product differentiation and in the local economic development opportunities created by greening of the value chain.

Linked to the above in terms of promoting climate change adaptation in agriculture while at the same time conserving biodiversity, it is recommended that the MET establish a national programme on bush encroachment to reduce economic losses and environmental risks and damages. The programme would support labour intensive bush clearing activities in conservancies and on private lands and unlock opportunities for projects involving biomass to energy and biochar, thereby creating opportunities for income generation and skills training for conservancy members.

The following sources of finance and revenue should be considered to support the programme:

- The EIF has been recently accredited by the Green Climate Fund (GCF), a financial mechanism created under the UNFCCC. This will facilitate the flow of climate change adaptation finance to well-designed projects that meet the GCF's funding criteria.
- Fiscal incentives and regulatory requirements for bush clearing on private land should be investigated, such as tax incentives for private land owners to contract with nearby conservancies or other community-based projects established under the programme.
- An allocation from the national budget, justified on the basis of the public goods achieved by combating bush encroachment.
- Biomass to energy projects and biochar production (and other similar projects) established under the programme could create sustainable jobs and a source of revenue.

It is recommended that the MET engage with South Africa's Department of Environmental Affairs to ensure that lessons learned from the Working for Water programme are incorporated into the programme.

7.1.4 Biodiversity offsets from the mining industry

Mining concessions and activity have significantly negative consequences for biodiversity that cannot be entirely avoided even under the most rigorously designed and implemented environmental management. The MET should work with the Ministry of Mines and Energy to develop guidelines for biodiversity offsets for the mining industry. The Business and Biodiversity Offsets Programme should be approached to provide technical support in the development of the guidelines.

The implementation of the guidelines should be integrated into the process of Environmental Impact Assessments and Environmental Management Plans for the mining industry, and the MET should invest in the technical capacity needed to ensure there is adequate oversight of this in terms of environmental authorisations.

7.2 Institutional Arrangements and Policy Reform

The effective implementation of the measures identified above requires some consideration be given to new institutional arrangements and adjustment and reforms to policy.

7.2.1 Establish a central CBNRM Trust

It is proposed that the MET, together with the EIF, NACSO and other interested parties, and through engagement with the donor community, establish a central trust fund for the CBNRM movement to enhance the long term sustainability of CBNRM and reduce its long term dependence on ODA and allocations under the MET's budget vote.

The Trust should manage:

- An endowment fund, from which only interest on the capital can be used to fund projects and activities
- One or more sinking funds connected to specific long term projects or programmes that are depleted during the course of the project programme
- A revolving fund that is periodically replenished by the MET and donors to fund ongoing CBNRM support and capacity building.

7.2.2 Establish a dedicated fund under the EIF for biodiversity conservation

The requirements for this are articulated under 8.1.1 above in relation to the implementation of a biodiversity levy on international tourists. This could be accomplished through expanding the mandate of the Game Products Trust Fund and improving its capacity.

7.2.3 Policy reform in relation to the financing of national parks

Currently the incentive frameworks for the financial management of Namibia's national parks are poor, with little direct relationship between income and expenditure in government accounting. No portion of the revenue from park entrance fees is retained by the parks themselves, nor does any mechanism exist for this revenue to be retained by the MET and ring-fenced for reinvestment in the national parks. Capacity to effectively manage own revenue streams cannot be created overnight nor will it be appropriate for all national parks – instead a gradual system of transferring some responsibility to one or more of the better capacitated parks on a pilot basis, accompanied by training and careful monitoring and evaluation.

The extent to which private sector investment in tourism facilities in the national parks is crowded out by the involvement of the state-owned company, Namibia Wildlife Resorts, needs to be reviewed. It is possible that more commercially driven private sector involvement would provide greater revenue streams from tourism concessions, as appears to be the case in relation to joint tourism ventures involving conservancies and the private sector. Consideration should be given to opening all new tourism concessions in the national parks to the private sector, and privatising some of the existing concessions, which could also generate a once-off revenue stream in addition to ongoing concession fees.

8 Bibliography

- AEquilibrium Consulting GmbH. 2012. Options for Environmental Fiscal Reform in Namibia
- African Centre For Biosafety (ACB), 2009. *Critical overview of South Africa's bioprospecting laws*. Available from http://acbio.org.za/wp-content/uploads/2015/02/ACB_Bioprospecting_Laws.pdf
- Baldwin, R., Cave, M., Lodge, M., 2011. *Understanding Regulation: Theory, Strategy and Practice*. 2nd ed. Oxford: Oxford University Press
- Bond, I et al. 2010. *REDD+ in dryland forests: Issues and prospects for prop-poor REDD in the miombo woodlands of southern Africa*. International Institute for Environment and Development. United Kingdom.
- Bovarnick, A. and Bexell, A., 2012. *Managing the Root of the Problem*. Green Commodities Programme, United Nations Development Programme.
- Brown, C. R., 2001. Visitor use fees in protected area: synthesis of the North American, Costa Rican and Belizean experience. Report Series Number 2. [online] Available from: <http://www.nature.org/ecotourism/resources>;
- Business and Biodiversity Offsets Programme (BBOP). 2012. *Standard on Biodiversity Offsets*. BBOP, Washington, D.C. Available from <http://bbop.forest-trends.org/guidelines/Standard.pdf>
- Carpenter, S. 2005. Mining vs. the Environment: Does Namibia need another Uranium Mine? Legal Assistance Centre [online] Available from: <http://www.lac.org.na/projects/lead/Pdf/uranium.pdf>
- Convention on Biological Diversity (CBD), 2009. *Biodiversity Fiscal Incentives*.
- Deacon, T.R. & P. Murphy 1997. *The structure of an environmental transaction: the debt for nature swap*. Land Economics 73 (1), 1–24.
- De Klerk, J., 2004. *Bush Encroachment in Namibia*. Ministry of Environment and Tourism, Government of the Republic of Namibia
- Dickinson, A. 2009. *Eco-tourism and the informal carbon market: Is the climate right for change?* International Institute for Sustainable Development
- European Environment Agency, Environmental tax reform in Europe: opportunities for eco-innovation, 2006
- Department of Environmental Affairs, 2015. Sustainable Financing Models and Strategies for Management Authorities of State-owned Protected Areas. Government of the Republic of South Africa, Pretoria.
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), 2014: *Environmental Fiscal Reform: Case Studies*.
- Fearnhead, P. 2003. Tourism Concessions: Public-private partnerships for commercially sustainable conservation
- Greiner, R. & A. Lankester. 2007. Supporting on-farm biodiversity conservation through debt-for-conservation swaps: Concept and critique. Land Use Policy, 24 (2007). 458–471.
- Global Roundtable for Sustainable Beef, 2014. Principles & Criteria. Available from <http://grsbeef.org>

Gunningham, N., Grabosky, P. 1998. *Smart Regulation: Designing Environmental Policy*. USA: Oxford University Press

Heinrich Boll Stiftung. 2013. *Powering Africa through Feed-In Tariffs*. Heinrich Boll Stiftung in partnership with World Future Council and Friends of the Earth.

International Monetary Fund. 2013. Case studies on energy subsidy reform: lessons and implication.

Jindal, R. Kerr, J. 2007. *Transaction Costs*. USAID PES Brief 3.4 Available from <http://www.oired.vt.edu/sanremcrsp/wp-content/uploads/2013/11/PESbrief3.4.TransactionCosts.pdf>

Larson, D., Jarvis, L. Towards a Pricing Policy for Namibia's Game Parks. Department of Agricultural and Resource Economics at the University of California. Available from: https://arefiles.ucdavis.edu/uploads/filer_public/2014/03/20/larson-jarvis2.pdf

Latin, H. 1985. *Ideal versus Real Regulatory efficiency: implementation of uniform standards and "fine-tuning" regulatory reforms*. Stanford Law Review. 37. 1267-1332.

Lindberg, K., Halpenny, E. 2001. Protected Area Visitor Fees Country Review

MET, 2008. *Namibia's Greenhouse Gas Inventory for Year 2000*. Namibian Ministry of Environment and Tourism, Directorate of Environmental Affairs.

Ministry of Environment and Tourism. 2010. *Sustainable Financing Plan for Namibia's Protected Area System*. Government of the Republic of Namibia

Mmpopelwa G et al., 2006, *Tourists' perceptions and their willingness to pay for park fees: A case study of self-drive tourists and clients for mobile tour operators in Moremi Game Reserve, Botswana*. Harry Oppenheimer Okavango Research Centre, University of Botswana

National Business Institute: *Offset Framework Principle Summary*, 2013. www.nbi.org.za/Lists/Publications/Attachments

Ndhulukula, K., du Plessis, P. 2009 – *Green Labelling, Eco-certification and Fair Trade: Threats and Opportunities for Namibia*. International Institute for Sustainable Development

Nelleman, C. et al. 2009. *The environmental food crisis – The environment's role in averting food crises*. A UNEP rapid response assessment. United National Environment Programme, GRD-Arendal, www.grida.no

Nhuleipo, O; Thompson, C; Mutayauli, P; Shigwedha, V. 2012. *Scoping Study on Proposed Environmental Levies*. Ministry of Environment and Tourism, Namibia

Ogus, A. 2004. *Comparing Regulatory Systems: Institutions, processes and legal forms in industrialised countries*. In: Cook, P., Kirkpatrick, C. Minogue, M., Parker, D. (Eds.) UK: Edward Elgar Publishing Ltd.

OECD, 2011: *Environmental Taxation – A Guide for Policy Makers*. [online] <http://www.oecd.org/dataoecd/17/7/48164926.pdf>

Panayatou, T. 1995. *Economic instruments for environmental management and sustainable development*. UNEP Environment and Economics Unit. Environmental Economics Series Paper No. 16.

Parker, C., Cranford, M., Oakes, N., Leggett, M. ed., 2012. *The Little Biodiversity Finance Book*, Global Canopy Programme; Oxford.

- Pearce, D. 2004. *Environmental market creation: saviour or oversell?* Portuguese Economic Journal, 3, 115–144.
- Potier, M. 1991. *Debt-for-Nature Swaps*. Land Use Policy. July, 1991.
- Resor, J.P. 1997. Debt-for-nature swaps: a decade of experience and new directions for the future. *Unasylva*, 48:1, Issue 188.
- Sahlen, L. (undated). *Environmental Fiscal Reform in Namibia – a potential approach to reduce poverty*. Umea University, Sweden. Available from: http://www.usbe.umu.se/digitalAssets/7/7838_ues757.pdf
- Southgate, D., Wunder, S., 2007. *Paying for Watershed Services in Latin America: A Review of Current Initiatives*. Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program
- Sheikh, P. 2010. *Debt-for-Nature Initiatives and the Tropical Forest Conservation Act: Status and Implementation*. Congressional Research Service Report. March 30, 2010
- Sukhdev, P., Wittmer, H., and Miller, D., 2014. *The Economics of Ecosystems and Biodiversity (TEEB): Challenges and Responses*, in D. Helm and C. Hepburn (eds), *Nature in the Balance: The Economics of Biodiversity*. Oxford: Oxford University Press.
- Tisdell, C. and Wilson C, 2003. Attitudes to entry fees to national parks: Results and policy implications from a Queensland case study. School of Economics, University of Queensland
- Taylor, M. 2012. *Is it a levy, or is it a tax, or both?* Revenue Law Journal: Volume 22, Issue 1, Article 7 Available at: <http://epublications.bond.edu.au/rlj/vol22/iss1/7>
- Turpie, J.K., Marais, C. & Blignaut, J. 2008. *Evolution of a Payments for Ecosystem Services mechanism addressing both poverty and ecosystem service delivery in South Africa*. *Ecological Economics* 65:788-798.
- Turpie, J et al. 2005. *Namibia's protected areas: Their economic worth and the feasibility of their financing*. DEA Research Discussion Paper Number 73, September 2005. Ministry of Environment and Tourism. Windhoek
- Von Oertzen, D. 2009. Biochar in Namibia. VO Consulting. Available from <http://www.voconsulting.net>
- World Travel and Tourism Council. 2014. *Travel and Tourism Economic Impact 2014 – Namibia*. Harlequin Building, 65 Southwark Street, London, SE1 0HR, United Kingdom
- Wunder, S. 2007. *The Efficiency of Payments for Environmental Services in Tropical Conservation*, *Conservation Biology*, 21, pp. 48-58
- Wyman, M., Barborak, J., Inamdar J., and Stein, T. 2011. *Best Practices for Tourism Concessions in Protected Areas: A Review of the Field*. *Forests* 2011, 2, 913-928; ISSN 1999-4907