Opportunities for Environmental Funds in Compensation and Offset Schemes

5

RedLAC Capacity Building Project for Environmental Funds

Latin American and Caribbean
Network of Environmental Funds

Scaling up Conservation Finance

The Latin America and Caribbean Network of Environmental Funds – RedLAC – was created in 1999 and congregates currently 25 funds from 15 countries. Its mission is to set up an effective system of learning, strengthening, training, and cooperation through a Network of Environmental Funds (EFs) aimed at contributing to the conservation and sustainable use of natural resources in the region.

RedLAC, with the support of the Gordon & Betty Moore Foundation and the French Fund for the Global Environment (FFEM, for its name in French), implements a capacity building project with the objective of strengthening the capacity of EFs to develop innovative financial mechanisms for biodiversity conservation, reducing their dependence on donations, and also to support the establishment of new EFs, by systematizing and sharing proven best practices in funds day to day operation.

This project, coordinated by the Brazilian Biodiversity Fund – Funbio - on behalf of the RedLAC membership, has the goal of promoting the implementation of new revenue streams in the Funds' portfolios, creating financially sustainable sources of funding for these institutions to invest in conservation. Having knowledge management as its core, the project will systematize the existing information on different topics of interest for EFs and build new content based on the collective experience of the Funds' community.

This textbook was prepared to support the fifth workshop of the capacity building initiative, focusing on compensation and offset schemes as opportunities for Environmental Funds. More experienced funds have developed initiatives with the private sector and local communities as an effort to mitigate and compensate the impact generated by human intervention in natural ecosystems. This is the case of Funbio, who shared its experience and recent efforts in this book. Funbio organized this workshop in collaboration with the Suriname Conservation Foundation, in the city of Paramaribo, Suriname, on November 11 to 13, 2011.

Organization:

FUNDO BRASILEIRO PARA A BIODIVERSIDADE FUNBIO 15 anos

SURINAME CONSERVATION FOUNDATION

Funded by:

GORDON AND BETTY MOORE FOUNDATION

FFEM Fonds Français pour l'Environnement Mondial

Table of Contents

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Opportunities for Environmental Funds in Compensation and Offset Schemes. RedLAC capacity building project for environmental funds/ Authors: Kerry ten Kate, Amrei von Hase, Jessica Boucher, Jan Cassin, Ray Victurine – Rio de Janeiro: RedLAC, 2011.

Authors of the case:
Manoel Serrão and Luiza Muccillo, Funbio

87p.; il, 29 cm.

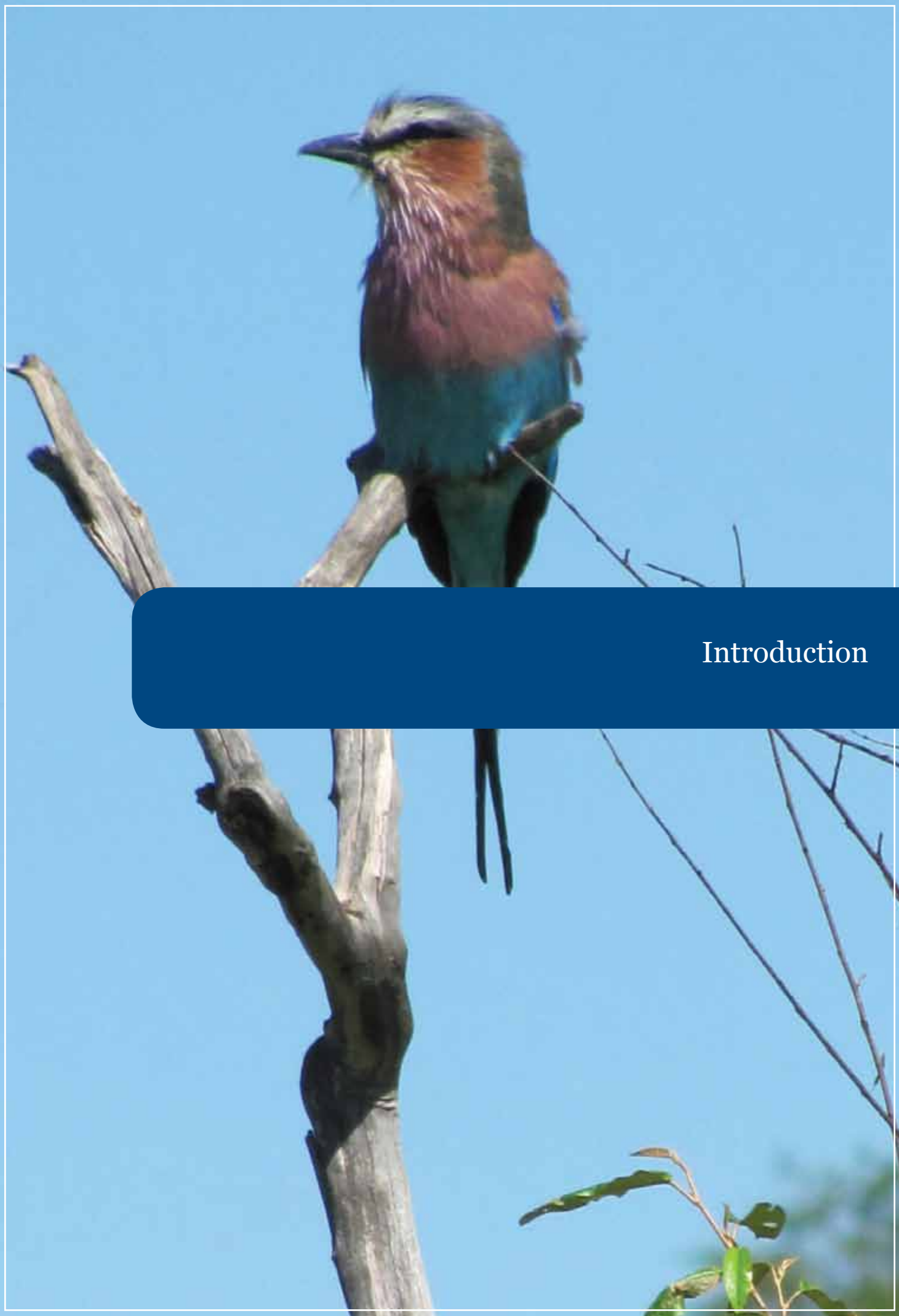
1. Environmental Funds. 2. Capacity Building.
3.Compensation. 4. Offset. 5. Kate, Kerry ten / Hase, Amrei von / Boucher, Jessica / Cassin, Jan / Victurine, Ray.

CDD 333.72

FOREST TRENDS

BBOP
Business and Biodiversity Offsets Programme

WILDLIFE CONSERVATION SOCIETY



Introduction

WELCOME AND INTRODUCTIONS

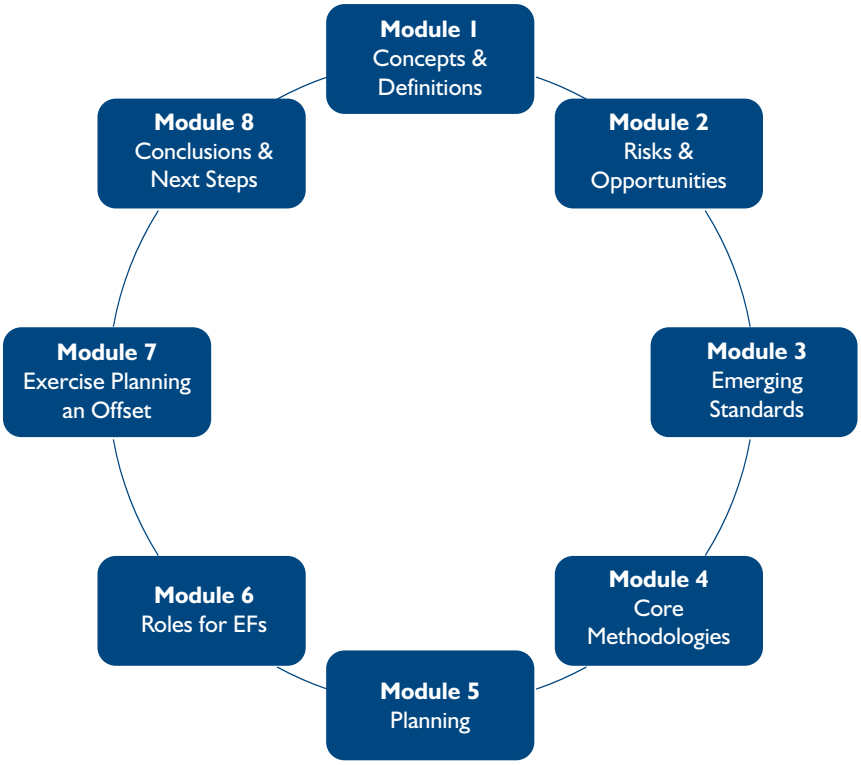
- What are your interests in offsets and compensation?
- What would you like to get out of this course?
- What will the course cover?

What do Environmental Funds need to know about biodiversity offsets and compensation?

Senior managers of Environmental Funds:	The staff, advisers, partners and consultants of Environmental Funds:
• Aware of the opportunities and risks presented by biodiversity offsets and compensation.	• Capable of handling technical assessments needed to gauge risk and opportunity.
• Aware of the variety of roles that EFs can play in the design and implementation of biodiversity offsets and compensation.	• Can assess business case through dialogue with stakeholders. Understand and have the skills needed to perform their role.
• Broad understanding of the key concepts involved, so capable of meeting the needs of stakeholders such as government, companies, NGOs, communities.	• Detailed understanding of the issues; availability of tools and methods and knowledge how to use them. Can identify and work with experts.
• Able to assess costs of involvement including financial provision for implementation, risk management.	• Tools available; human and financial resources available. Have applied tools to develop fully-costed management plans.
• Confident that staff, consultants, and partners have necessary skills.	• Selected base on appropriate qualifications and experience and/or trained.
• Able to communicate with key stakeholders.	• Have skills, tools, information to work with key stakeholders.

What will this course cover?

Topics:	Materials provided:
• Core concepts and definitions • Risks & opportunities for EFs • Emerging Standards which EFs would need to meet • Core methodologies including implementation options for EFs • Planning and EFs' role in it • Different roles and responsibilities for EFs • Exercises, case studies, including preparing a plan for your EF to engage in offsets/compensation	**Manual pointing to references** **References and background materials on all issues** **Tools** **Exercises & case studies**


Module 1
Concepts & Definitions
Module 2
Risks & Opportunities
Module 3
Emerging Standards
Module 4
Core Methodologies
Module 5
Planning
Module 6
Roles for EFs
Module 7
Exercise Planning an Offset
Module 8
Conclusions & Next Steps

DAY ONE

Module 1: Core concepts and definitions

Exercise: The mitigation hierarchy

Module 2: Risks & opportunities

Exercise: SWOT analysis for EFs

Module 3: Emerging Standards

Case studies: Approaches to compensation and offsets in participants' countries

DAY TWO

Module 4: Core Methodologies

Exercise: EF implementation options: single & aggregated offsets and compensation, conservation banking

Case studies: Calculating compensation and offsets in participants' countries

Module 4: Core Methodologies

Module 5: Planning

Exercise: Planning an EF for No Net Loss or compensation through landscape level planning in agricultural expansion

Module 6: Roles for EFs

Case studies

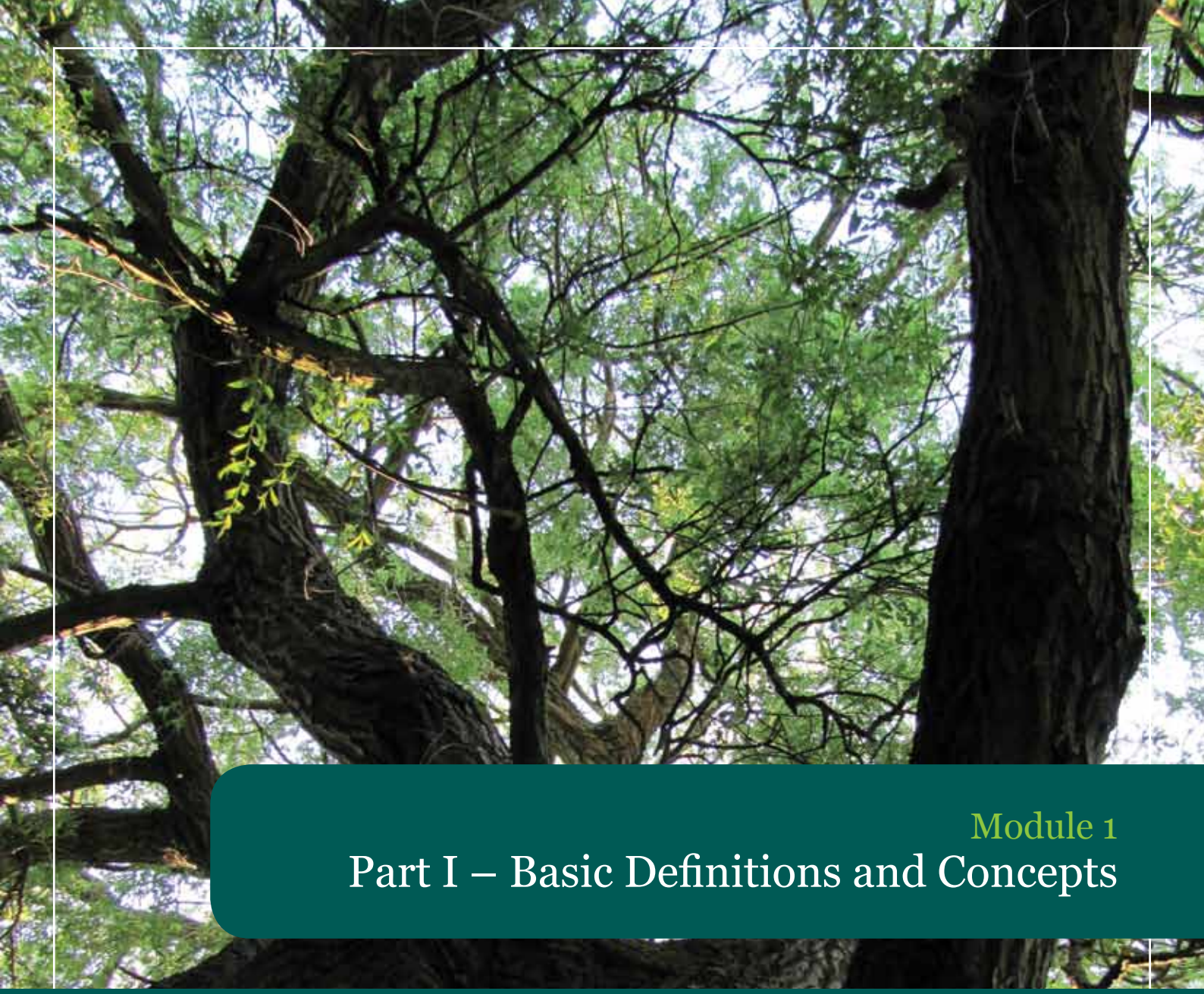
DAY THREE

Module 7: Exercising

Exercise: Planning an offset for a wind project

Module 8: Conclusions and Next Steps

Exercise: Develop a compensation and offset engagement plan for your EF



Module 1

Part I – Basic Definitions and Concepts

The Mitigation Hierarchy and Biodiversity Offsets

A number of variants can be found in the literature, but the mitigation hierarchy is generally defined as follows:

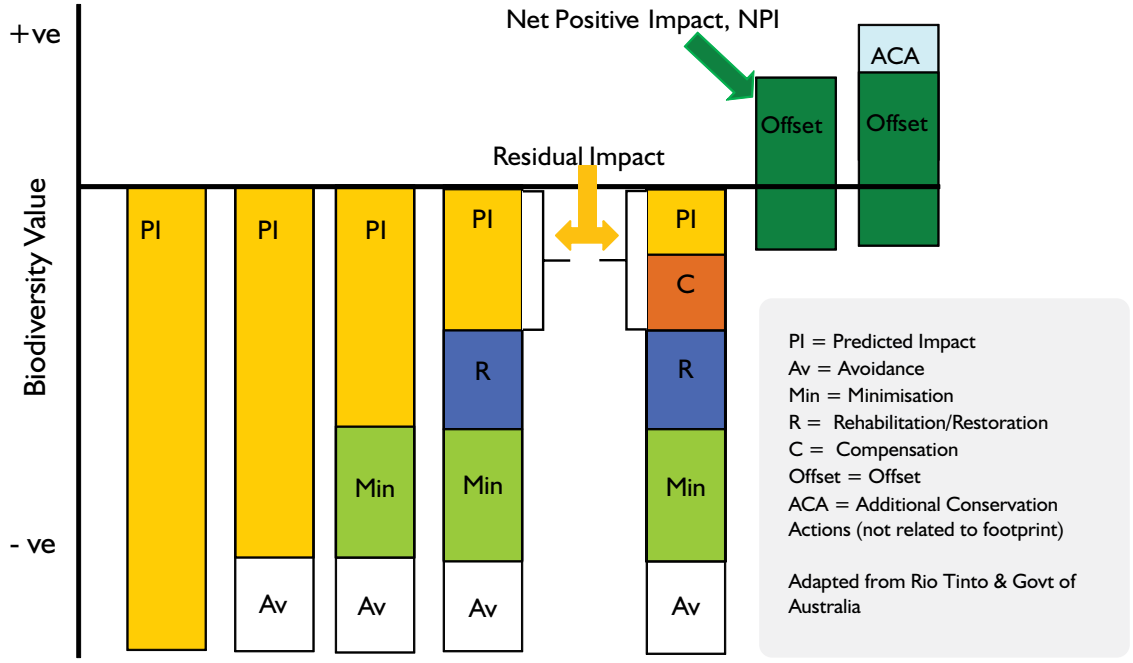
a. **Avoidance:** measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity. This results in a change to a 'business as usual' approach.

b. **Minimisation:** measures taken to reduce the duration, intensity and / or extent of impacts that cannot be completely avoided, as far as is practically feasible.

c. **Rehabilitation / restoration:** measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and / or minimised.

d. **Compensation or Offset:** measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and / or rehabilitated or restored, Measures to achieve no net loss or a net gain of biodiversity for at least as long as the project's impacts are biodiversity offsets. Offsets can take the form of positive management interventions such as restoration of degraded habitat, arrested degradation or averted risk, where there is imminent or projected loss of biodiversity. Measures that address residual impacts but are not quantified to achieve no net loss or not secured for the long term are compensation, otherwise known as compensatory mitigation.

See BBOP Principles; CBBIA; UNEP-FI/BBOP



Explanation of the Mitigation Hierarchy

To outline where offsets fit in, here is a brief review of the mitigation hierarchy, which is central to managing risk and to limiting development impacts in a systematic way.

The graph above schematically illustrates the process that is followed when the mitigation hierarchy is applied to a development project, a coastal diamond mine for example. Biodiversity value, and losses and gains in biodiversity, are shown on the left hand axis. The large yellow bar shows the predicted impacts that result in biodiversity loss.

The first step to limiting the impacts is avoidance. For example, in our mining project this would involve rerouting a pipeline around a wetland system, so that there simply are no impacts on this ecosystem.

If avoidance is not possible, the next best response is to reduce any impacts.

For example: the mine's tailings dam is covered so that when it dries this reduces the amount of saline dust that gets blown inland, and which kills salt-intolerant vegetation.

Restoration then involves measures that reverse the impacts on biodiversity and bring an area back to a pre-disturbance biodiversity state. Based on our current ecological knowledge, this can be difficult to achieve in many complex ecosystems.

Even after following these steps, however, a residual impact on biodiversity usually remains – which is shown in the graph by the orange arrow. This is where compensation and offsets, shown in dark green, become relevant. Offsets are intended to achieve either a zero net loss, or a gain in biodiversity following development impacts. Compensation generally has a less specific goal.

Definition of Biodiversity Offsets

This definition was developed and agreed by all the Advisory Group members of BBOP in 2009, when the Principles, Handbooks and other materials were published. It draws on definitions found in policy on biodiversity offsets in some thirty countries, as well as key elements of voluntary best practice. It stresses the mitigation hierarchy and highlights the different aspects of biodiversity.

Biodiversity offsets are **measurable conservation outcomes** resulting from actions designed to compensate for **significant residual adverse biodiversity impacts** arising from project development **after appropriate prevention and mitigation** measures have been taken.

The goal of biodiversity offsets is to achieve **no net loss** and **preferably a net gain** of biodiversity **on the ground** with respect to **species composition, habitat structure, ecosystem function** and **people's use and cultural values** associated with biodiversity.

Definition of Compensation

Compensation is a very flexible term that can mean a number of different things. Dictionary definitions often refer to something, typically money, awarded to an individual as recompense for loss, injury, or suffering. This has the connotation of damages or some kind of award to victims. Occasionally, compensation is defined more in terms of 'making good' specific damage, in which case it become closer to the definition of 'offset' above (except that it lacks the specific requirement for achieving 'no net loss').

While several countries have requirements for compensation, the term is often defined only in a general way. For instance, Article 6.4 of the European Habitats Directive provides that:

> *'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.'*

The term 'compensatory measures' is not defined in the Directive. According to the European Commission, experience would suggest that 'compensatory measures are, strictly speaking, independent of the project (including any associated mitigation measures). 'They are intended to offset the negative effects of the plan or project so that the overall ecological coherence of the Natura 2000 Network [a network of priority protected areas in Europe] is maintained.' (European Commision, 2007).

Sometimes, compensation is defined by reference to certain formulae established in regulations as the basis for calculating it. Requirements for compensation sometimes arise in the context of land-use change, and are quantified relative to the loss of particular natural resources. For instance.the General Law of Sustainable Forest Development in Mexico establishes that the Secretariat of Environment and Natural Resources (Semarnat) can 'define compensation mechanisms for environmental goods and services provided by forest ecosystems'. Semarnat can authorize land use change on forest land, provided there are technical studies which justify this change. In such a situation, the developer must make a deposit in advance with the Mexican Forest Fund for 'environmental compensation for reforestation or restoration activities' (see, CEJA). In cases such as this, common in several countries, compensation is often calculated as certain costs associated with reforestation or restoration, such as obtaining and planting seedlings. Typically, such costs address only a part of the overall losses of biodiversity arising from the land-use change: for instance, the costs of certain reforestation activities.

Drivers of Biodiversity Offsets and Compensation

A number of laws, standards and mechanisms require and/or enable the use of biodiversity offsets. For example: laws requiring offsets or compensation are in place in over countries, including US, EU, Brazil, Australia). (See the map below). In addition, laws enabling compensation and offsets (e.g. EIA, planning law) are prevalent in the large majority of countries, and there are emerging lender requirements and standards such as the IFC Performance Standard 6 and BBOP Principles and BBOP Draft Standard (see Module 3 for more on emerging standards).

See: Madsen et al, State of Biodiversity Markets; Crowe and ten Kate, 2010; IFC, 2011; BBOP Principles and draft Criteria and Indicators.

TRENDS:

- More **governments** introducing or exploring policy on biodiversity offsets;
- More **companies** undertaking offsets voluntarily for business reasons;
- More **banks** and investors requiring biodiversity offsets as a condition for access to credit or investment;
- More **NGOs** and civil society groups encouraging developers to undertake biodiversity offsets; and
- **BBOP** set up to develop, share and encourage the use of best practice.

Map of compensatory mitigation schemes worldwide, from Madsen et al, State of Biodiversity Markets. See report for details of schemes marked as dots on the map

As a result, there are many experiences of compensation from around the world.

Motivation and Business Case for Biodiversity Offsets and Compensation

There are numerous examples that demonstrate the financial materiality of impacts and dependence on biodiversity and ecosystem services.

The spill from BP's Makondo well and its financial impacts on the company have been well documented. UNEP-FI's CEO briefing lists:

- US$90bn loss in market cap. US$20bn DH Oil Spill Trust.
- 35% share price fall between start and end of spill
- Lower credit rating
- 50% higher insurance costs

There has also been an unquantified impact on license to operate.

See UNEP-FI CEO Briefing 2010

MOTIVATION:

- Legal requirements in 30-50 countries and Environmental Impact Assessment (EIA)/planning laws in many more;
- Investor requirements;
- The business case.

BUSINESS CASE:

- Access to land, sea and related natural resources (directly, or through supply chains);
- Legal and social (functional) license to operate;
- Access to capital and insurance;
- Access to markets for products (old & new);
- Access to human capital;
- A seat at policy development table.

Offsets: Critical Success Factors

A number of factors affect the success and feasibility of offsets, as shown here.

Accessible and detailed **information** on affected biodiversity;

Recently compiled spatial development or **land use plans**;

Clearly defined **biodiversity priorities**;

Human needs integrated into the natural landscape;

Fair outcomes and sustainability for **local biodiversity users**; and

Legal and financial guarantees for the permanence of the offset.

Current State of Worldwide Biodiversity Offsets

- 45 compensatory mitigation programmes (banks and offsets) and 27 in development.
- Numerous individual offset sites, over 1,100 banks.
- Global annual market size min. US$ 2.4-4.0 billion. Likely much more (80% of programs not transparent enough to estimate market size).
- Conservation impact: > 187,000 hectares annually.
- North America dominates: US$ 2.0-3.4 bn. > 15,000 ha annually. 0.5m ha cumulatively.
- US mitigation banking still increasing: 1,044 active and sold-out wetland, stream and conservation banks.
- Europe: Germany –banking. UK, France, Sweden –initial steps.
- Africa: South Africa state and national level under development. Namibia: integration into SEA.
- Latin & Central America: Brazil federal (Codigo Forestal and SNUC), Paraguay, Mexico, etc.
- Asia: Vietnam, Japan, Mongolia.
- Australia & NZ: Several states (NSW, Victoria, Northern Territories, Queensland, Western Australia). NZ underway.

Requirements for compensation, biodiversity offsets and markets for offsets and biodiversity credits exist in a number of countries. They're under development in several more.

See Madsen et al State of Biodiversity Markets 2010 And 2011 Update

How do Carbon and Biodiversity Offsets Differ?

Carbon offsets	Biodiversity offsets
• One globally agreed unit (tonnes of CO2e).	• Too 'biodiverse' for one, globally agreed unit.
• One global atmosphere: offsets can be implemented anywhere.	• Needs fairly local implementation.
• International legal regime	• No international legal regime
• Global markets (regulatory and voluntary)	• Some national markets (US, Australia, Europe). More countries exploring market based systems.
• History of challenges with 'additionality', 'leakage', 'permanence'.	• 'No net loss', 'additionality', 'leakage', 'permanence' addressed by BBOP Principles.
• Standards exist.	• Standards being developed.

To offer some context and scale, in 2010, the value traded in the European Union Emissions Trading Scheme (EU ETS) (for carbon) was US$106bn (out of US$128bn globally in voluntary and regulated carbon markets that year) (Source: pers.comm D.Kandy, Ecosystem Marketplace). By contrast, Madsen et al (above) suggest that global markets for conservation credits is of the order of US$3bn.

What is BBOP?

Aim: Working collaboratively, to develop best practice in biodiversity offset design and implementation based on agreed principles and on-the-ground experience.

BBOP is a collaboration between some 75 organisations: companies, government agencies, conservation organisations and financial institutions from around the world. Its aim is to develop shared views and experience of best practice on biodiversity offsets.

BBOP Principles for Biodiversity Offsets

The subject of each of the ten Principles developed and agreed by all the Advisory Group members of BBOP in 2009 can be seen on the right.

The BBOP Advisory Group members represent groups in society with diverse perspectives on environment and development from many different countries.

They worked together over three years to reach agreement on fundamental issues relating to biodiversity offsets, and to develop practical guidelines for offset design and implementation. Chief among this group's products is a set of basic principles which members of the Advisory Group unanimously support and which they hope other companies, governments and civil society will also adopt as a sound basis for ensuring high quality biodiversity offsets. The principles provide the compass and framework for all the other BBOP products. They represent a synthesis of best practice from several policy regimes and voluntary best practice from around the world.

1. No net loss
2. Additional conservation outcomes
3. Adherence to the mitigation hierarchy
4. Limits to what can be offset
5. Landscape Context
6. Stakeholder participation
7. Equity
8. Long-term outcomes
9. Transparency
10. Science and traditional knowledge

For BBOP Advisory Group members, see http://bbop.forest-trends.org/committee.php
See BBOP Principles on Biodiversity Offsets

Retrospective vs. Prospective

The offset or compensation design process (and the feasibility of achieving no net loss) will vary depending on whether it is taking place prospectively (before impacts take place) or retrospectively (after impacts take place).

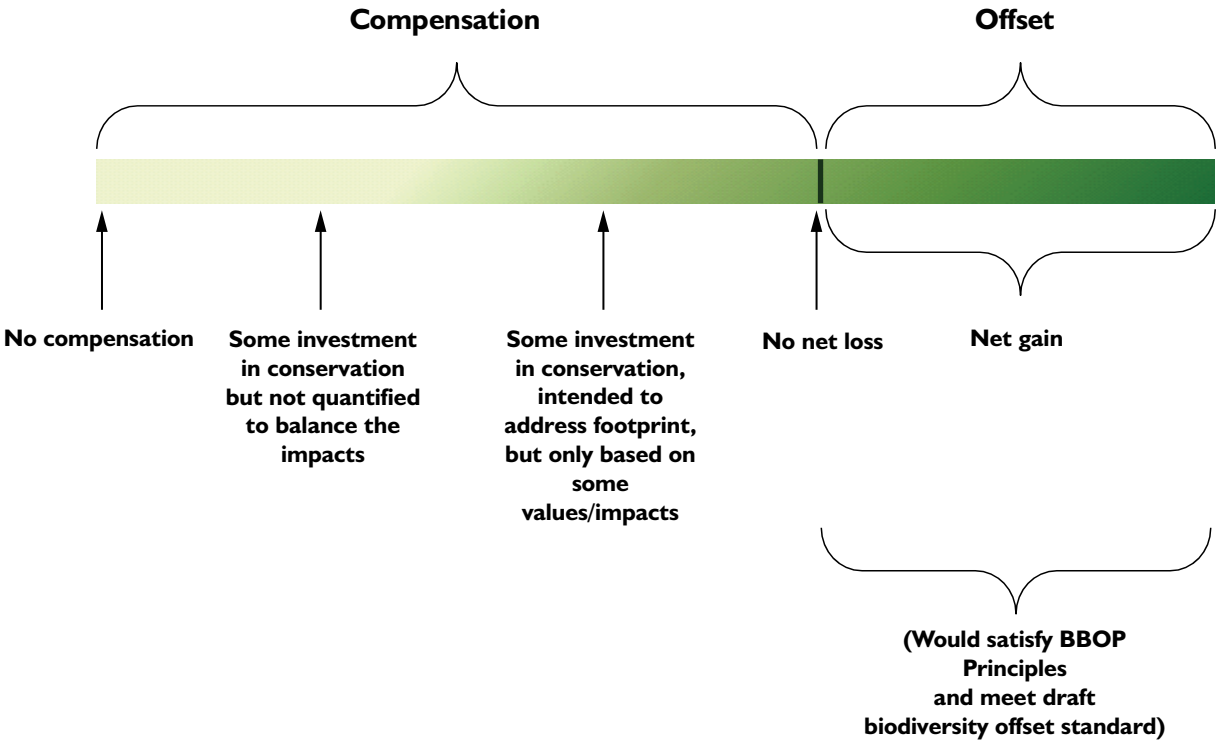
PROSPECTIVE:

Baseline studies are conducted before the project's impacts, enabling real measurement of losses. Best practice for biodiversity offset design.

RETROSPECTIVE:

The offset is designed after impacts/construction have started. A retrospective offset may be possible but this depends on the quality of available information about the biodiversity losses on-site, and/or data from proxy sites. If a 'no net loss' offset is not possible in these circumstances, compensation should still be an option.

Offset vs. Compensation



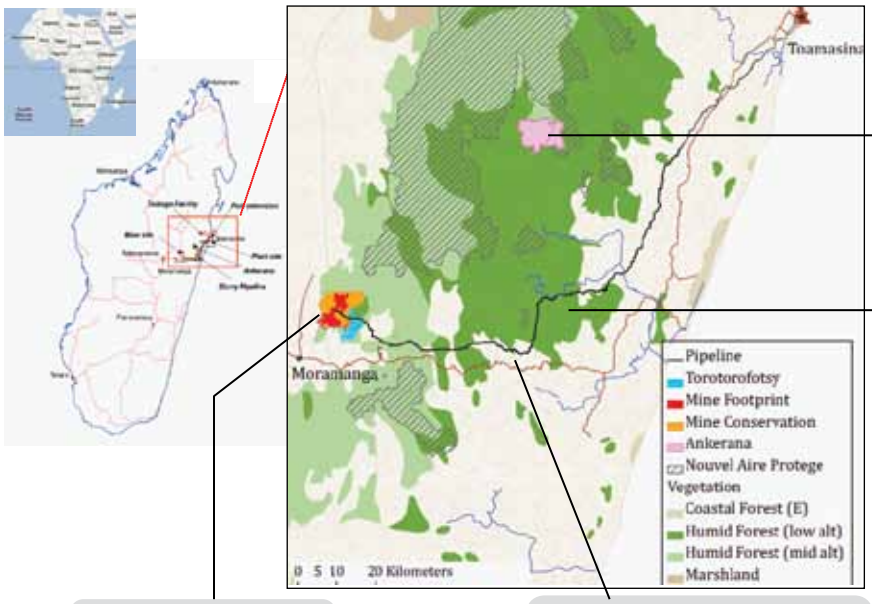
Biodiversity offset:

- Designed to achieve 'no net loss' or 'net gain' (Would meet BBOP Principles and draft Standard)

Compensatory conservation:

- Not planned to achieve no net loss
- Doesn't quantify loss/gain
- Not established for long term implementation
- Impossible to offset the impacts (too severe or pre-impact data lacking)
- Financial payment, not biodiversity result (Would not meet the BBOP Principles)

Interactive Exercise: Applying the mitigation hierarchy at the Ambatovy project



ACTION 4: Protection of Ankerana Forest

ACTION 3: Restoration along the pipeline

ACTION 1: Conservation 'set-aside' at mine site

ACTION 2: Rerouting pipeline around specific forest patches

The map (above) shows the scope of the Ambatovy project, Madagascar, and illustrates four sets of actions (Action 1, 2, 3, 4) that are being undertaken by the project in various locations to limit its impacts on biodiversity. All of these activities form part of the mitigation hierarchy (avoid, minimise, restore, offset) and they are described in a little more detail below.

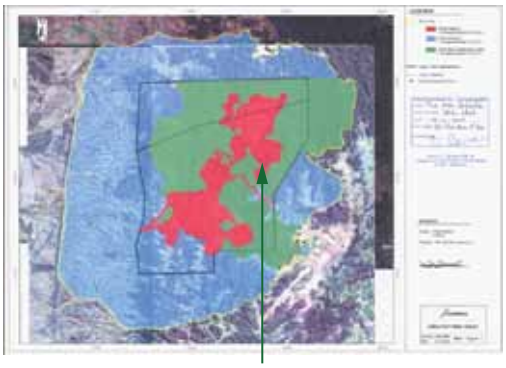
The Task for participants is to:

- Match the identified activities with the appropriate step/s in the mitigation hierarchy
- Check whether offset activities are 'additional'

See Ambatovy BBOP Pilot Project Case Study, 2009

1. Actions at the mine site
'Set-aside' of conservation zones (on site):

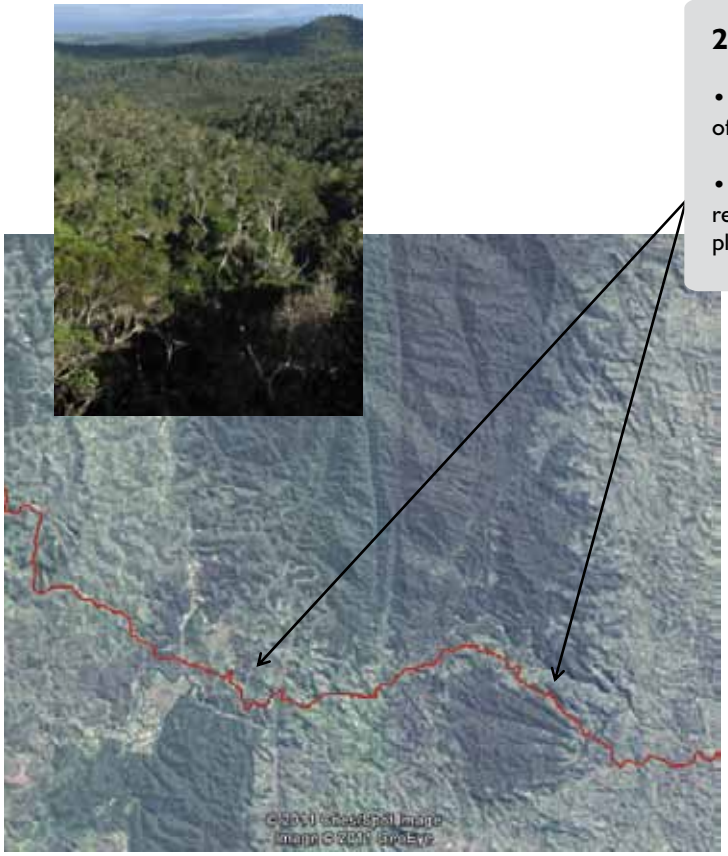
- No forest clearing above part of ore body
- Securing area for long-term protection
- Conservation management, monitoring
- Alternative fuel wood sources for local communities to reduce pressure on forest



Conservation forests: green
Mine lease area: blue
Mine footprint: red

Questions:
Type of mitigation action?
Additionality?

What are these actions in the mitigation hierarchy, and what about additionality?



2. Actions along the pipeline:

- Routing of pipeline to prevent impacts on tracts of forest (e.g. Vohimana, and other areas)

- Also: scope to improve condition and to re-establish connectivity of natural areas in some places

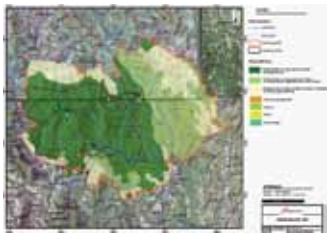
Questions:
Type of mitigation action?
Additionality?

3. More actions along pipeline

- Restoration of forest and of degraded areas once laying of pipeline completed
→ to re-establish pre-impact condition

- Restoration of a previously degraded area (not impacted by project) along pipeline
→ to improve connectivity with other forest patches

Questions:
Type of mitigation action?
Additionality?



4. ACTIONS at Ankerana

- Long term protection of large forest block 70km away from Ambatovy
- Area selected on the basis of similarity to Ambatovy, and risk of loss (high rate of deforestation observed)
- Ankerana of very high regional and national conservation significance
- Slated as a new protected area by govt, but to date only temporary protection, and no budget allocated

Questions:
Type of mitigation action?
Additionality?

Module 1

Part II – Core Concepts for Offsets

How Does a Biodiversity Offset Work?

Two broad phases:

Design

- Orientation & planning, including stakeholder involvement;
- Applying mitigation hierarchy;
- Quantifying residual impacts and offset needs;
- Determining offset options: sites, activities;
- Designing final offset.

Implementation

- Operations and management;
- Financing;
- Monitoring and evaluation.

The design of compensation and biodiversity offsets is technical and comparatively short (lasting between months and a few years), whereas the implementation of compensation and offsets is practical and can last several decades or longer. Monitoring and evaluation of implementation is vital. Adaptive management enables the goals set for the compensation or offset in the design to be achieved.

BBOP Biodiversity Offset Design Handbook and Appendices (ODH); BBOP Cost Benefit Handbook; BBOP Biodiversity Offset Implementation Handbook (OIH); Faith and Walker 2002; Tanaka 2001; Kiesecker et al. 2009; McKenney and Kiesecker 2010; de Bie and van Dessel 2011

Additional Conservation Outcomes

An offset must show measurable, additional conservation outcomes.

What counts as a gain?

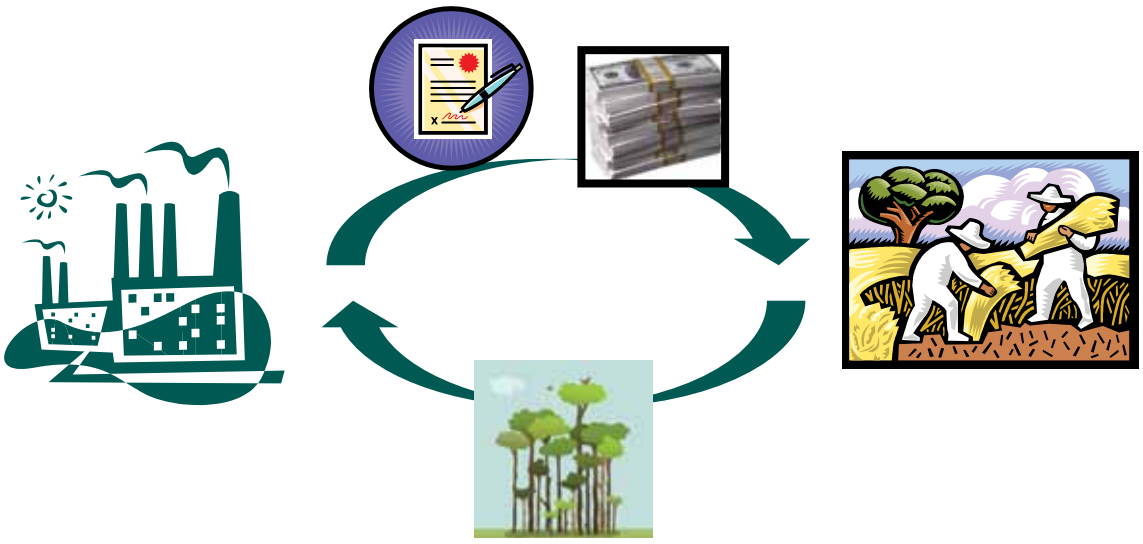
1. Averted risk (securing biodiversity clearly at risk of loss)
2. Active restoration/enhancement and stopping degradation (improving condition)

Potential gain is a product of the amount of biodiversity the offset will generate and the likelihood of success.

BBOP Biodiversity Offset Implementation Handbook (OIH)

Implementation: How Can Compensation or Offset 'Gain' be Delivered?

- Purchase land (or long lease);
- Servitude (or 'covenant') registered on land, and other legal mechanisms;
- Contract with landholders (incl. Payments for Ecosystem Services (PES)).



Three Ways to Implement Offsets or Compensatory Conservation

- Developer and/or partners (NGO, consultant, multi-stakeholder group) undertake the offset or compensation
- Payment to a government authority 'in lieu'
- Developer buys sufficient 'credits' from a land-owner or conservation bank to offset or compensate for its impacts.



Under 'developer initiated offset implementation', while policy may encourage or require compensation or offsets, the government generally takes a non-intervention stance on the manner of their implementation, and the onus rests with the developers to find their own compensation activities or offsets (whether voluntary or required by regulation). As long-term implementation of conservation activities is often not a priority or particular expertise of many developers, they may find partners or agents to implement the compensation or offset on their behalf, for instance, NGOs, local communities, or a mixture of different stakeholders.

Under 'In lieu fees', a government agency stipulates a payment from the developer with the intention of deploying the funds at a later date to identify and implement a suitable offset or compensation.

See Crowe & ten Kate
Biodiversity offsets: policy options for government, 2010

Markets can also be used to supply biodiversity compensation activities or offsets for developers. Such markets do not usually develop spontaneously, but require government intervention to set up the key components. Properly designed and operated, markets can be very effective in supplying offsets and compensation in a timely and cost-effective manner.

Classification of Different Types of Impacts

A number of different types of impacts are referred to in environmental impact and biodiversity offset terminology, including:

Residual impacts; direct impacts; indirect impacts; and cumulative impacts. They are explained here.

Residual Impacts

Residual impacts are the impacts that remain AFTER avoidance, minimisation, rehabilitation/restoration activities have been implemented. The objective of the offset or compensation is to address the residual impacts.

AVOID » MINIMISE » REHABILITATE/RESTORE » OFFSET RESIDUAL IMPACTS

Direct, Indirect and Cumulative Impacts

Direct impacts: An outcome directly attributable to a defined action or project activity (Often called 'primary impact'.)

Example: loss of habitat flooded by a dam.

Indirect impacts: impacts triggered in response to the presence of the project, rather than being directly caused by the project's own operations. (Sometimes called 'secondary' or 'induced' impacts.)

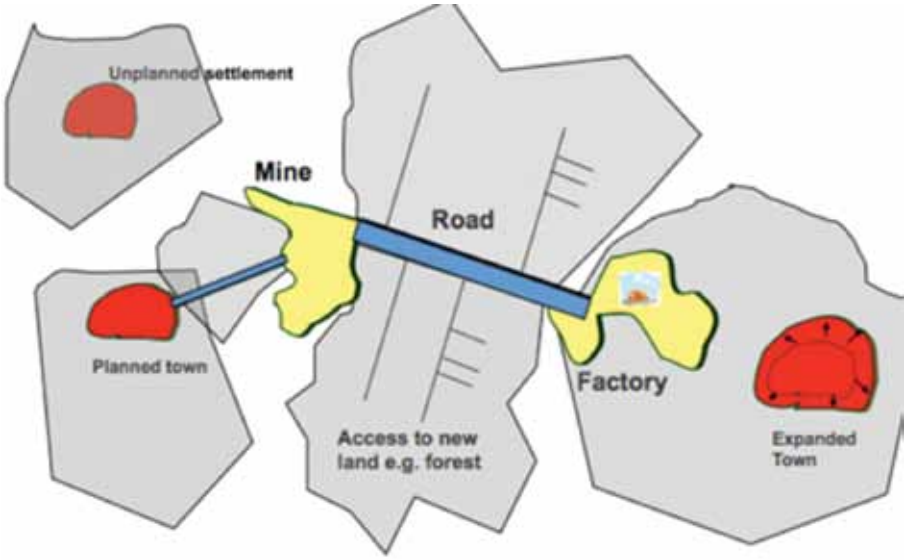
Example: the presence of a mine may lead to an increased local workforce with knock-on effects on biodiversity, due to increased land conversion and levels of hunting.

Cumulative impacts: the totality of impacts that ultimately arise from a single project or the combination of a series of activities. Cumulative impacts are likely to arise from activities under the control of the developer, but also from related activities and from other background pressures for which responsibility and control rest with others (e.g. government and local communities).

Example: a housing development on the edge of a wetland may add to pressures on the wetland from other developments (such as construction of other residential and commercial buildings, roads, local agricultural intensification, etc).

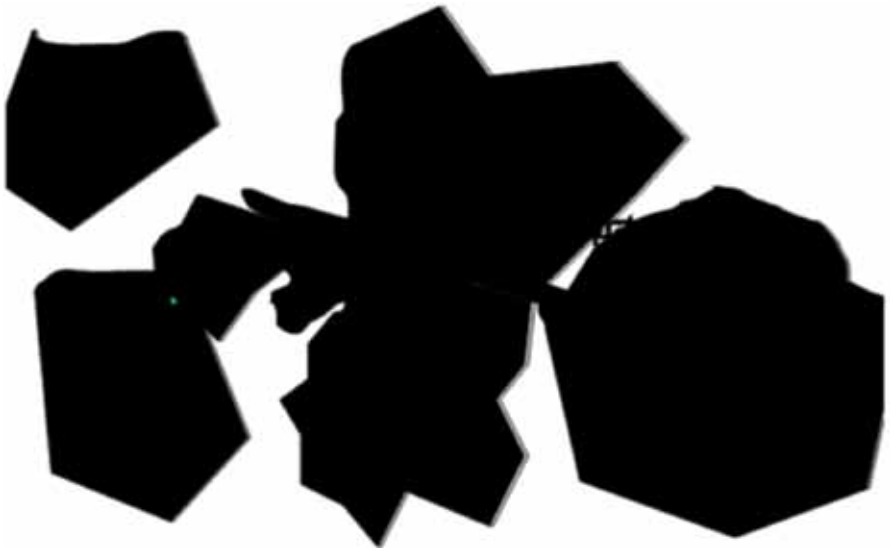
While an individual project's impacts may be manageable, its indirect and cumulative impacts may be irreversible and too severe to be capable of being offset.

An Illustration of Direct and Indirect Impacts



With a project such as the one illustrated above, the direct impacts are as follows:

And the indirect impacts as follows:



A frequently asked question is whether environmental impact assessment can be used to handle projects' impacts on biodiversity.

Can't the Environmental Impact Assessment (EIA) take care of biodiversity?

- EIA rarely planned to achieve 'no net loss';
- Typically only requires avoidance/minimisation for some impacts;
- Usually does not address residual impacts;
- Does not address all components of biodiversity affected;
- Often very site specific, without proper landscape scale;
- Often fails to address indirect and cumulative impacts;

HOWEVER an offset can be integrated with the EIA process to deliver 'no net loss'!

See BBOP: The Relationship between Biodiversity Offsets and Impact Assessment (EIA);
IAIA Principles of Impact Assessment & IAIA Biodiversity in Impact Assessment & Tanaka, 2001.

A simple response is that environmental impact assessment alone is unlikely to be planned to achieve 'no net loss', but that offset planning can be integrated into the impact assessment process, so that the project is planned from the start to achieve no net loss (or a net gain) of biodiversity.

- Mitigation hierarchy followed;
- Residual impacts capable of being offset;
- Loss-gain calculation demonstrates 'No Net Loss (NNL) / 'Net Gain' (NG);
- Stakeholder involvement;
- Secure implementation mechanisms, including:
  - Clear roles and responsibilities
  - Legal and institutional arrangements
  - Financial provision

Is it an Offset?

This box offers a quick checklist for determining whether planned conservation outcomes are a biodiversity offset, or better characterized as compensation. Each of the features here will be discussed in more detail in the remaining modules.

See BBOP Principles on Biodiversity Offsets

Experience from compensatory mitigation case studies: risks and opportunities

The following examples of compensatory conservation and biodiversity offsets are reviewed in some case studies from BBOP:

- Chad-Cameroon Petroleum Development and Pipeline Project, Africa
- Bujagali Energy Limited: Hydropower project and transmission line, Uganda, Africa
- Mount Royal Golf Estate, South Africa, Africa
- Pulp United Pulp Mill, South Africa, Africa
- Antamina Copper and Zinc Mine, Peru, South America
- Nam Theun 2 Hydropower Project, Lao People's Democratic Republic, Asia
- Kumtor Gold Mine, Kyrgyzstan
- Brisas Gold and Copper Project, Venezuela
- Kennecott Utah Copper Mine, North America
- Apennine Wind Farms, Italy, Europe
- Basslink Under-sea Power Cable, Australia
- Manaus Energia, Balbina Hydropower Plant, Brazil, South America
- Jonah Natural Gas Field, North America
- CEMEX El Carmen Wilderness Area
- QMM mine and port, Madagascar, Africa
- Rhenish-Westphalian Water Supply Company, Germany, Europe

See BBOP Compensatory Conservation Case Studies

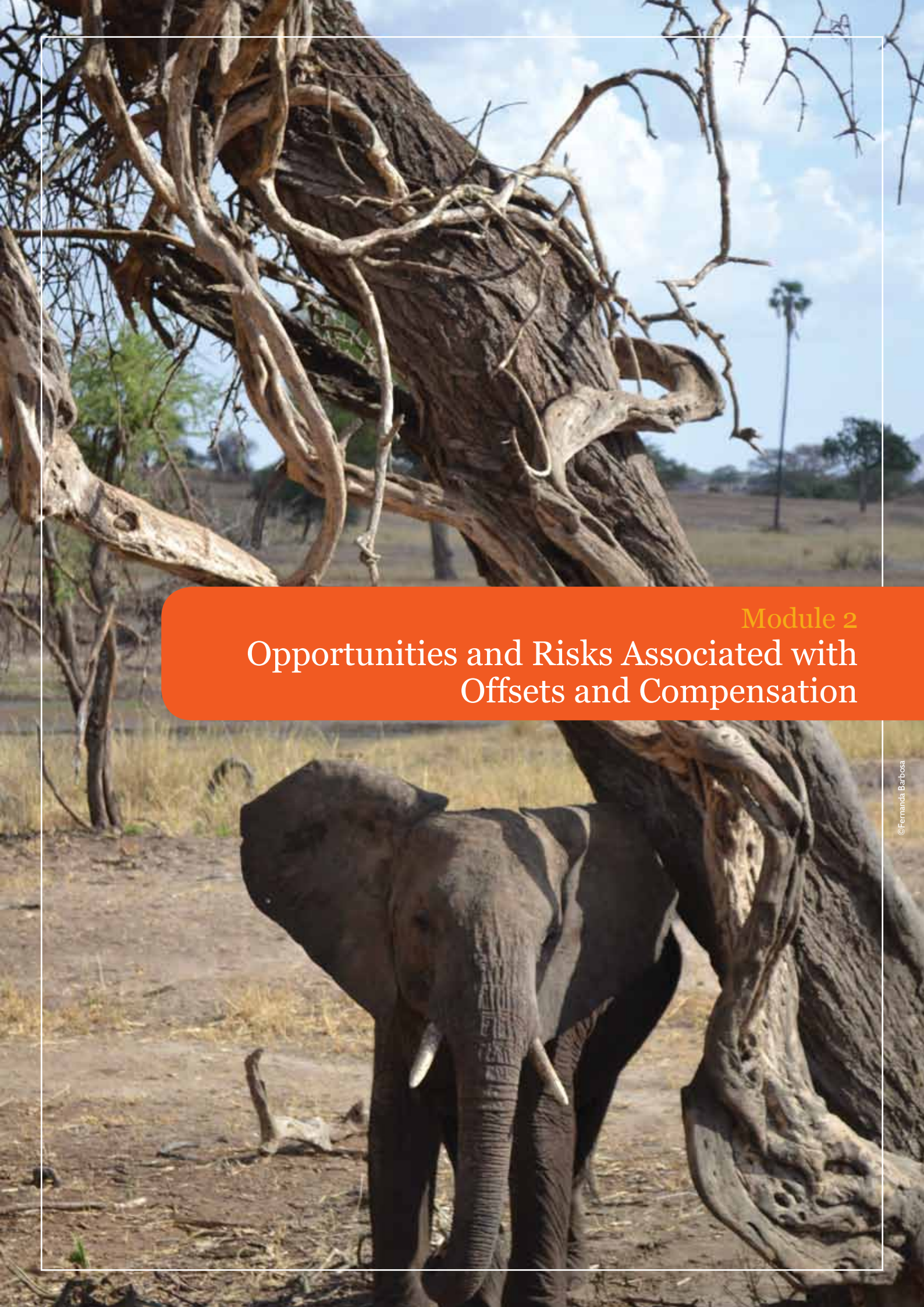
The case studies highlight the following aspects of best practice in compensation and offsets:

- Quantitative methodologies for measuring projects' residual biodiversity loss and the potential biodiversity gain through compensatory conservation measures or a biodiversity offset, are developing rapidly. The selection of methodologies needs to respond to the specific circumstances and requirements of the project. (eg Basslink, Kennecott, Apennine and NT2)
- For compensatory conservation activities to be successful, it is vital to pay attention to the socioeconomic (in particular the livelihood) and governance context of the proposed project and potential offset areas (e.g. QMM).
- It's good to match clear objectives to a specific approach for determining the nature, scope and scale of conservation activities needed. (eg Basslink)
- A formal agreement defining the respective roles and responsibilities of the various parties involved in implementing compensatory conservation activities is useful. (Eg NT2)
- Proactive, systematic planning can help offsets or compensation contribute to regional or national objectives for biodiversity (e.g. Mount Royal and Jonah)
- When offsets or compensation are properly secured, they can make a long term contribution to conservation (e.g. Basslink)
- Partnerships involving a spectrum of key stakeholder groups such as government authorities, non-governmental organisations, local communities and research institutions helps to guide the design, selection, and implementation of the most appropriate activities.
- It is good practice to apply a risk-averse approach to determining the scope and scale of compensatory conservation activities in the face of uncertainty, anticipated threats or probable risks to their success (e.g. Apennine).
- Less experience of biodiversity offsets and compensatory conservation in sectors outside the extractive and utility industries.

- The price or market value of land identified for conservation and the profit margins of the particular projects may have a significant bearing on the business case for voluntary biodiversity offsets and compensation.
- The capacity of developers to provide conservation outcomes differs from sector to sector.
- Key challenges on offset or compensation design include:
    - Selecting appropriate metrics
    - Finding practical ways to achieve the desired conservation outcomes in the context of broader sustainable development.

Ten lessons from the case studies

a. Be clear about what you're trying to achieve.
b. Know your ecosystems and the landscape context.
c. Understand communities' needs and work with them.
d. Choose an appropriate approach.
e. Know that you can deliver.
f. Bridge barriers between different disciplines and cultures.
g. Collaborate and communicate openly.
h. Be cautious.
i. Think ahead and long term.
j. Consider going beyond 'no net loss'.



Module 2

Opportunities and Risks Associated with Offsets and Compensation

Why Offset or Compensate? What's in it for Government and Society?

- Helps to balance economic development with biodiversity protection;
- Supports national conservation goals and targets.
- Improves conservation outcomes;
- Assists with land-use planning;
- Encourages business to take responsibility for its impacts;
- Developers are clearer regarding what is expected of them: legal certainty, efficiency and cost savings.
- Provides flexibility in how to achieve agreed conservation goals;
- Promotes new and additional financial investments in conservation;
- Benefits local people (development projects, rather than excluding them);

CBD COP 10 commitment (Oct 2010) to:

'Take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication'.

See BBOP Government and Society Value Proposition;
CBD Strategic Plan to 2020, including Aichi targets

Opportunities vs. Risks

Opportunities:	Risks:
Conservation (No net loss ▸ Net gain) • more & better conservation, mainstreaming mechanism, gives value to biodiversity	• No substitute for "no go" areas • Slippery slope • Some methodologies inadequate • Failure to deliver • Controversy • No credible standards (until now)
Business (Economic efficiency) • economically efficient means to secure license to operate & reputation; influence policy: market mechanism not regulation	
Policy-makers (Sustainable development) • involve private sector in achieving policy goals; use market mechanism	
Local communities (Social equity) • means to minimise impact on livelihoods and secure additional benefits	

Biodiversity offsets and compensation present both opportunities and risks. These need to be considered carefully if offsets or compensation are to be beneficial. The benefits and opportunities speak for themselves, but the risks may benefit from some explanation: there's a concern among many conservation NGOs and community representatives that offsets and compensation could be used by government authorities and developers to allow projects to proceed which should be rejected because of the severity of their impacts. This is sometimes referred to as the 'slippery slope' argument. Another concern is that the methodologies used to design and implement biodiversity offsets and compensation are too general and imprecise to represent losses and gains adequately. There has been a mixed history of implementation success in countries where offsets and compensation have been undertaken for decades. For some groups, any mechanism such as biodiversity offsets or compensation that involve a partnership between developers and conservation groups and communities (as most biodiversity offsets do) are controversial. And, finally, there has been no internationally agreed and credible standard for biodiversity offsets, until now, and other than national regulatory frameworks, there remains no standard for compensation. (Many organizations have been taking steps to address and manage these risks over the last few years. For example, all the BBOP members have been working together to develop a draft standard on biodiversity offsets.)

See: Eftec – Financial Instruments to Enhance Private Sector Finance of Biodiversity;
OECD Paying for Biodiversity &
Crowe and ten Kate, BBOP Policy Options for Governments, 2010

MANAGING RISK

Operational risks

Poor environmental planning can increase the to losses due to flooding, pests, fire, disease, etc.

Compliance risks

The client's profitability may be threatened by fines, loss/suspension of permits, damages claims.

Reputational risks

By financing controversial projects, banks are attractive targets for NGO and activist campaigns.

See BBOP for Companies – Value Proposition for Business
Rio Tinto Biodiversity Strategy;
BusinessandBiodiversity.org – Business Case for Taking Action
BBOP Finance Value Proposition;
UNEP FI CEO Briefing – Demystifying Materiality;
UNEP FI – Biodiversity Offsets Application in Banking Sector &Grigg et al. 2009, Linking Shareholder and Natural Value & PRI 2010, Universal Ownership.

Interactive Exercise: SWOT analysis for an environmental fund

Questions/Tasks:

- What are the key strengths, weaknesses, opportunities and threats (SWOT) relating to your Environmental Fund engaging with (potential) biodiversity offset and compensation projects?
- Discuss this in groups and complete the SWOT analysis (below).

Strengths	Weaknesses
Opportunities	**Threats**

Module 3

Emerging Standards

Emerging standards

- International Finance Corporation Performance Standard 6 (IFC PS 6)
- BBOP Principles
- BBOP Draft Standard

See www.ifc.org/ Sustainabilityframework; BBOP Principles; BBOP Draft Standard

IFC Performance Standard 6

The International Finance Corporation's Sustainability Framework comprises its Policy and Performance Standards on Social and Environmental Sustainability, and Policy on Disclosure of Information. The Framework sets out IFC's commitment to sustainable development and is part of its approach to risk management. It was originally adopted in 2006, and was updated in August 2011 to reflect lessons from implementation experience and feedback from IFC's stakeholders and clients.

The updated framework will become effective on January 1st , 2012.

The Sustainability Framework articulates IFC's strategic commitment to sustainable development and is an integral part of its approach to risk management. It provides guidance on how to identify risks and deal with them, and is designed to help IFC's clients avoid and mitigate adverse impacts and manage risk as a way of doing business in a sustainable way.

The IFC's 10 Performance Standards are globally recognized as a leading benchmark for environmental and social risk management for private sector investors. They are often essential pre-requisites for companies to raise funds, particularly from international markets. The Equator Principles, a voluntary set of standards developed by private sector banks are based on the IFC's Performance Standards.

There are 8 Performance Standards:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labor and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Management and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage

Objectives:

- Protect and conserve biodiversity;
- Maintain the benefits from ecosystem services;
- Promote sustainable management of Natural Living Resources.

For projects:

- Located in modified, natural or critical habitats;
- Which potentially impact on or are dependent on ES over which client has direct management control or significant influence;
- Including production of living natural resources (eg. agriculture, husbandry, fisheries, forests).

Natural Habitat

Areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition.

Client will not significantly convert or degrade natural habitats, unless all of the following have been demonstrated:

- No other viable alternatives within the region exist for development of the project on modified habitat;
- Consultation has established the views of stakeholders, including Affected Communities, with respect to the extent of conversion and degradation; and
- Any conversion or degradation mitigated according to the mitigation hierarchy.
- In areas of natural habitat, mitigation measures will be designed to achieve no net loss of biodiversity where feasible. Appropriate actions include:
- Avoiding impacts on biodiversity through the identification and protection of set-asides;
- Implementing measures to minimise habitat fragmentation, such as biological corridors;
- Restoring habitats during operations and/or after operations; and
- Implementing biodiversity offsets.

Critical Habitat

Areas with high biodiversity value, including:

(i) habitat of significant importance to Critically Endangered and/or Endangered species;
(ii) habitat of significant importance to endemic and/or restricted-range species;
(iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species;
(iv) highly threatened and/or unique ecosystems; and/or
(v) areas associated with key evolutionary processes.

No project unless client has demonstrated:

- No other viable alternatives within the region exist for development of the project on modified or natural habitats that are not critical;
- Project doesn't lead to measurable adverse impacts on biodiversity values for which critical habitat designated and on ecological processes supporting them;
- Project doesn't lead to net reduction in the global and/or national/regional population of any Critically Endangered or Endangered species over a reasonable period of time; and
- Robust, appropriately designed, and long-term biodiversity monitoring and evaluation program is integrated into the client's management program.

In cases where a client can meet these requirements, the project's mitigation strategy will be described in a Biodiversity Action Plan and will be designed to achieve net gains of those biodiversity values for which critical habitat was designated.

Where biodiversity offsets are proposed, client must demonstrate through an assessment that the project's significant residual impacts on biodiversity will be mitigated to meet the above requirements.

Biodiversity Offsets

PS 6 – Paragraph 10 (2010)

A biodiversity offset should be designed and implemented to achieve measurable conservation outcomes3 that can reasonably be expected to result in no net loss and preferably a net gain of biodiversity; however, a net gain is required in critical habitats.

The design of a biodiversity offset must adhere to the "like-for-like or better" principle4 and must be carried out in alignment with best available information and current practices.

When a client is considering the development of an offset as part of the mitigation strategy, external experts with knowledge in offset design and implementation must be involved.

See IFC Summary of Key Changes in Sustainability and Performance Standards – August 2011;
IFC Updated Performance Standard 6

2010 PS6 para 10 footnotes:

- Measurable conservation outcomes for biodiversity must be demonstrated in situ (on-the-ground) and on an appropriate geographic scale (e.g., local, landscape-level, national, regional).
- The principle of "like-for-like or better" indicates that biodiversity offsets must be designed to conserve the same biodiversity values that are being impacted by the project (an "in-kind" offset). In certain situations, however, areas of biodiversity to be impacted by the project may be neither a national nor a local priority, and there may be other areas of biodiversity with like values that are a higher priority for conservation and sustainable use and under imminent threat or need of protection or effective management. In these situations, it may be appropriate to consider an "out-of-kind" offset that involves "trading up" (i.e., where the offset targets biodiversity of higher priority than that affected by the project) that will, for critical habitats, meet the requirements of paragraph 17 of this Performance Standard.



Access to finance: Revision of IFC-PS and Equator Principles

72 Banks & Financial Institutions

Operating in 27 Countries

70% of international project finance debt in emerging markets

- The Equator Principles are based on the International Finance Corporation (IFC) Performance Standards (PS);
- Clients of the Equator Bank and IFC clients seeking total project capital costs of over $10 million must comply with IFC's loan conditions, including environmental and social 'performance standards' (PS);
- Since June 2003, 72 banks have adopted the 'Equator Principles', embracing the IFC Performance Standards;
- Having adopted the original PS6, it is highly likely the Equator Banks will adopt the revised PS6.

PS 6 client obligations (citing BBOP) include:
Natural habitat: avoid, minimise, restore, then:
Offset to achieve 'No Net Loss'
Critical habitat: Emphasis on avoidance.
Offset goal: 'Net Positive Gain'

EQUATOR PRINCIPLES

"The Equator Principles (EPs) are a credit risk management framework for determining, assessing and managing environmental and social risk in project finance transactions. Project finance is often used to fund the development and construction of major inf rastructure and industrial projects. The EPs are adopted voluntarily by financial institutions and are applied where total project capital costs exceed US$10 million. The EPs are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making."

See Equator Principles http://www.equator-principles.com/

BBOP Principles

1. No net loss:

A biodiversity offset should be designed and implemented to achieve in situ, measurable conservation outcomes that can reasonably be expected to result in no net loss and preferably a net gain of biodiversity.

2. Additional conservation outcomes:

A biodiversity offset should achieve conservation outcomes above and beyond results that would have occurred if the offset had not taken place. Offset design and implementation should avoid displacing activities harmful to biodiversity to other locations.

3. Adherence to the mitigation hierarchy:

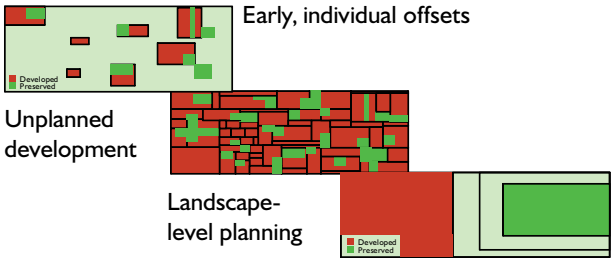
A biodiversity offset is a commitment to compensate for significant residual adverse impacts on biodiversity identified after appropriate avoidance, minimization and on-site rehabilitation measures have been taken according to the mitigation hierarchy.

4. Limits to what can be offset:

There are situations where residual impacts cannot be fully compensated for by a biodiversity offset because of the irreplaceability or vulnerability of the biodiversity affected.

5. Landscape context:

A biodiversity offset should be designed and implemented in a landscape context. This is to achieve the expected measurable conservation outcomes, taking into account available information on the full range of biological, social and cultural values of biodiversity and supporting an ecosystem approach.



Sources: 2004: Insight/IUCN; White; Maze

6. Stakeholder participation:

In areas affected by the project and by the biodiversity offset, the effective participation of stakeholders should be ensured in decision-making about biodiversity offsets, including their evaluation, selection, design, implementation and monitoring.

7. Equity:

A biodiversity offset should be designed and implemented in an equitable manner, which means the sharing among stakeholders of the rights and responsibilities, risks and rewards associated with a project and offset in a fair and balanced way, respecting legal and customary arrangements. Special consideration should be given to respecting both internationally and nationally recognised rights of indigenous peoples and local communities.

8. Long-term outcomes:

The design and implementation of a biodiversity offset should be based on an adaptive management approach, incorporating monitoring and evaluation, with the objective of securing outcomes that last at least as long as the project's impacts and preferably in perpetuity.

9. Transparency:

The design and implementation of a biodiversity offset, and communication of their results to the public, should be undertaken in a transparent and timely manner.

10. Science and traditional knowledge:

The design and implementation of a biodiversity offset should be a documented process informed by sound science, including an appropriate consideration of traditional knowledge.

BBOP Draft standard: Audience and objectives

The draft standard was prepared to enable auditors and assessors to determine whether an offset has been designed and subsequently implemented in accordance with the BBOP Principles. Assessment could be undertaken by a variety of people. An assessor could be an employee of a company designing a biodiversity offset (first party assessment), a member of an NGO that is a company's partner or some other organisation associated with the company (second party assessment), or a third party auditor. Consequently, the principal users of the draft standard and accompanying Guidance Notes will be individuals assessing biodiversity offsets against the draft standard. Assessment takes place once a biodiversity offset has been designed and continues through the implementation stage.

Since biodiversity offsets are likely to be assessed against the draft standard, it will be useful for individuals designing and implementing biodiversity offsets to refer to the PCI as they design and implement the biodiversity offset, so the offset will meet the draft standard. It could thus provide guidance for offset design and implementation when used with other 'How to' tools for offset design and implementation such as BBOP's Handbooks.

In addition, there are other potential audiences for the draft standard. Those involved in developing and administering policy on the mitigation hierarchy and biodiversity offsets (whether they work for governments, individual companies or industry associations), may also find the draft standard useful, as it captures international best practice on identifying impacts on biodiversity and applying the mitigation hierarchy (avoid, minimise, rehabilitate/restore, offset). Similarly, representatives from local communities, indigenous peoples and civil society organisations such as NGOs may find the draft standard helpful if they are affected by or interested in a project or biodiversity offset. The document could help inform their dialogue with developers.

There may be a number of advantages to developers in using the draft standard. As described in the preceding section, according to Performance Standard 6, clients of the IFC with impacts on natural habitat or critical habitat will need to demonstrate no net loss or a net gain in biodiversity, respectively. The IFC refers to the BBOP Principles and approaches, so meeting the BBOP standard is likely to be a good way of demonstrating to lenders and other stakeholders that a biodiversity offset satisfies PS6. Irrespective of whether a company needs to satisfy PS6, the BBOP draft standard encapsulates international best practice, so meeting it can help companies demonstrate high standards, build support with stakeholders and reliably measure and show the conservation outcomes of their projects.

For more 'how to', stepwise guidance on designing and implementing a biodiversity offset, the Guidance Notes can be read in conjunction with other technical documents related to the practical design and implementation of biodiversity offsets (such as the BBOP Handbooks on Offset Design, Cost Benefit Assessment and Offset Implementation, Resource Papers on Offsets and Impact Assessment, Offsets and Stakeholder Engagement, on No Net Loss (including Loss-Gain calculations)

and on impacts that are difficult to offset. These are available at: http://bbop.forest-trends.org/guidelines/index.php). A number of other tools and approaches to designing and implementing compensation and biodiversity offsets are given in the bibliography, and many are also referenced in the BBOP Handboooks.

See BBOP Draft Standard

BBOP Draft standard: Architecture, Contents

Principles: Fundamental statements about a desired outcome.

Criteria: The conditions that need to be met to comply with a Principle.

Indicators: Measurable states to tell whether or not a particular Criterion has been met.

Guidance Notes:

- Interpretation of Indicator...Explain terms, concepts
- Key questions...What assessor needs to answer
- Conformance requirements...To meet the standard
- Possible causes of non-conformance...Not meeting the standard

The architecture of the draft standard has much in common with several other environmental standards, such as the Forest Stewardship Council and Marine Stewardship Council's standards and the standards of the Roundtable on Sustainable Palm Oil and other commodity roundtables.

The Principles are paramount, and represent the overarching statements about the desired outcome (in this case, following the mitigation hierarchy and demonstrating no net loss or a net gain of biodiversity for the long term).

Under each Principle is a set of Criteria: the conditions that need to be met to comply with that Principle.

For each Criterion are one or more Indicators, which are the measurable states that allow the assessor to determine whether a particular criterion has been met.

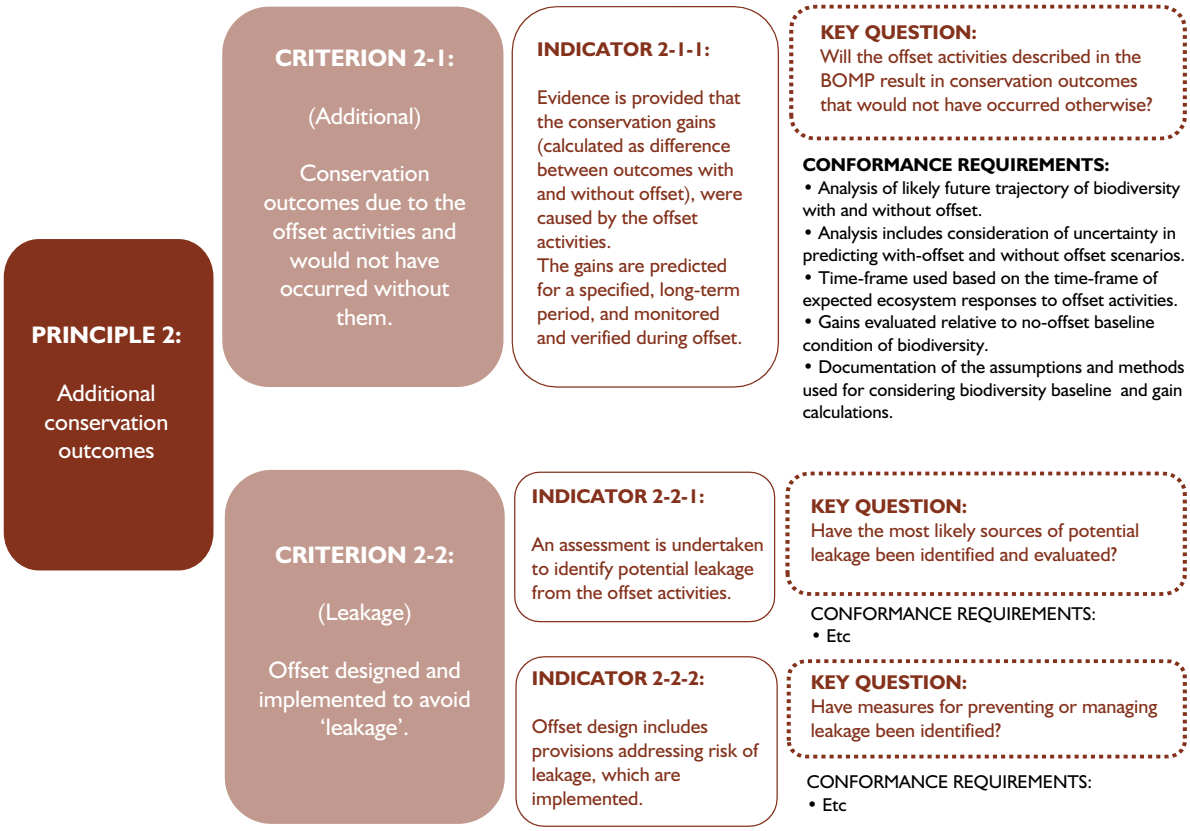
See BBOP Handbooks

BBOP Draft standard: Example: Principle 2

The draft standard thus comprises the Principles, draft Criteria and Indicators, or 'PCIs'. Subsidiary to the draft standard is a set of Guidance Notes. These provide notes for auditors to assist with the assessment of whether an offset has been designed and subsequently implemented in conformance with the draft standard.

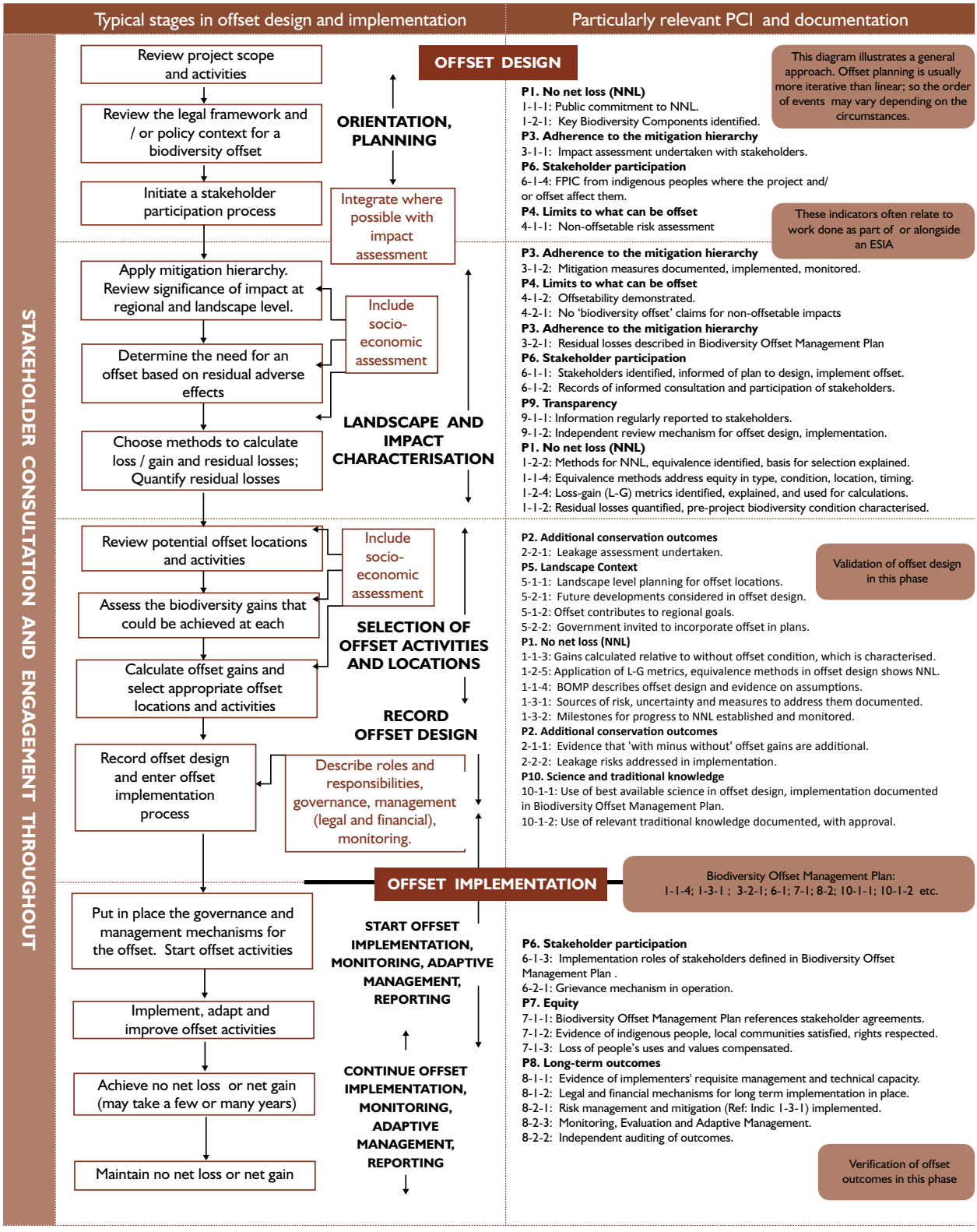
The Guidance Notes give an interpretation of each Indicator covered; key questions for assessment; factors to consider in assessing conformance (conformance requirements and situations that are likely to represent causes of non-conformance); and a table showing the linkages between Indicators.

An illustration of the structure of the Draft Standard and Guidance notes is given below, for Principle 2. The Draft Standard (Principles, Criteria and Indicators) is across most of the page, and the Key Questions and associated Conformance Requirements that are found in the Guidance Notes on the right hand side.



The flow diagram overleaf shows how biodiversity offset design can be integrated into companies' project planning. (The right hand side of the diagram refers to parts of the BBOP draft standard that correspond to that stage in the project cycle.)

See BBOP Guidance Notes for the Draft Standard, 2011



Case Study and Discussion

Approaches to compensation and offsets in participants' countries (TBC)

Module 4

Part I – Methodologies

Types of offsets

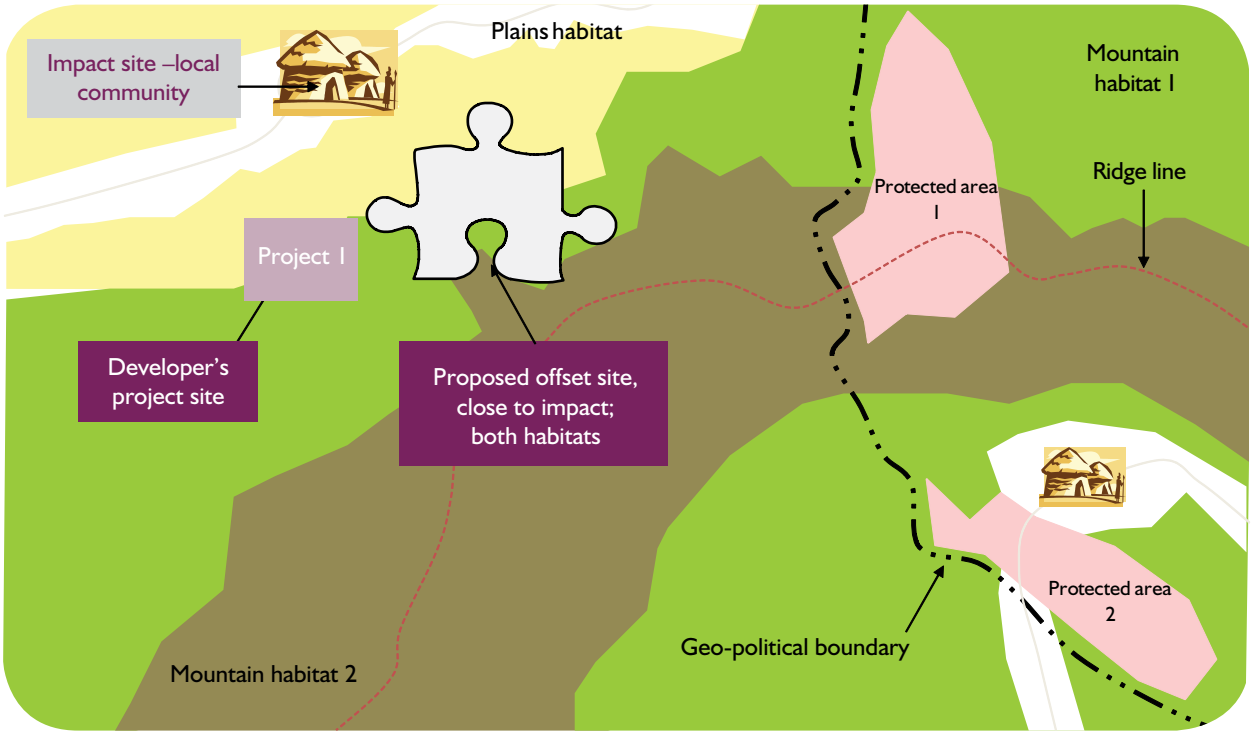
Biodiversity offsets (or, indeed, compensation) can be designed specifically to address the residual impacts of a single project (an 'individual offset'). Alternatively, they can be 'aggregated', so that one offset (or set of conservation measures) is planned to address several projects' impacts. Alternatively, an offset or credits for compensation can be purchased from a conservation bank.

A conservation bank is a mechanism where biodiversity credits are established in advance of any losses they may be used to offset or compensate. A bank is an entrepreneurial venture that requires up-front investment into the credit site. A conservation bank is usually designed to supply offsets over time for a multiple number of losses.

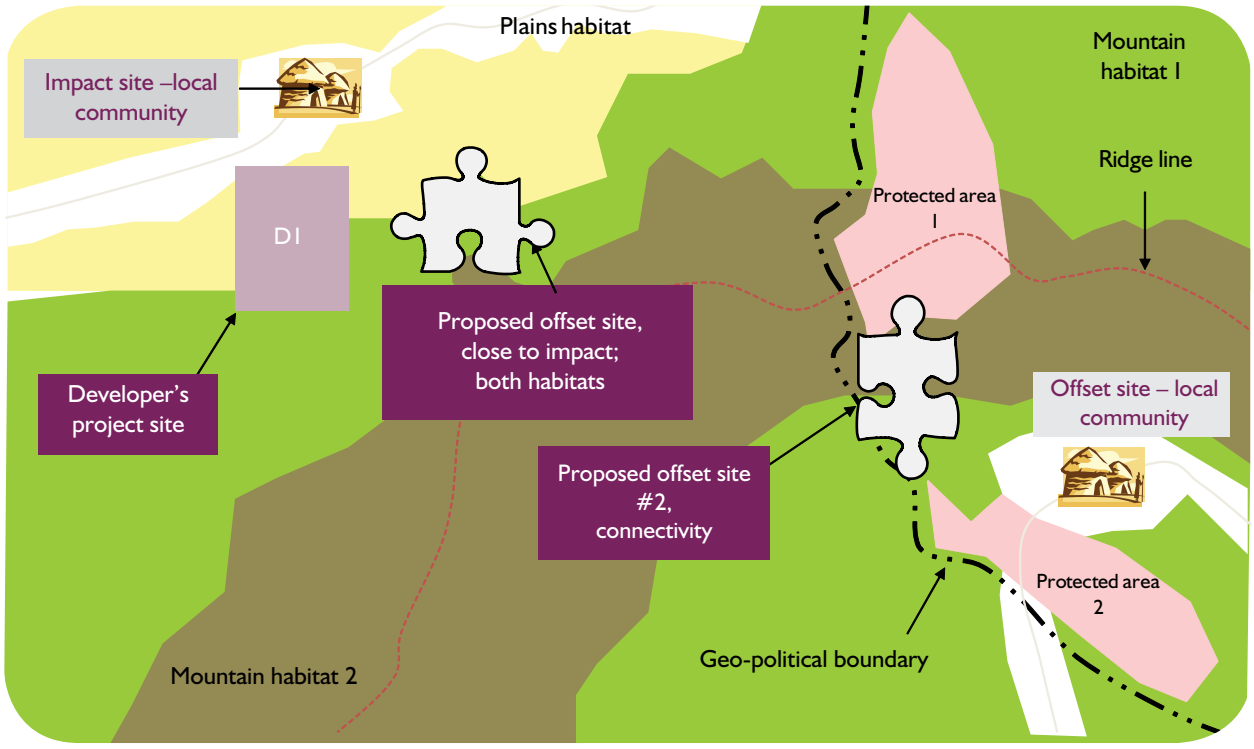
1) Individual offset
2) Aggregated offset
3) Conservation bank

An aggregated offset is similar to a conservation bank except that the offset demand or requirement is known in advance and the aggregated offset can be specifically designed to compensate for a particular set of biodiversity impacts. An aggregated offset draws together the offset requirements of a number of projects where the biodiversity losses are known and supplies the required credits from a large single site or series of connected sites.

Single developer, single offset



Single developer, composite offset



Example of a single developer planning a composite biodiversity offset: Ambatovy project, Madagascar

Large-tonnage nickel project

Shareholders: Sherritt Incorporated, Sumitomo Incorporated, Kores, SNC Lavalin

- Components:
  - Mine site (approx 1,336 ha)
  - 218km largely buried slurry pipeline
  - Industrial complex: processing plant 2.6km2, refinery, tailings 14km2, harbour 300m pier
- Construction began early 2007. Expected life-cycle 27(+) years/
- Proposed composite offset:

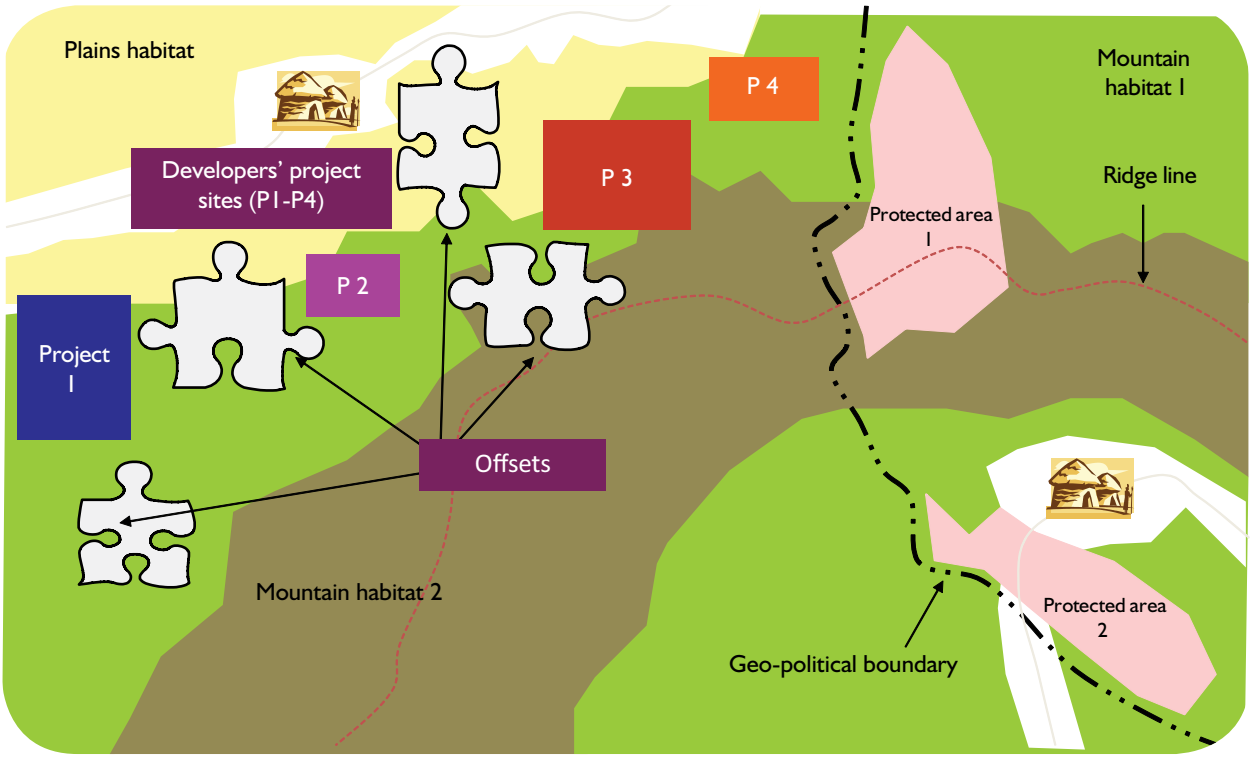
  Off-site at Ankerana (endangered forest ecologically equivalent to mine site);
  Improve conservation status of two forest conservation areas within mine lease;
  Conserve forest area around mine footprint;
  Establish forest corridor between mine area forests and nearby corridor;

  Support implementation of management plan of the neighbouring wetland.

See Ambatovy BBOP Pilot Project Case Study, 2009

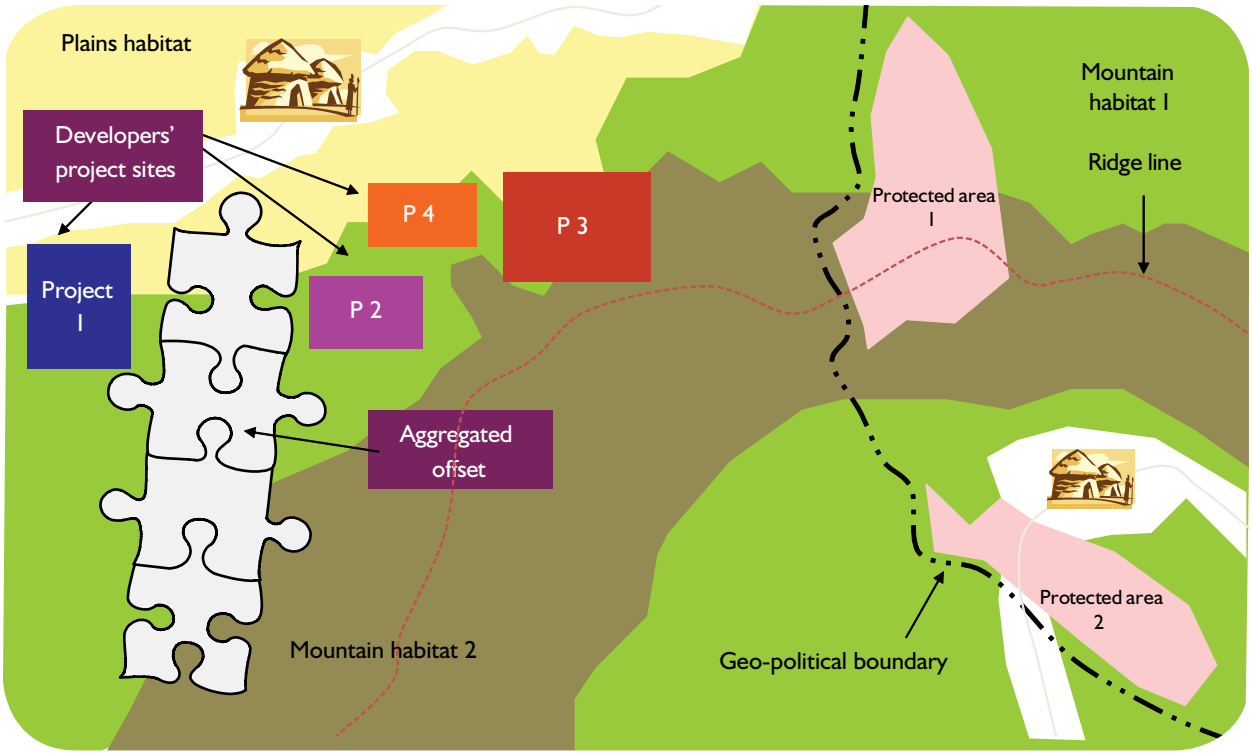
Multiple developers, multiple offsets

This diagram illustrates the situation in which a number of different projects (P1, P2, P3, P4) each undertake their own offsets for their respective projects, and do not coordinate or plan together.



Multiple developers, aggregated offset

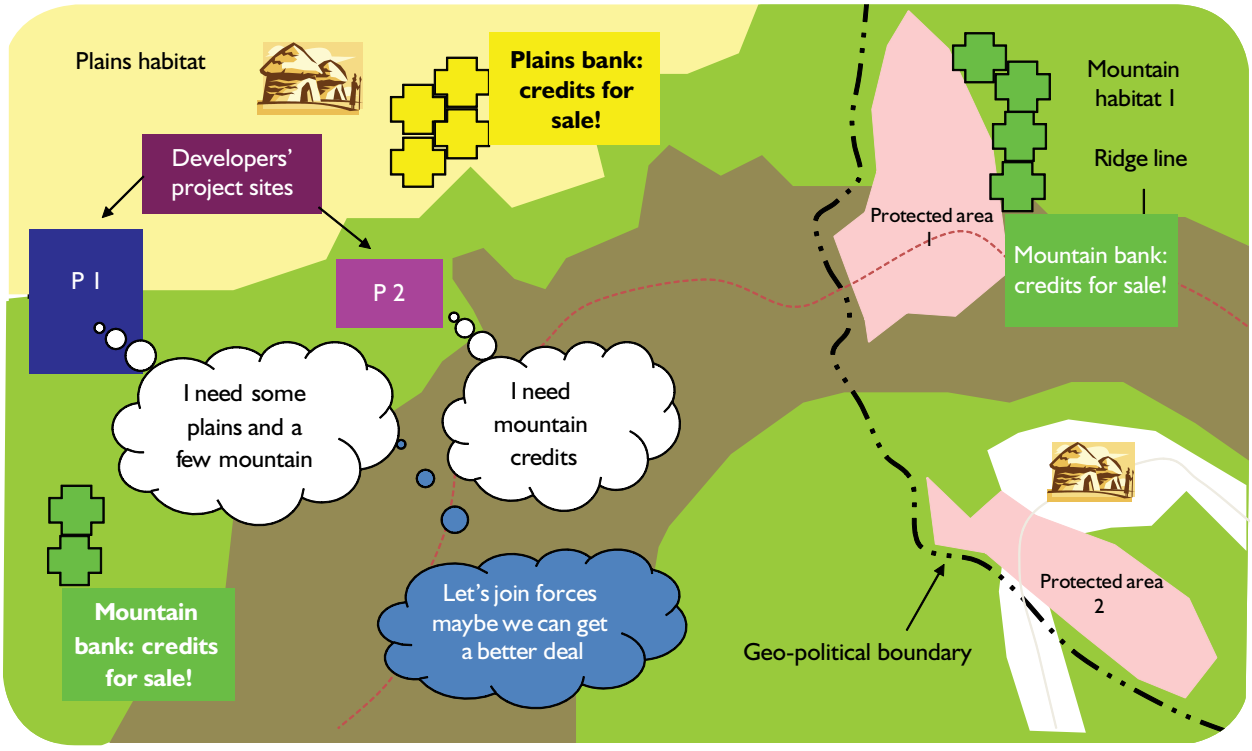
This diagram illustrates the situation in which a number of different projects (P1, P2, P3, P4) plan their offsets together, so they are aggregated.



Conservation banks and offsets

A conservation bank is a parcel of land managed for its conservation values. In exchange for permanently protecting the land, the bank owner is allowed to sell credits to parties who need them to satisfy requirements for compensating environmental impacts of development projects (Carroll et al, 2008).

In this scenario, a number of developers need a variety of different 'biodiversity credits', and a number of organizations are prepared to supply them from their 'conservation banks'.



Benefits of conservation banks

This box summarises some of the key advantages (both ecological and administrative) commonly cited for providing offsets through conservation banks, compared with individual offsets (see also Carroll et al. 2008).

Ecological

- Greater ecological value
- Strategic placement
- Avoid temporal loss of habitat
- Turns a liability into an asset

Administrative

- Easier ecological monitoring
- Reduces offset costs through economies of scale
- Work to the same performance standards
- Transfer of legal liability
- Reduces permitting time

See New South Wales BioBanking: Science Behind Biobanking, 2009 &
Biobanking Overview, 2007

Basic features of conservation banking

Some of the key features of conservation banks are as follows:

- Asset/Product
- Legal Agreement
- Management Plan
- Endowment Fund
- Service Area
- Strategic Site Selection

- Asset/Product: For conservation banking to take place, the product or asset being traded must be defined clearly. This is generally a parcel of habitat together with agreed, measurable conservation action, restoration/preservation/management.
- Legal Agreement: A binding agreement is needed that recognizes the offset and authorizes the bank to sell credits.
- Management Plan: The Conservation Bank is obliged under the agreements to carry out a management plan of conservation activities that include restoration, maintenance & ecological monitoring.
- Endowment Fund: The conservation bank relies upon an endowment fund with sufficient assets to fund the agreed management activities in perpetuity (a non-wasting fund)
- Service Area: This is the area within which impacts are still ecologically relevant and from which credits could be sold to offset impacts. This is generally set within watersheds or other areas that are ecologically equivalent so the credits will match the impacts.
- Strategic Site Selection: When establishing a conservation bank, it is important that it is located appropriately in the landscape so it will endure over time (and not be swamped by surrounding developments to the detriment of the conservation outcomes), and is big enough to ensure ecological functionality. If it is possible for the bank to benefit connectivity and buffering of existing conservation areas, that is an advantage.

See Carroll et al Conservation Banking;
UNDP/PWC Habitat Banking LAC – Feasability Report

Risks and concerns

- Failure: bankruptcy/catastrophe
- Adaptation (climate change)
- Ecological performance/enforcement
- Equity (who benefits?)
- Transaction costs
- Additionality
- Macro-level strategic planning

In establishing a conservation bank, it is important to consider the risks of failure to secure the necessary conservation outcomes. Among the most important risks are:

- Failure: The risk of bankruptcy or ecological catastrophe. With all offsets in one place, risk is magnified.
- Adaptation (Climate Change): How should sites/managers prepare for this?
- Ecological performance/enforcement: Monitoring and enforcement is sometimes lacking.
- Equity: Who benefits? Will communities & small land owners be able to participate?
- Transaction costs: Are they too high for small players?

- Additionality: If it were not possible to demonstrate additionality, no credits could be issued or sold.
- Strategic planning: Even offset aggregation and conservation banking can be piecemeal. Is there a clear higher-level conservation goal? Aggregated offsets and conservation banks should fit into a regional conservation plan.

See Jenkins et al. 2004, Markets for Biodiversity – Potential Roles and Challenges

Interactive Exercise: Match scenarios to most appropriate implementation option

Questions/Tasks for participants:

You know of 3 different implementation options:

- single offsets or compensation,
- aggregated offsets or compensation,
- conservation banking

You are given information on 3 situations (A, B, C below) where there are opportunities for developing biodiversity offsets or compensation.

Match the 3 situations to the most appropriate implementation option!

Situation A: Oil Palm

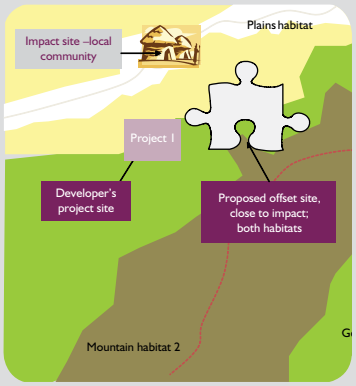
Situation B: Gold Mine

Situation C: Housing

Here are the three biodiversity offset/compensation implementation options:

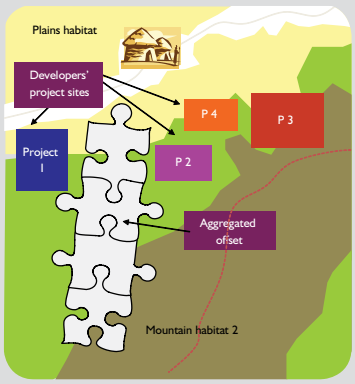
Option 1:
Single (individual) site

- Address the residual impacts of a single project
- Demonstrate additional, measurable conservation outcomes



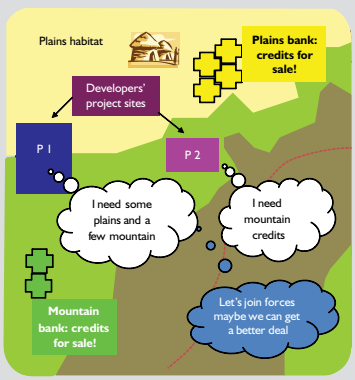
Option 2:
Aggregated site

- One offset/compensation is planned to address several projects' impacts
- Offset/compensation demand is known in advance
- Designed to compensate for specific biodiversity impacts



Option 3:
Conservation banking

- Biodiversity credits are established in advance of any losses they may be used to offset/compensate
- Designed to supply offsets/compensation over time for multiple losses



And here are the 3 situations with opportunities for developing biodiversity offsets or-compensation:

Situation A

- Several international palm oil companies have acquired neighboring concessions across an large area in Kalimantan (Indonesia), which they plan to develop over the next few years with funding from the IFC.
- The residual impacts will be regionally clustered - the area currently is a mix of forest types, old agricultural fields, some existing oil palm plantations,
- The companies are all members of the Roundtable for Sustainable Palm Oil (RSPO) and are interested in collaborating with each other in applying best environmental and social practice in this area, where the regional government – especially its environmental department - is quite thinly stretched.

Which implamentition option is most situable in this case?

Option 1: single offset

Option 2: aggredated offset

Option 3: conservation bank

Situation B

- Multi-national company is planning a gold mine in an isolated region in Central Africa, the mining license and all environmental approvals have been obtained.
- The company has applied for 'Equator Bank' finance, and is committed to offsetting significant residual impacts on biodiversity (incl. 1854ha mine footprint, related infrastructure, …).
- No other major development projects (other mines/agriculture) planned in the region over the medium term, but nature-based tourism and is set to grow, encouraged by government, social/environmental NGOs that have good relationships with local communities and are open to partnering with private sector.

Which implamentition option is most situable in this case?

Option 1: single offset

Option 2: aggredated offset

Option 3: conservation bank

Situation C

- Several housing complexes planned to extend town of Port Macquarie in Australia, long environmental approval process.
- Residual biodiversity impacts range from large to small but together they are extensive and significant, and each needs to offset its impacts.
- Good capacity of regional government institutions, who are interested in offsets as these are being tested in neighboring states.
- One housing development company is ahead of others with its project, and has found a few large sites with the potential for a like-for-like offset.

Which implamentition option is most situable in this case?

Option 1: single offset

Option 2: aggredated offset

Option 3: conservation bank

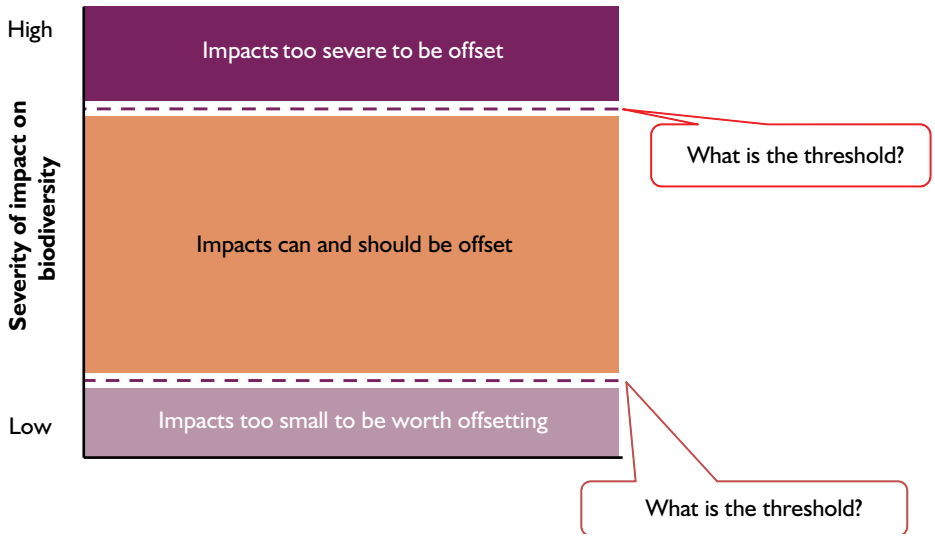
Module 4
Part II – Methodologies

Module 4 Part II – Outline

- Thresholds
- Ecological Equivalence (like-for-like or better)
- Loss-Gain Calculations
- Economic Valuation
- Offset Livelihood Component
- Exercise – Offset Activities

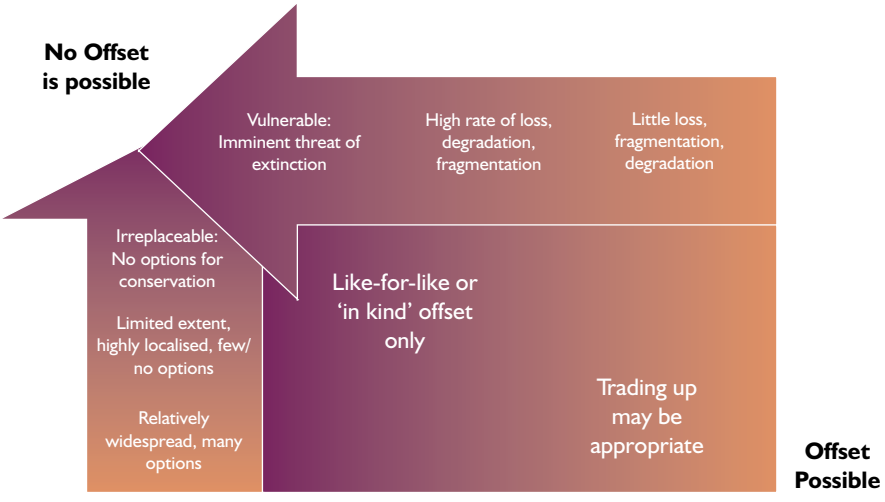
Thresholds

As Principle 4 described, there are some impacts on biodiversity that cannot be offset. To give an extreme example, making a species extinct is an impact that would not be capable of being offset. On the other hand, some residual impacts on biodiversity are so negligible (e.g. expanding a carpark in a city centre) that they may not be worth offsetting. These scenarios are illustrated diagrammatically here. The vulnerability and irreplaceability of affected biodiversity are key considerations to guide assessments of whether or not impacts are likely to be capable of being offset.



See BBOP Resource Paper on Limits to what can be offset

Some Impacts Cannot be Offset



Examples

Do you think it would be possible to offset impacts in the following two scenarios?

South Africa – global biodiversity hotspot.

Housing and golf estate in Critically Endangered Swartland Granite Renosterveld, less than 1% of this vegetation type remains, mostly in one municipal area.

Bujagali hydropower facility on banks of Nile River, within Jinja Wildlife Sanctuary.

Sacred natural site to people of the Busoga Kingdom, would qualify as 'critical natural habitat', in terms of World Bank O.P.4.04 and IFC PS6. WB questioned if loss could be compensated.

What is 'Ecological Equivalence' and 'Like for Like or Better'?

No net loss requires that biodiversity gains from the offset are comparable in ecological terms to the biodiversity losses resulting from development.

For gains to be comparable, or ecologically equivalent, the offset must replace the same type or kind of biodiversity, the same quality or condition of biodiversity, and replace that biodiversity in generally the same locality or region and within a reasonable time frame. Equivalence in the biodiversity lost and gained, or 'like for like', is sometimes referred to as 'in-kind'.

For instance, impacts to jaguar populations cannot be offset with gains in mangrove forests; impacts to an intact and large area of primary rainforest cannot be offset with gains that are restricted to small, isolated, and degraded forest fragments, etc.

Gains do not need to take place on the same site as impacts, but should not be too geographically distant – i.e., should occur in the same watershed or ecoregion. (This is the concept of 'service areas' used in conservation banking.)

Replacing losses that happen now with gains in the far distant future could result in significant temporal losses, which could become permanent losses (for example if habitats are not replaced within a certain amount of time, local or regional populations that depend on those habitats could be lost as a result of 'bottleneck effects'). Ensuring gains occur in a reasonable amount of time, or better yet, before impacts occur (e.g. with conservation banks) is a good strategy.

'Like-for-like or better' is a variation of the 'like for like' theme under which the offset may target biodiversity of higher priority for conservation than the biodiversity impacted. (For example, in some situations, the biodiversity to be impacted by the project may be neither a national nor a local conservation priority. There may be other areas of biodiversity that are a higher priority for conservation and sustainable use and under imminent threat or need of protection or effective management. In these situations, it may be appropriate to consider an 'out-of-kind' offset that involves 'trading up'; i.e. where the offset targets biodiversity of higher priority than that affected by the development project.)

See BBOP Resource Paper on No Net Loss and Loss-Gain Calculations

Example: Classifying Biodiversity Components - Basis of 'Like for Like' Offset

Vegetation classes identified at the Strongman Mine site:

- Scrub to 2 m height (21 ha) dominated by manuka, wirerush and tangle-fern;
- Yellow-silver pine (23 ha) , pink pine and manuka to 10 m height
- Rimu/mountain beech / Halls totara forest (30ha);
- Rimu/beech (73 ha) of red, silver & mountain beech forest;
- Lowland forest (9 ha) in valley floors, lower slopes.

Grouped into:

43ha scrub-type ecosystem.
112ha forest-type ecosystem.

Field surveys characterizing the vegetation focused on identifying:

- Primary species – canopy dominants;
- Species diversity in layers – especially the 0.5 to 2 m layer as this is affected by deer and goats to the greatest extent;
- Canopy height, sub-canopy height and layers of vegetation present;
- Tree diameter (diameter at breast height – dbh). Tree rings were removed from each vegetation type for aging;
- Slope, altitude and geology;
- Exotic species present.

Key Biodiversity Components: Checking for 'Like for Like'

The purpose of a biodiversity offset is to deliver no net loss of all the biodiversity offset components affected by the project. Although the goal of biodiversity offsets is no net loss or a net gain in overall type, amount, and condition of biodiversity, as a practical matter it is impossible to identify and measure the loss and gain of every single biodiversity component affected by a project or conserved through an offset. Consequently, identifying a subset of biodiversity components and related measures which serve as proxy measures to represent the overall biodiversity affected by a project is a necessary step in defining an offset. It is a useful approach to ensure rigour in biodiversity offset planning. Identifying an appropriate subset of biodiversity components and measures at the right scale is critical for key aspects of good offset design, such as ensuring ecological equivalence of losses and gains, calculating losses and gains, selecting appropriate offset sites, and determining the set of offset activities that will deliver no net loss or net gain outcomes. Biodiversity/conservation planning done at a landscape scale will provide an excellent regional context for decisions taken as part of these different steps. (For example, the identification of biodiversity proxies or surrogates (such as vegetation types, threatened species and their habitats, etc.) at coarse and finer scales is an integral part of conservation assessment and planning processes, which help to establish biodiversity status, significance and priorities in a region and provide important contextual information for individual projects.)

A necessary step in evaluating losses and gains is therefore to identify biodiversity components that can be used to represent all biodiversity affected by the project. This subset of components is selected as being characteristic or representative of the biodiversity of the affected area, and/or important for intrinsic as well as use and cultural value, and termed the 'key biodiversity components' (KBCs).

The KBCs are used in the offset to:

- help identify and evaluate the biodiversity impacts that the development project will have;
- help determine whether impacts can be offset (see Principle 4);
- help identify the offset activities needed to deliver gains to offset residual impacts;
- check that the offset design will deliver specific conservation outcomes;
- establish the ecological equivalence or 'like for like or better' comparison of losses and gains;
- inform the selection of the metrics that form the basis of the loss-gain calculation to demonstrate no net loss; and
- provide a basis to check that the offset sites and activities selected can deliver conservation gains for these KBCs, as a proxy for all the biodiversity affected by the project.

Environmental Funds involved in establishing systems for biodiversity offsets (such as implementation through aggregated offsets or conservation banks) would inevitably need to be informed by considerations of ecological equivalence and 'like for like'. Determining the KBCs for impact areas and offset areas is an important part of this.

It is likely that selecting KBCs will require a thorough review of the relevant literature and of planning processes and outputs (e.g. regional conservation plans, etc.) and the consultation and involvement of knowledgeable biodiversity specialists, as well as input from stakeholders. This could include recognized specialists with expertise in biodiversity and ecosystem assessment, in biodiversity offsets, in the relevant species or taxonomic groups, with excellent knowledge of the local natural environment, ecology and conservation biology, etc. These specialists may be recommended by peer groups or organisations (academic, governmental, non-governmental).

It can be helpful to use a matrix as follows to capture the key biodiversity components:

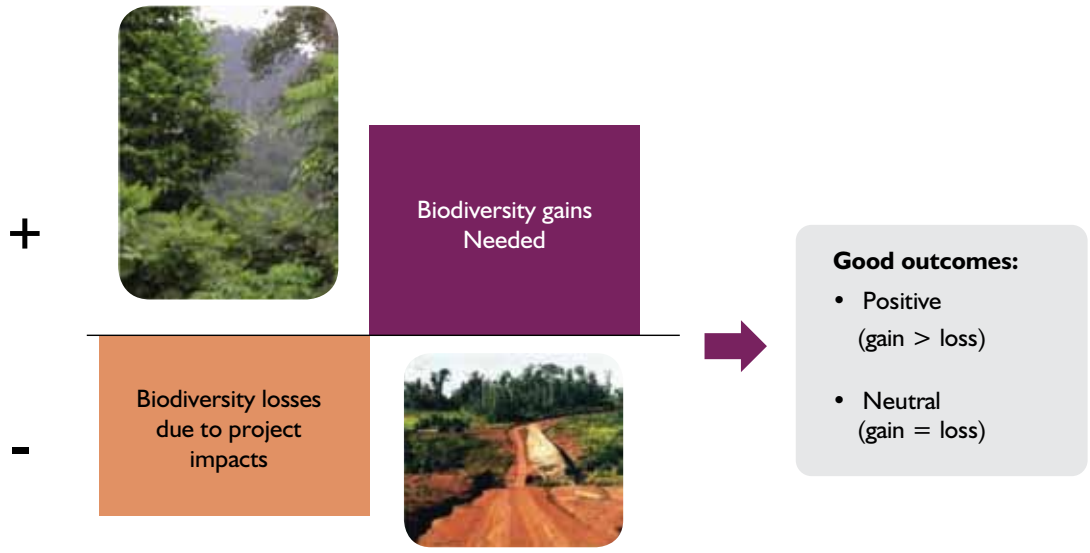
Key biodiversity components matrix			
Biodiversity Component	**Intrinsic Values (Vulnerability, irreplaceability)**	**Use Values**	**Cultural Values**
Species	Threatened species; restricted range and/or endemic species; congregatory species	Species providing fuel, fiber, food, medicines, etc.	Totem species
Habitats/ Communities/ Assemblages	Rare or threatened habitat types; exemplary habitats	Recreational sites	Sacred sites (e.g. sacred groves, burial grounds); sites of aesthetic importance
Whole Landscapes / Ecosystems	Climate regulation; seed dispersal; pollination	Air and water quality regulation; soil fertility; pollination	E.g. Landscape-scale sacred sites

Here is an example of a KBC matrix completed for the New Zealand case discussed earlier.

Biodiversity	**Intrinsic Values**	**Use Values**	**Cultural Values**
Animal species Avifauna, which includes threatened* (and iconic) species such as kiwi, New Zealand pigeon, kakariki, long tailed cuckoo, rifleman, New Zealand falcon, western weka, South Island Kaka, South Island fernbird (and others)	Presence of threatened species	No direct commercial value; all indigenous bird species listed are absolutely protected under the Wildlife Act	Special dispensation can allow Maori to collect some culturally important species, (e.g., New Zealand pigeon) for ceremonial purposes that are protected by the Wildlife Act; some bird species are considered taonga (treasured)
Plant species Threatened species Peraxilla tetrapetala; five species at southern limit and five species ENDEMIC to or of localised distribution known to be present to the east of the site	Presence of threatened species in the general area	No commercial or other use	Some plant species have medicinal value but no known current use of the area by Maori
Habitats Tall forest of rimu and beech Upland forest of rimu, beech, Hall's totara Podocarp forest (yellow-silver and pink pine dominated) characteristic of coal measures Podocarp-manuka shrubland characteristic of coal measures but some fire-induced	Known habitat for listed threatened animal species, potential habitat for other listed threatened plant species found outside of the site	Recreational hunting (all cultures); possum trapping. The area is 'State Coal Reserve' and thus has national economic value	Habitat for plants and species of cultural importance (food fibre and medicinal) considered taonga
Ecosystem Services Sediment control, stability maintenance, protection of water quality of Nine Mile and Ten Mile catchments	Landscape and ecosystem valued for AMENITY	Functions include: water catchment sediment control, assists stability of steep land, carbon sequestration	Natural water quality is valued by Maori and pakeha for cultural, recreational and amenity qualities

Biodiversity Loss and Gain Calculations

Loss gain calculations are fundamental to good biodiversity offset design as they are used to estimate the residual loss in biodiversity and the required gains needed to achieve a positive or neutral outcome.



See BBOP Resource Paper on No Net Loss and Loss-Gain Calculations

The building blocks of good approaches to measuring biodiversity loss and gain are as follows:

- Biodiversity counts and measures: what is being exchanged, or lost and gained?
- A currency constructed from these data: how much of what is being exchanged?
- An accounting model defining offset specifications: how much of what is needed?
- Spatial information to identify potential offset locations: where?

To reach 'no net loss' or a 'net gain', the offset planner needs to ensure equity in the type of biodiversity lost and gained over space and in time.

There are many potential methods and measures for calculating loss and gain, including:

- direct or proxy (surrogate) measures
- site-level or context-dependent measures
- aggregated or disaggregated measures.

Metrics

There are several common ways of calculating biodiversity losses and gains. These include:

- Using area as a proxy for overall biodiversity. As illustrated below, area alone is generally not a good measure of biodiversity and best practice has moved on.
- A combination of area and condition. Variants of area x condition metrics represent current best practice.
- Assessing populations of individual species (distribution, size, viability) and undertaking assessments of ecological functions.

Note: It may be necessary to use more than one metric in order to capture biodiversity losses and gains adequately in a specific situation.

See BBOP Resource Paper on No Net Loss and Loss-Gain Calculations; see also Tanaka, 2008; Hruby 2011 (for example); and Willamette Partnership 2011 for examples of loss-gain methods

Even within 'like for like' not all hectares are equal!

Area alone is not a good measure of the amount of biodiversity.

Area x condition metrics are pragmatic ways of measuring loss and gain, and generally represent current best practice. To assess the relative condition of affected biodiversity at both impact and potential offset sites a 'benchmark' is commonly used. The benchmark serves as a reference state (or site) against which losses and gains can be compared. To establish a reference state a finite number of measurable aspects of biodiversity can be assessed and combined, as is shown in the example below for vegetation (e.g. at a reference site in Australia).

Benchmark Approach: An Illustrative Example

	Component	Max. Value (%)
'Site Condition' Component	Large Trees	10
	Tree Canopy Cover	5
	Understorey	25
	Lack of Weeds	15
	Regeneration (woody)	10
	Organic Litter	5
	Logs	5
'Landscape Context' Component		25
	Total	100

In this case, the benchmark site/s (where vegetation in good condition) provide a reference point, and similar measures that are indicative of vegetation condition are made at the impact site (before the project, and results predicted for after the project's impact), and at the proposed offset site/s (before the offset, and the predicted outcome after the offset).

1. Benchmark Site

2. Pre-impact Site

3. Post-impact Site

4. Post offset Site

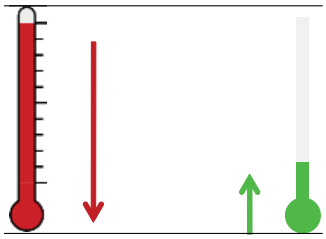
Why you Generally Need a Bigger Area for the Offset than the Area Affected by the Project.

Area of residual impact: 80 hectares

Condition before project: 90% of potential

Condition after project: 0%

Each hectare:
LOSS: 90%
GAIN: 20%



Condition before offset: 60%

Condition after offset: 80%

Loss = 90% x 80 ha = 72 habitat hectares
Area needed for offset = 72 habitat hectares ÷ 20% = 360 hectares

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The illustration above shows why an offset area usually needs to be larger than the impact area in order to achieve no net loss. This is because there is likely only to be an incremental gain in condition of biodiversity per hectare at the offset site, which may be less than the incremental loss per hectare at the impact site.

Economic Valuation

Most offset systems around the world use biodiversity-based metrics such as those described above to measure the project's losses and the offset's gains. However, economic valuation can be very helpful to supplement biodiversity-based metrics, particularly when taking into consideration losses and gains of local people's livelihood and cultural values of biodiversity.

- Economic valuation can be used to place a financial value on loss and gain of biodiversity.
- There are many methodologies. The BBOP Cost Benefit Handbook describes some on these.
- Most biodiversity offset methodologies around the world focus on biodiversity values themselves, not economic valuation.
- However, economic valuation can be very helpful to supplement biodiversity-based approaches to quantifying loss and gain.
- Economic valuation is particularly helpful when considering impacts on people's livelihoods.
- It also helps compare the package of benefits to different people of an offset with the impacts of the project.

See BBOP Cost Benefit Handbook (CBH); and
see the various TEEB reports in the Module 4 folder (for example, TEEB Synthesis Report, 2010)

Economic valuation of biodiversity and the ecosystem services that biodiversity provides can be used to complement and support biodiversity offsets. For example through:

- Estimating a financial value for biodiversity and ecosystem services (ensuring equity); and/or
- Quantifying the ecosystem services affected by biodiversity losses and gains to design payments for ecosystem services (PES) as a part of offset implementation.

A variety of economic valuation methodologies exist. Many of these are referenced in BBOP's Cost Benefit Handbook for further information and are the main subject of the entire TEEB study.

Incorporating ecosystem services and valuation into economic decision making is an emerging area of focus in the international community. This is a potential opportunity for Environmental Funds through market-based instruments such as conservation banking, PES, and combined carbon and biodiversity markets (REDD+), etc.

Over the last few years, there has been significant work on the use of economic valuation in the fields of biodiversity and ecosystem services, particularly through the recent TEEB programme.

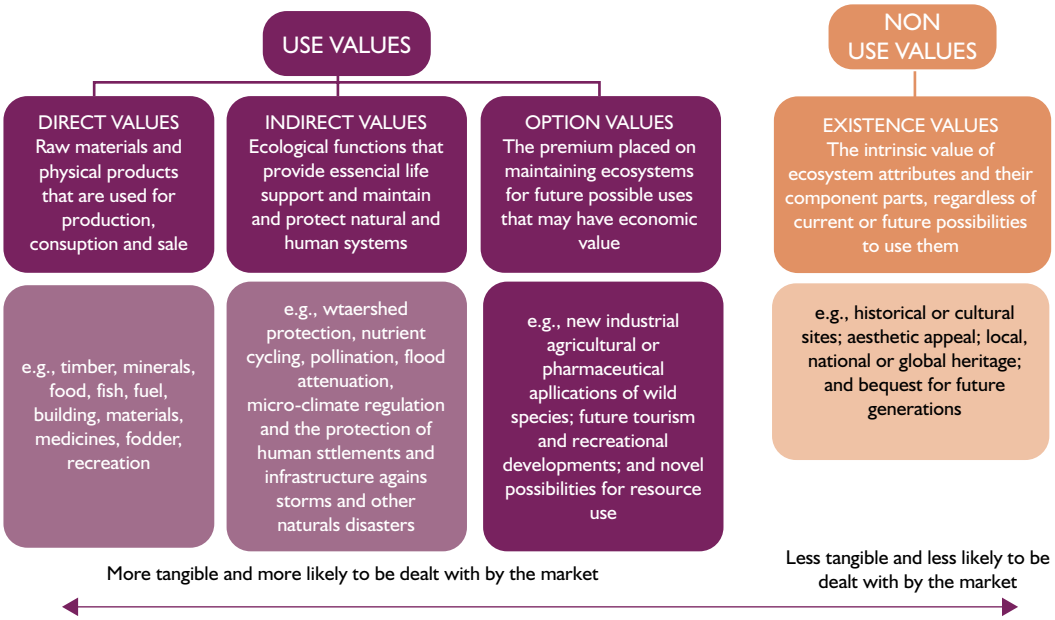
The Economics of Ecosystems & Biodiversity (TEEB) Mandate

POTSDAM INITIATIVE – BIOLOGICAL DIVERSITY 2010

"In a global study we will initiate the process of analysing the global economic benefit of biological diversity, the costs of the loss of biodiversity and the failure to take protective measures versus the costs of effective conservation."

- The TEEB initiative was a comprehensive effort to incorporate biodiversity and ecosystem service (BES) values into economic decision making;
- TEEB summarizes the business case (to society, financial institutions, business) of losing biodiversity and the opportunities associated with protecting and restoring BES;
- EFs may be interested in TEEB in relation to the 'green economy' – e.g., opportunities to generate value (both in terms of financial returns and the ES values themselves) from green investments such as conservation banking, carbon offsets, and PES.

TEEB describes different kinds of economic value, comprising Total Economic Value (TEV), as illustrated here:



TEEB Highlights

- Evidence of global decline in biodiversity is incontrovertible.
- Public awareness increasing, leading to changes in consumer preferences and purchasing decisions.
- Financial services industry starting to ask questions about biodiversity and ecosystems.
- Business beginning to notice the threat posed by biodiversity loss.
- All business depend on biodiversity and ecosystem services, directly or indirectly; most businesses also have impacts on nature, positive or negative.

Businesses that fail to assess their impacts and dependence on biodiversity and ecosystem services carry undefined risks and may neglect profitable opportunities.

> See TEEB Interim Report; TEEB for Business Executive Summary; TEEB for Policy Executive Summary; & Bekessy and Wintle – Using Carbon Investment for Biodiversity; see also Eurosif – Biodiversity Brief

What Counts as a Gain?

Having concluded a brief review of different methods for calculating loss and gain, we will consider the kind of activities and outcomes that count as a 'gain' for a biodiversity offset. What counts as a satisfactory outcome from 'compensation' is rather broader, and often less measurable in terms of in situ conservation outcomes.

1. Averted loss (securing biodiversity clearly at risk of loss by improving conservation status)
2. Active restoration/enhancement and stopping degradation (improving condition)

Examples:

- New area under protection (if biodiversity in this area has been shown to be at risk of serious degradation or outright loss);
- More and better (additional!) conservation outcomes in existing Protected Areas (PA);
- Conservation gains in unprotected areas by reducing pressures from deforestation, hunting, fishing, overexploitation. Working with communities on livelihoods.

Offset: Livelihood Component

The most effective offset activities often entail working with local communities.

- Address underlying causes of loss of biodiversity at offset sites;
- Meet biodiversity-related livelihood needs of local communities (e.g food, energy);
- Link offsets to achieving priority development outcomes.

Interactive Exercise: Which activities count towards a biodiversity offset?

- Funding publication of conservation journal
- Contributions to a Protected Area
- Capacity building for Protected Area staff
- Awareness raising for local communities
- Conservation research
- Set-aside an area that is not to be developed
- Establishing a plant nursery of medicinal plants with local communities

Case Study and Discussion

Calculating compensation and offsets in participants' countries

Module 5
Planning

KEY PLANNING ISSUES

Planning within the context of the offset:

a. Policy context
b. Landscape level planning
c. Planning a biodiversity offset in the context of other considerations (e.g. REDD+): multiple benefits, stacking and bundling
d. Planning the offset design and implementation

This Module will cover a range of 'real world' issues that Environmental Funds would likely confront if involved in implementing biodiversity offsets and compensation:

- Policy context: While comparatively few countries have comprehensive biodiversity offset or compensation law and policy, many have some provisions that would have a bearing on the design and implementation of offsets and compensation, and thus on EFs' roles.
- Landscape level planning: how compensation and offset activities are planned and positioned with respect to other land-uses, to support long-term implementation
- Multiple benefits: How to plan a biodiversity offset or compensation in a landscape where other activities, such as REDD+, are under consideration. How can 'additionality' for carbon and biodiversity be satisfied, and can you 'stack' or 'bundle' biodiversity and carbon credits?
- Planning offset or compensation design and implementation: We will discuss a number of issues that typically arise when planning offset and compensation design and implementation.

Finally, some typical challenges that EFs might face will be identified.

Planning within a Policy Framework

An early step in planning biodiversity offsets or compensation is to determine whether there are any relevant legal and policy requirements with which the offsets or compensation must comply. Some countries (the US and Australia, for example) have fairly comprehensive and detailed offset requirements that incorporate 'no net loss'. Offsets designed and implemented there will essentially be a matter of regulatory compliance. In many other countries, there may be relevant provisions that cover some aspects of a project but these may only cover some situations or part of a project. Sometimes policy requirements offer little or no guidance on the methods to be used, and in some situations are confusing, with overlapping or even contradictory provisions. In such circumstances, EFs will face a challenge. Naturally, offsets or compensation will need to comply with any requirements in force, but these requirements may be insufficient to allow the companies concerned to manage their risks. EFs may need to consider setting up offset or compensation schemes that meet legal requirements and offer additional safeguards to developers.

An example of a country with more than one law that enables or requires biodiversity offsets (or compensation) is Brazil. The example below illustrates how EFs will need to consider policy developments carefully, as well as considering if other measures may be needed to protect developers from risk.

Example - Brazil

Brazilian Forest Code Law 4771 of 15/09/1965, amended May 2011

- Set aside according to biome, e.g.: Amazon: 80 ▸ 50%; Cerrado: 35 ▸ 20%
- Landscape-level trading option
- Tenure, enforcement issues

SNUC Law No. 9985

- Amount invested in compensation determined by environmental agency based on the EIA and requirements of Decree 6848. Uncertainty since Supreme Court decision in 2009.
- Depending on the impact, the value can be up to maximum of 0.5% of the capital costs of the project.
- Fairness: Business complaints: compensation not proportionate to impact; complications with overlapping requirements.
- Effectiveness: important proportion of funds not released to support conservation?

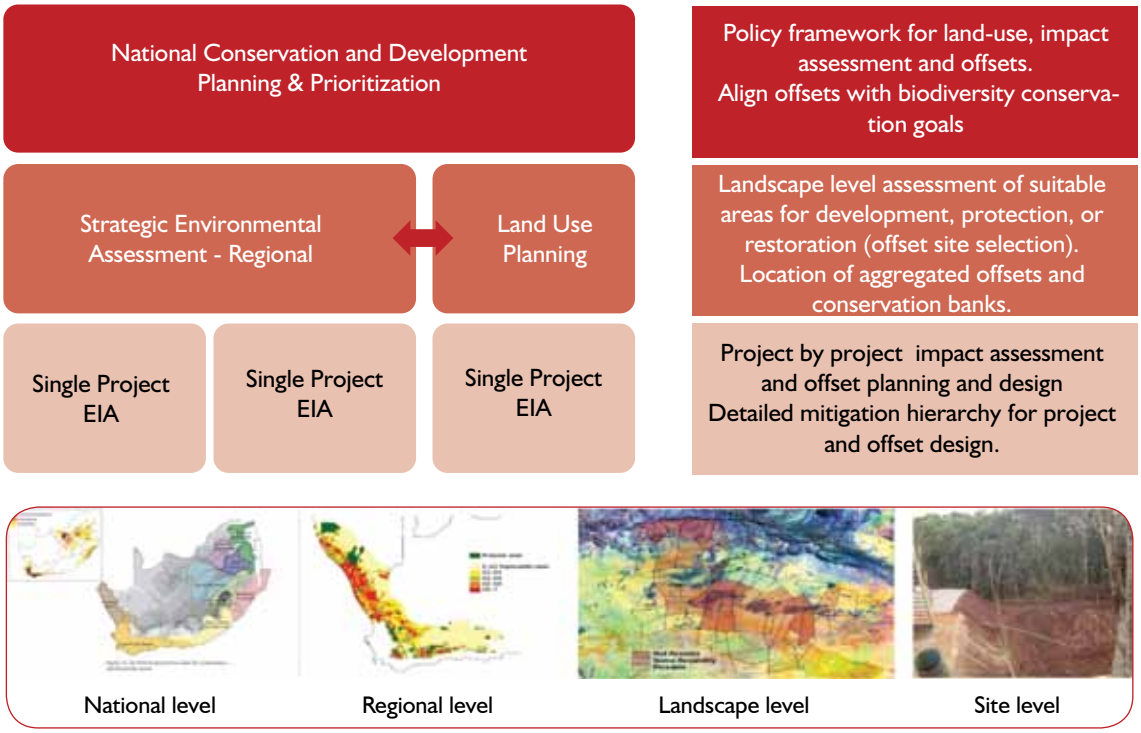
Under the Brazilian Forest Code, land owners are required to preserve a percentage of their land as forest. The 1965 law was amended in May 2011 to reduce the requirement – from 80% to 50% in the Amazon and from 35% to 20% in the Cerrado. Landowners unable to meet the minimum requirement of native vegetation on their own land can compensate another landowner (theoretically within the same watershed) to retain more than the minimum percentage of native vegetation cover.

A second policy framework for offsets in Brazil is 'Industrial impact compensation', also known as 'developer's offsets', as required by the National Protected Areas System Law (9985/00). This originally required at least 0.5% of the capital costs of the development go to the Protected Areas System (Sistema Nacional de Unidades de Conservação, SNUC) through the Environmental Compensation Fund (Fundo de Compensação Ambiental, FCA). Following challenges in the Supreme Court, this compensation requirement is now 'up to' 0.5% of the capital costs. The Chico Mendes Institute for Biodiversity Conservation (Instituto Chicho Mendes de Conservação da Biodiversidade, ICMBio) reported that from 2000 to 2008 the Fund totaled approximately R$500 million (US$214 million) from 300 compensation requests. However, of this R$500 million, in 2010, almost R$209

million were being held on account, while developers and policy-makers waited for the Supreme Court decision to determine whether past compensation sums would need to be re-assessed based on a new formula for calculating payment amounts.

These changes to the Forest Code and to the SNUC law in Brazil illustrate how EFs engaging with offsets will need to stay on top of changes in policy. (Source: 2011 Update - State of Biodiversity Markets.)

Relationship of Offsets and Compensation to the Planning Processes



This image illustrates how planning for no net loss and compensation can take place at a number of different levels. Even individual offsets and compensation need to be planned within a landscape context to succeed, and any aggregated offsets or conservation banks in which EFs are involved will definitely require a landscape level approach.

EFs involved in planning or implementing biodiversity offsets or compensation will likely find that there is a range of relevant planning processes underway, as illustrated here. Offsets or compensation planned with these in mind are likely to:

1. Address strategic conservation priorities and
2. Stand a good chance of long-term success (since they consider other planned developments and land uses).

Offsets and compensation may be planned within a variety of contexts and linked with other planning processes. For instance, national conservation or biodiversity action plans that prioritize areas for protection or restoration based on national goals or conservation targets can be used to identify priority sites for offsets or compensation activities. At the local, individual project level, planning of an offset or compensation often takes place within environmental impact assessment for an individual project. Offsets or compensation can also be planned as part of regional land use planning or strategic environmental assessments where conservation and development goals are assessed together and areas suitable for development and protection are identified. Offsets or compensation planned in the context of SEA or land use planning are more likely to be implemented through aggregated approaches or conservation banks. Larger, more strategic offset or compensation sites can offset impacts from multiple development projects.

For the SEA/National conservation planning levels, offsets or compensation activities can be planned ahead of individual projects or development actions as part of strategic land use planning. In these cases, it may be possible for offset gains to be in place before development impacts occur.

The following slide shows how offsets and compensation fit into the bigger planning framework. It emphasises that finding a suitable location for offset activities, using landscape level planning, is important but just one part of offset design and implementation. It is equally important to undertake loss-gain calculations so the extent of the area needed for the offset and the nature of offset activities are identified.

See Alshuwaikhat SEA in Impact Assessment, 2005;
Tarr and Figuera 1999, Namibia's EIA Framework – Evolution of Policy and Practice & IAIA, SEA Performance Criteria

Introduction to 'Landscape Level Planning' (LLP)

Landscape-level planning is at the heart of planning a successful biodiversity offset and indeed compensation, whether as an individual effort, an aggregated offset or a conservation bank. Landscape level planning and Strategic Environmental Assessment are defined here.

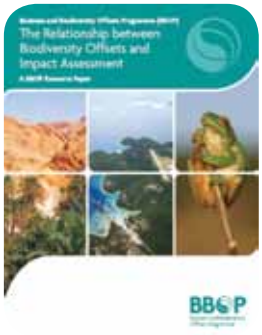
> See Faith & Walker, 2002; Faith et al, 2001; Kiesecker et al. 2009; McKenney and Kiesecker 2010

Landscape level planning (LLP)
Spatial planning done at a regional scale and using a systematic approach that aims to balance ecological and socio-cultural needs with economic activities in the landscape.

Strategic Environmental Assessment (SEA)
A system of incorporating environmental considerations into policies, plans and programmes. SEA is impact assessment applied at the policy, plan or programme-level to evaluate the inter linkages with economic and social considerations.

A variety of approaches, tools can be suitable.

Where Do Offsets and Compensation Fit In?



Planning in a landscape context is important for offsets and compensation:

- Guides application of the mitigation hierarchy
- Underpins the selection of offset and compensation sites
- Supports planning for aggregated offsets and conservation banking

(Reminder: In addition to landscape planning, designing an offset to achieve no net loss or net gain means explicitly calculating residual biodiversity loss and offset gains.)

The Planning Process

There are many ways to undertake a planning process. EFs may find themselves leading or contributing to such a process. A typical approach is illustrated here:

How to undertake a planning process?

1. Who, where and how? Identify stakeholders and overall goals, design a suitable approach
2. What to conserve? Map spatial layers [Biodiversity pattern & process, - Current land uses, PAs, - Predicted land use pressures /impacts]
3. How much to conserve? Set objectives/ targets
4. Where to conserve/develop? Analyse information layers (using software like C-Plan, MARXAN etc) to identify priority areas for conservation in the context of other land uses/ development now and into the future. [Helps broadly identify areas where impacts should be avoided or minimised à suitable offset receiving areas (1. meet the like-for-like/better criterion, 2. contribute to the country's conservation goals, and 3. contribute to living landscapes and connectivity) à areas suitable for development]
5. Interpret outputs, design a plan
6. Develop products that are meaningful to users
7. Integrate products into decision-making systems

Note: This is iterative! May need further finer scale planning.

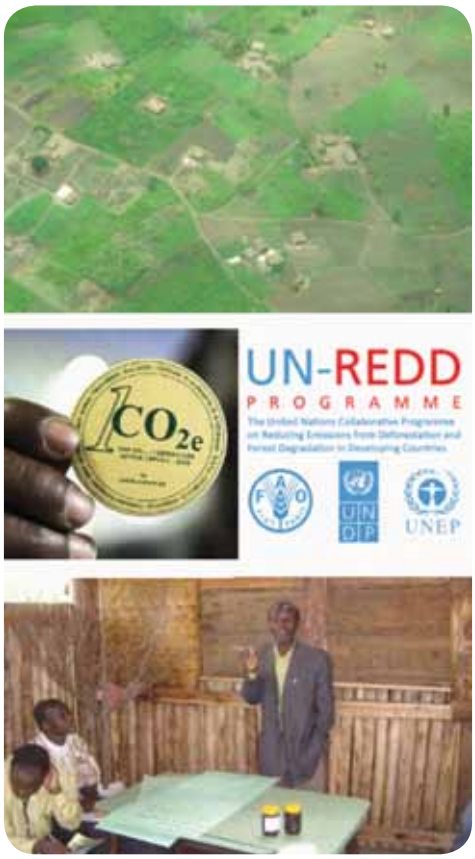
Key elements to consider from the outset:

- Scale: Broad (regional level) to fine scale (generally at the project level)
- Collaboration amongst stakeholders
- A common goal
- Information, spatial data: Biodiversity (species, ecosystems, ecological processes, connectivity), socio-economic, land use (current, predicted)
- Context-specific approach: There is no 'recipe'.
- Think about implementation: Who will implement the plan and how?
- Capacity, skills: Critical to support iterative planning and implementation in the long-term.
- Government involvement / ownership

Multiple Benefits

How can planners include biodiversity, carbon, water, and poverty alleviation issues in the same landscape?

Organisations such as EFs seeking to raise income from conservation-friendly activities are likely to consider a number of activities. In addition to biodiversity offsets and compensation, Payments for Ecosystem Services Schemes (PES), REDD+ and other activities may be considered within the same landscape. This gives rise to interesting questions that are still being resolved in the international community and in individual contexts. For instance: carbon offsets have a requirement of 'additionality' and so do biodiversity offsets. If an area is already planned for the generation of carbon credits, could biodiversity offsets also be generated on the same land, or would this fail to satisfy the additionality requirement? Policy-makers and companies working on these issues are starting to explore approaches to 'stacking and bundling' that have been applied in the US, and to consider other approaches to securing 'multiple benefits' within the landscape.



See OECD Paying for Biodiversity; Herbert et al.; FT Environmental Funds and PES; FT Investing in Carbon – 1st 20 Years; Milder et al. 2010, PES and Rural Poverty

Key Biodiversity Offset and Compensation Planning Issues

From cradle to grave, EFs will need to consider a number of issues to determine whether biodiversity offsets or compensation are appropriate and how to go about them. The following slide summarizing some of the issues.

How to establish whether and when an offset/compensation is appropriate?

- Go/No Go
- Offsetable/Not Offsetable
- Values
- Mitigation Hierarchy

Metrics: how to quantify impact losses and offset gains?

- Structure & Composition
- Ecological Process and Function
- Socioeconomic and Cultural aspects

Offset or compensation activities and location

- Landscape level planning
- Compliance and beyond
- Out of kind and trading up

Implementation: how to make an offset or compensation succeed in practice?

- Roles & responsibilities
- Legal structures, institutional arrangements
- Financial assurance
- Monitoring, enforcement

See BBOP Offset Design Handbook; BBOP Resource Paper on No Net Loss; BBOP Resource Paper on Limits to what can be offset

Challenges for EFs

A number of other issues will arise for EFs involved in offset planning and implementation.

- Engaging stakeholders
- Compliance with national laws & additional 'voluntary' measures to manage risk
- Human resources
- Financial resources

Interactive Exercise: conservation banking/conservation credit scheme to offset agricultural expansion

Description of the situation:

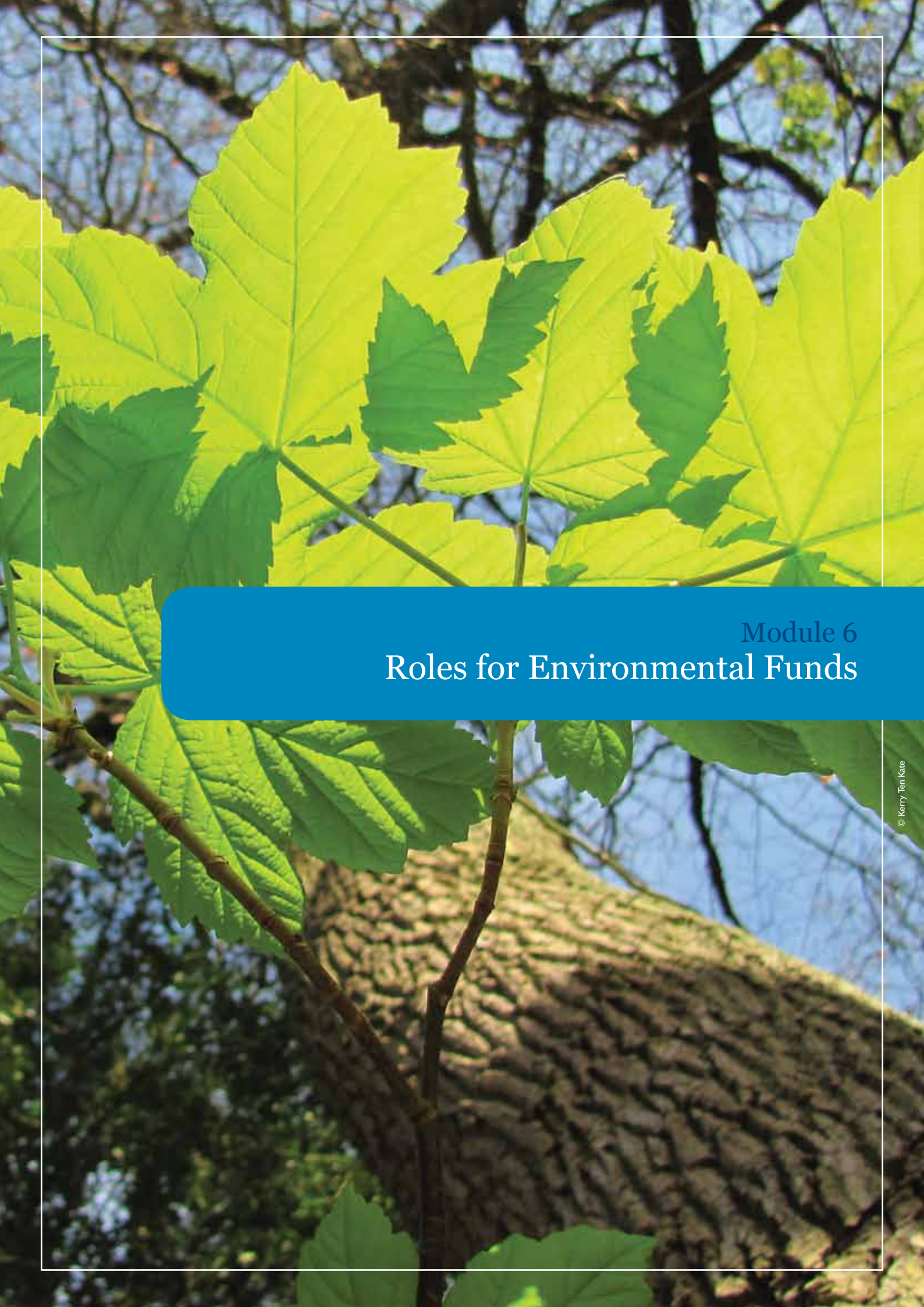
- Large-scale expansion of oil palm plantations planned for a 5 Million ha region in Colombia
- Several multinational companies involved, some of them applying for IFC funding, are RSPO members and/or have no net loss (NNL) policy – committed to best social and enviro practice, including biodiversity offsets
- Each company has several land concessions, together covering ~ 30% of the landscape
- Region is currently a mosaic of rural land uses (cultivation, settlements, etc.), some of which are extensive but productivity is low
- Government has no detailed land use plans for the region, and would like to see quite rapid development across the region , not just of agriculture but also of nature-based tourism

Role of the Environmental Fund (EF):

- Your EF knows from experiences in neighbouring countries that large-scale, rapid expansion of oil palm plantations can cause massive environmental damage and biodiversity loss, unless sound environmental and social practices are followed
- You also recognise this as an opportunity to engage with the private sector, and to link agricultural development and conservation work in the region.
- You start discussions with the companies and government on the need, purpose and process of planning for NNL of biodiversity across the region. You want to convince the other parties of the importance of doing the planning before developing the area.

Tasks:

- Identify the benefits of landscape planning for biodiversity and agricultural expansion in the region, and the opportunities that can result from good planning; and
- Identify the risks of not doing landscape planning.



Module 6

Roles for Environmental Funds

Roles for Environmental Funds

Roles for EFs	Other roles to transition towards
Financing the offset/compensation (conservation funds)	Engagement with private sector
Seller of credits	Design of offset management plans
Broker for credits	Scientific expertise (advise on social and ecological studies)
Credit registry operator	Project management (including budgeting for management plans)
Management of land (as part of a trust for offset purposes)	Long-term monitoring and oversight
Conservation Stakeholder (input into design and implementation, convene public stakeholder engagement)	Risk review
EIA process (reviewing / overseeing)	Advisory roles
Policy (support improvement in EIA practices, promote mitigation hierarchy and offsets and improved land-use planning)	Partnerships

Roles will depend on the specific EF, existing roles and capabilities, and ability to mobilize resources. EF may be able to expand their role beyond that of managing financial resources and distributing money:

- Design of the offset management plan;
- Social and ecological studies;
- Project management - including budgeting for management plans;
- Long-term monitoring and oversight;
- Risk review.

Conservation Stakeholder:

As major regional or national conservation institution:

- Provide input into the offset design process;
- Help ensure adequate public participation – act as a convener.

Environmental Impact Assessment (EIA) Role:

- Participate in the EIA process – stakeholder review to ensure that they adequately address biodiversity issues.

Policy Role:

- Support improvement in EIA practices;
- Work with appropriate jurisdictions to promote mitigation hierarchy and use of offsets;
- Promote more effective land use planning to deliver more effective/efficient offsets (aggregation banking);
- Reach out to Government to demonstrate how a NNL policy can lead to biodiversity protection and provide support for its development;
- Work with national companies to promote adoption of corporate NNL policy;
- Work with lenders to promote more biodiversity friendly lending practices (Equator Banks, IFC Guidelines).

> Crowe and ten Kate, 2010, BBOP Biodiversity Offsets Policy Options for Governments (parallel roles for EFs); Adams and Victurine, Conservation Trust Funds

Financing the Offset

Example

Offset Design: Annual costs for managing an offset (including investments, replacements costs, etc.) over 30 years = $600,000.

Cost of managing the Funds is $50,000.

Total Annual Cost - $650,000

1. Company agrees to finance the offset by establishing an endowment fund – agrees to an upfront payment - a minimum 4% return is assumed as part of the design.

The company would need to provide a payment of $16.25 million.

2. Company makes annual payments of $650,000 plus any adjustments for inflation. Fund manages payments to cover specific annual expenditures as well as annual excess payments to cover investment and replacement (held in escrow).

Note: need to have guarantees/insurance for compliance with long-term payment plan.

3. Company makes annual payments plus a supplemental annual payment that will lead to an endowment that will meet annual costs over 30 years into the future.

(Supplement is held in escrow and invested to earn at least 4%)

Summary	
Annual Payment:	$650,000
Annual Payment in Year 30	
Assuming 1% annual inflation	$876,000
Endowment Amount Required	
Assuming 4%	$21.9 M
Supplemental Payment:	$375,460
Total Annual Payment:	$1,025,460

Conservation Fund Options

Work through existing institutions where feasible (e.g. established conservation fund)

OR

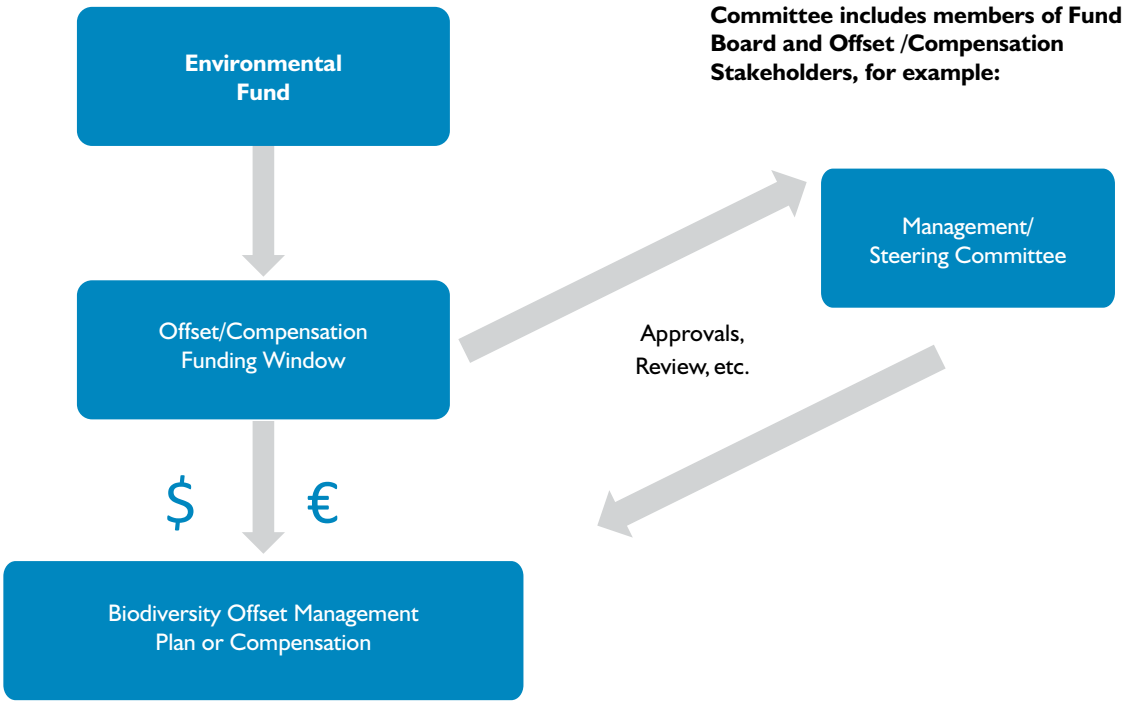
Create a new institution or fund to manage offset funds

OR

Develop a combination new and existing institutions/mechanisms that deliver results, guarantees adequate accountability and deals with risk

Note: Funds established in more than 50 developing countries

Fund Management



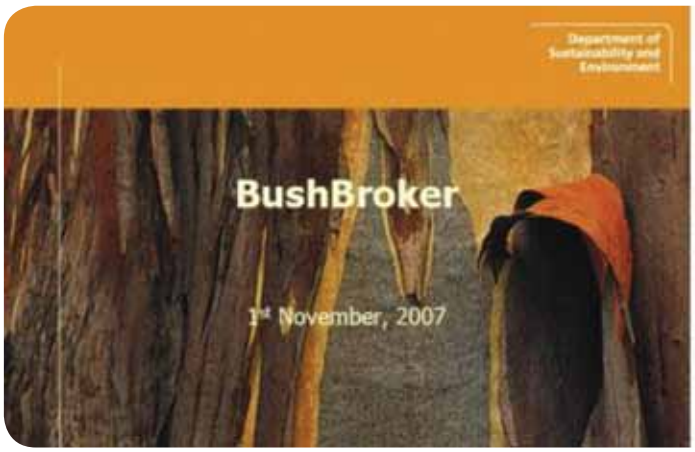
Offset Implementation Roles

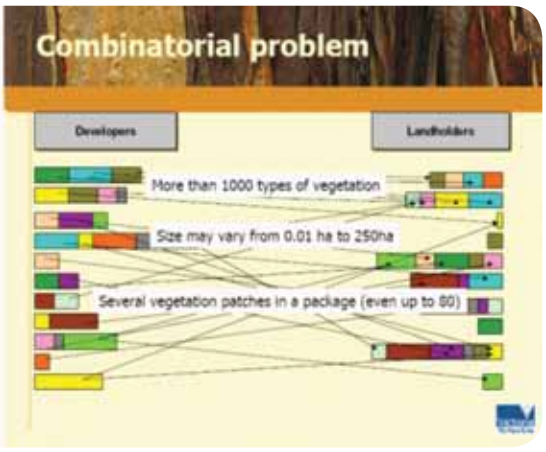
Key Stakeholders	Broad Roles
• Government	• Direction / oversight / management
• Developer	• Field-level activities
• NGOs	• Monitoring
• Community Groups or Associations	• Financing
• Donors	

Design and implementation

- Map territories and define conservation priorities to design funds;
- Design and manage Funds for offset schemes;
- Design and manage offset projects and programs (grant making);
- Leverage resources for offset funds;
- Engage strategic stakeholders – local communities, government, NGOs, business;
- Partner with the private sector;
- Participate in public policy design and implementation;
- Monitoring and reporting for transparency and quality assurance.

Example: Australia – BushBroker





Introduced by government of Victoria, Australia.

- Clearing of native vegetation often requires planning approval.
- Offsets can be generated on applicant's own property.
- Sometimes applicant has no suitable site, or can't manage native vegetation in long-term.

So:

- In most cases, the clearing must be offset by a gain elsewhere. E.g. purchase a credit.
- A native vegetation credit is a gain in quality/extent of native vegetation subject to a secure and permanent agreement registered on land title.
- Offsets are permanently protected and linked to a particular clearing site.
- BushBroker facilitates identification of offset sites to match particular impacts.
- BushBroker provides a system to establish, register and trade native vegetation credits, primarily for offsets.

See BushBroker Introduction, State of Victoria, Australis

Australia - BushBroker: Why?

Developers found offsets difficult:

- Complex rules
- Inefficient
- Lack of information about price, demand and supply
- High transaction cost
- 'Red tape'

Bushbroker helped:

- Find buyers and sellers
- Credit auction trial
- Security (legal certainty)
- First trade in May 2007

As of July 2011: 300 trades
Total value over A$34 million

Example Case Study – Chad Cameroon Pipeline

Project designed as compensatory mechanism for impact of pipeline. Sinking fund created as part of discussions between:

- World Bank
- ExxonMobil-Chevron-Petronas consortium
- Government of Cameroon
- Cameroonian Civil Society supported by international community
- FEDEC created and registered in the Hague, the Netherlands, on 29 March 2001
- Pipeline Company allocated start-up capital of 3.5 million US dollars upon creation of the Fund (FEDEC)

The two main areas of impact of the project on biodiversity are:

- Direct impacts through the clearing and fragmentation of vegetation along the pipeline easement and for associated infrastructure, with associated disturbance and displacement of wildlife. It is estimated that loss of habitat would be in the order of 10,000 ha; and
- Indirect and potential cumulative impacts through giving access to previously inaccessible areas for hunting, farming, or logging activities.

COMPENSATION/OFFSETS (off site)

- Assistance for environmental protection and biodiversity conservation activities in the Campo-Ma'an (275,000 ha park and 420,000 buffer zone) and Mbam-Djerem (415,000 ha) National Parks;
- Assistance for the development and self-promotion activities of the Indigenous People living between Lolodorf-Bipindi-Kribi;
- Project developers provide $3.5 million over 28 years and assume other funding partners will contribute (funding amounts considered partial and based on minimum management requirements).

Financial Challenges

- Revenue generated from $3.5 million investment insufficient to cover administrative and operational costs of the Foundation and ensure conservation of two sites and social investments;
- To cover operational and administrative costs FEDEC estimated minimum of $12 million required
- Market losses from investment exacerbated the financial difficulties.

Lessons Learned

- Baseline studies as the basis for predicting impacts on the environment were inadequate and caused conflicts over resources;
- There was no clear linkage between baseline data collection, the assessment of project impacts and the subsequent application of mitigation and management;
- Insufficient and unsustainable funding for management of the two national parks was seen as the biggest challenge/constraint to this project;
- Lack of institutional capacity – objectives of the project were beyond what could be delivered by State or civil society.
- Potential regional impacts resulting from cumulative impacts were not adequately dealt with in the EA or EMP as required; cumulative impacts were addressed in the narrow imprint of the pipeline servitude only;
- The level of participation of stakeholders was deemed inadequate by organizations in the field and is demonstrated by the lack of attention to local livelihood issues resulting from both the project and compensation;
- The large ratio of area of protected and managed natural habitat to the area impacted suggests that the offset would in all probability exceed requirements for ensuring no net loss – assuming there are adequate resources and capacity to manage the sites

Case Study and Discussion

What roles can EFs play in compensation and offset schemes?

Module 7

Interactive Exercise: Planning an offset for a wind project

Windy Ventures Offset Planning Exercise

The aim of this exercise is for teams of participants to plan a biodiversity offset for Windy Ventures so that it will meet best practice standards. A set of facts is given, and participants should use their experience, what they have learnt in the previous modules, and the BBOP Principles and selected indicators as a guideline. The idea is to identify key steps that would need to form part of offset design and implementation, to assess the project's scope and impacts on biodiversity in the specific landscape context, where necessary- redesign project components to avoid irreplaceable areas, identify an offset from a variety of options that would meet No Net Loss (NNL), identify the ways in which their Environmental Fund could be involved, and the roles it could play, especially relating to offset implementation.

WINDY VENTURES, ZEDERBURG Exercise:

Planning a biodiversity offset to meet the draft biodiversity offset standard and IFC PS6

Exploring the role that Environmental Funds can play

1. Project description and context:

Windy Ventures Inc. is planning to construct a 120 MW wind farm of 60-80 turbines on a 5400ha farm in the Zederburg mountains, in South Africa. Several farms in the area have recently been sold to companies planning to act as independent power suppliers in the country's emerging renewable energies market and wanting to develop wind farms in the region. A local consulting firm is busy with the Windy Ventures EIA, which should be complete for submission to the competent authority in a few months time.

The company plans to install the wind turbines on a N-S running ridge on the farm, which is interrupted by a small valley containing a wetland. The draft EIA indicates significant project impacts on a population of endemic Zeder trees on the northern part of the ridge, where a quarter of the turbines are planned. The Zeder is listed as 'Endangered' (EN) on the IUCN Redlist of Threatened Species ('information to be updated') and as 'Critically Endangered' (CR) on the National RedList. Owing to the high irreplaceability and vulnerability of the trees, their habitat is mapped as a Critical Biodiversity Area (CR) by the National Biodiversity Assessment (2009), and the area qualifies as 'Critical Habitat' under IFC-PS6. A recent fire destroyed two of the five remaining Zeder populations in the region, and only three populations of mature Zeders are left in total.

The southern part of the ridge where the remaining turbines are to be based lies in 'Natural Habitat', according to PS6. The ecosystem here is Clanwilliam Fynbos, classified as 'Least Threatened' by the National Biodiversity Assessment. The total area of vegetation to be cleared is 252 ha – this is for the turbines, access roads and other infrastructure.

Specialist studies further state that the Clanwilliam Grand Bat is particularly vulnerable to turbine strike, with the predicted mean mortality rate being 26 adult bats per annum. An important Grand Bat roosting cave is found on a neighbouring farm, where there has been an increase in bat predation by an introduced rinkhals snake.

In addition, it has been observed that the track used for prospecting the project, which will become the permanent access route for maintenance of the turbines, is increasingly used by people collecting selected local plant species and a rare frog species (occurring in the wetland habitat) for the illegal wildflower and wildlife trade. The EIA further suggests that the access road will cause soil erosion which will cause sedimentation in the wetland in the valley between the northern and southern ridges, affecting water quality to the detriment of the downstream local farming community, whose drinking water and fish supply comes directly from the river.

Windy Ventures Inc. has been investigating financing options and intends applying to ***SAbank***, a South African bank which has adopted the Equator Principles, for project finance once the environmental authorization has been granted. To distinguish itself from other renewable energy providers, Windy Ventures has made a public commitment of no net loss of biodiversity for its new Zederburg project. The company is also interested in exploring opportunities for conservation banking, which would allow Windy Ventures to offer biodiversity credits to some of the other

companies planning wind farms in the region. The company has been discussing its project and plans to offset with a well-established environmental fund (**EFSA**) registered in South Africa. Windy Ventures wants to ensure the long-term sustainability of its offsets and wants to put in place the right financing and arrangements, review procedures etc. and is exploring with EFSA the different roles that the fund could play.

Keep the Zeder in the Burg, a well regarded and very well networked local NGO, voiced its concerns about the project at a public meeting held as part of the EIA process. It opposes the project mainly due to its predicted impacts on the Zeder trees, but is also concerned about sedimentation of the wetland and reduced water quality for the downstream community. It used the presence of some San rock art in a cave on the northern ridge as part of its arguments. It pointed out that the local protected area is poorly resourced and monitored, that biodiversity in the area is increasingly under pressure because of habitat transformation – partly due to additional wind farms slated for the area – as well as illegal collection of wildflowers, overfishing and poaching of game. There is a regional restoration programme for Zeder trees that is part government part donor funded and which employs teams of local people to undertake restoration work. Several sites on private land and in protected areas have been identified for restoration in the vicinity of the project, but the programme is short of funds to roll out the work. The NGO maintains that what is needed is support for the restoration initiative, and a connected and well resourced network of conservation areas within the Zederburg, for which financial resources, though not technical expertise, are lacking.

2. Tasks and team members:

Tasks:

This exercise is to establish what Windy Ventures needs to do to satisfy its own NNL of biodiversity commitment and obtain SABank finance for its Zederburg project, and under what terms and conditions concerning impact avoidance, minimization and biodiversity offsets.

Participants will work in groups, where one team will represent SABank, one will be from Windy Ventures and one from Keep the Zeder in the Burg. You have **this briefing document**, some **maps**, **PS6** and the B**BOP Biodiversity Offset Draft Standard** (Principles, Criteria and Indicators) to work with. In the draft standard, a s**ub-set of the indicators** has been specifically highlighted to form the focus of the exercise.

- Can the groups agree on the mitigation measures and offset design to the satisfaction of SABank?
- Groups will report back on their findings, and with a proposal for the Windy Ventures project, including a plan for the design and implementation of the biodiversity offset.

Teams:

SABank team: You can only offer finance to projects that comply fully with PS6. The draft EIA mentions a biodiversity offset in passing, but simply raises the possibility of achieving this by contributing to an offset fund, without offering any details of specific offset activities, their location, or the scale of the required investment. The Independent Engineer has already pointed out that the mitigation measures in the EIA do not meet the standard of PS6. You have misgivings about whether any development on the northern ridge is possible, but want Windy Ventures' project to be as profitable as possible. You are aware that far better outcomes on the specific environmental impacts, particularly on Critical Habitat, are needed, and a proper Biodiversity Offset Management Plan.

Windy Ventures team: You think that the consultants' draft EIA does a fine job, and would like to wrap this up and submit it as quickly as possible to obtain approval and move ahead with the project. However, given stakeholder objections, and recent meetings with the IE, you realize that you may need to go back to the drawing board. Your company doesn't have the capital to fund the project itself and has spent two years seeking finance from other investors. Meeting SABank's terms seems to be the only commercially viable option available to you at present. To keep the project financially viable, you cannot afford to lose more than 30% of the scale.

EFSA: This is your first engagement with a potential biodiversity offset project. You are keen to be involved in this opportunity to harness funding from the private sector for conservation work in the region, where you are already contributing to the financing of several other conservation projects, mostly from donor money that's earmarked for support to the regional protected areas network, support for conservation extension staff working with private landowners in the region, and a riverine rabbit and a honey bee project. You're interested in exploring the most suitable role for EFSA in the Windy Ventures offset, and you are well-aware of the reputational risks to your Fund if the company and its partners do not deliver successful outcomes.

Keep the Zeder in the Burg team: You are convinced that it is impossible for the project to proceed on the northern ridge in compliance with PS6 or the BBOP PCI and you are putting pressure on SABank and EFSA to ensure best practice is followed. You've considered the BBOP PCI to explore a possible offset for a project on the southern ridge alone, and you see a possible 'no net loss' outcome for this smaller project, provided a package of activities that provide additional and measurable conservation outcomes is designed and put in place. You view the following as conservation priority actions: strengthening and expansion of the local protected area, limiting the fragmentation and conversion of natural areas and securing potential Zeder restoration sites on private land for conservation through existing conservation stewardship initiatives, supporting the on-going restoration efforts, protecting the wetland and working with local communities, and supporting the operational costs of your NGO so that you can continue your valuable conservation programmes in the region.

Key questions for the teams to consider (along with selected, relevant indicators from the BBOP draft standard):

Key guiding questions	Some relevant BBOP Indicators to consider
1. Which project impacts does Windy Ventures need to consider?	INDICATOR 1-1-1: The commitment to a goal of no net loss or a net gain of all biodiversity components affected by the project is stated by the project developer in a publicly available document. INDICATOR 3-1-1: An assessment of the development project's impacts on biodiversity (including direct, indirect and, to the extent feasible, cumulative impacts) is conducted with stakeholder participation.
2. Are any of the impacts not capable of being offset?	INDICATOR 4-1-1: A risk assessment is undertaken to predict the level of risk that the project's residual impacts on biodiversity will be not be capable of being offset, with special attention afforded to any highly irreplaceable and vulnerable biodiversity components.
3. Does the project need to be redesigned, and if so, will it still be viable?	INDICATOR 3-1-2: Measures to avoid and minimise biodiversity loss and to rehabilitate/restore biodiversity affected by the project are defined and documented, and these measures implemented, monitored and managed for the duration of the project's impacts.
4. What opportunities and constraints exist for offsets in the region?	INDICATOR 5-1-1: The identification of potential offset locations is undertaken in the context of a landscape level analysis, and the ecosystem approach is used to plan the offset.
5. What are the possible offset options (sites and activities), are they all additional, and are they likely to be adequate (to meet no net loss)? 6. What would a feasible offset design for the project look like, and is there scope for developing a conservation bank that would provide 'extra credits' that could be sold to other companies?	INDICATOR 1-2-5: The methods to determine the net balance and equivalence of losses and gains (Indicator 1-2-2) are applied as the basis for the offset design, and demonstrate no net loss or a net gain of biodiversity.
7. Have the impacts on the local community been taken care of?	INDICATOR 6-1-3: The roles of relevant stakeholders in the implementation of the biodiversity offset, including its evaluation and monitoring, are established and clearly defined in the Biodiversity Offset Management Plan.
8. What are the key factors to plan for so that long term success of the offset can best be guaranteed? 9. What role can and should the environmental fund EFSA play?	INDICATOR 8-1-2: Legal and financial mechanisms are in place to guarantee the financial and institutional viability of the offset for at least the duration of the project's impacts, including under conditions of a sale, or transfer of project ownership or management.

Proposed project by Windy Ventures:

- Wind energy: 60-80 turbines on a farm of 5400 ha in the Zederburg Mountains, South Africa
- Windy Ventures is ahead of several companies keen to develop wind farms in the region
- Corporate NNL commitment for the project
- EIA well underway, offset fund proposed

Predicted impacts:

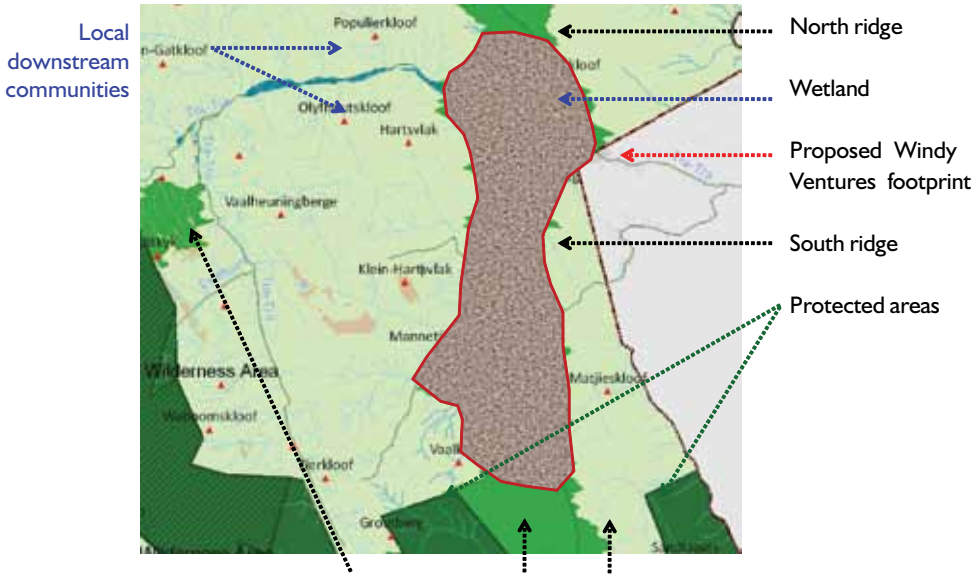
- Turbines, roads, infrastructure to cause removal of 252 ha vegetation ('Least Threatened')
- One of 3 remaining populations of Zeder trees ('EN' on IUCN RedList, 'CR' on National RedList) occur in N part of project footprint
- Potential degradation of wetland and impacts on downstream community (water use, fishing)
- Bat mortality due to turbine strike

Stakeholders, financing

- Public stakeholder meetings: Local NGO 'Keep the Zeder in the Burg' opposes project
- Issues: impacts on Zeders, fynbos vegetation, wetland, local community, increased illegal wild-flower collection, nearby rock paintings
- Wants project cancelled or redesigned, application of BBOP draft Biodiversity Offset Standard
- SABank, an 'Equator Bank', requires adherence of requirements to IFC-PS6, interested in financing a viable project
- EFSA, a well-established Environmental Fund, which has been in early discussions with Windy Ventures about the project and offset opportunities, you are keen to play a role, and to see best enviro and social practices being applied.

Regional context:

- Biodiversity planning at landscape level: ecosystems classified
- Threatened plant/animal species lists available (national, IUCN RedLists)
- Protected areas (underfunded)
- Regional Zeder Restoration Initiative
- Private land conservation actions incentivised



What does Windy Ventures need to do to satisfy its NNL commitment and obtain SABank finance for the proposed project, especially concerning impact avoidance, minimization and biodiversity offsets?

What are the various roles an environmental fund could play?

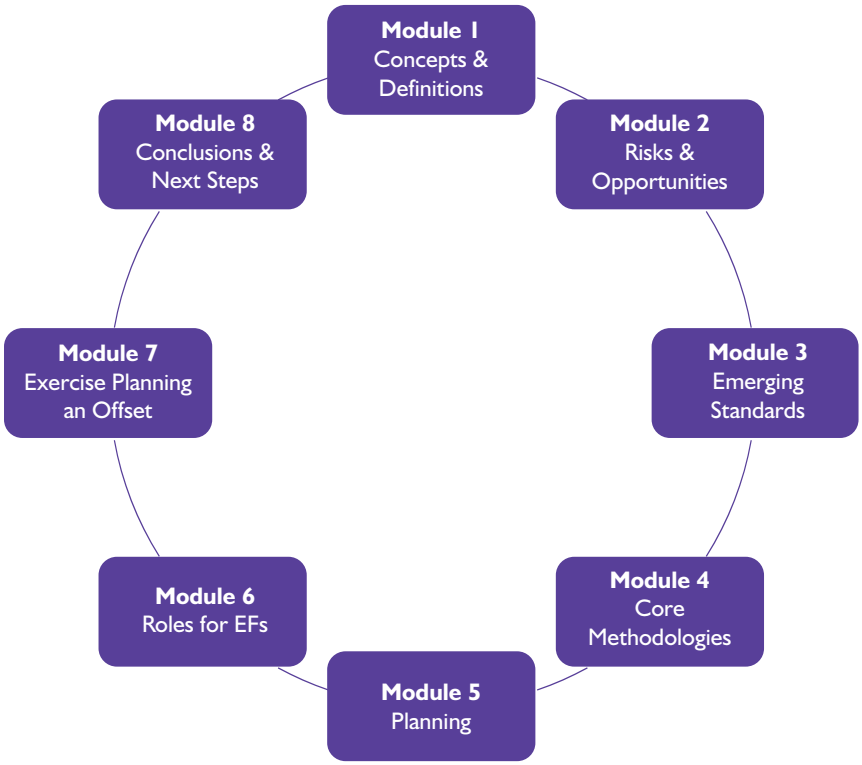
Tasks, materials, guiding questions:

1. Group work (roles: Company, Bank, NGO, Environmental Fund)
2. Materials: Maps, background information sheet, maps, PS6, and BBOP draft biodiversity offset standard
3. Plan the wind farm and its offset so that Windy Ventures can meet NNL, PS6 requirements and the BBOP draft standard
4. Use key guiding questions, BBOP principles, and selected indicators as a guide
5. Report back on project and offset planning

Module 8

Next Steps

Review learning objectives



Interactive Exercise: Develop an offset/compensation engagement plan for your EF

Your EF has decided that it wants to start engaging with biodiversity offsets and compensation. You, as a group of colleagues, have been tasked with developing an internal workplan to facilitate this new line of work.

Here are some leading questions to help you develop this workplan:

- What are the key projects/industries developing in the country and where are they operating? Which companies are operating? Can you find potential pilot projects?
- Is there any experience with offsets or compensation in your country today? What have been the strengths and weaknesses?
- Is the current EIA process in the country effective in addressing and assessing impacts to biodiversity? Is there adequate stakeholder consultation?
- Which key stakeholders in Government should be engaged regarding offsets?
- Do opportunities exist to engage in discussions with financial organizations/lenders in your country regarding commercial and development finance?
- Are there opportunities for developing a landscape level or regional planning approach for reducing impacts?
- Given the current structure and roles of your EF, what roles would you anticipate to be appropriate for Fund to play?
- What kind of training and capacity building needs do you see for your EF, and in general in order to work on offsets and compensation?

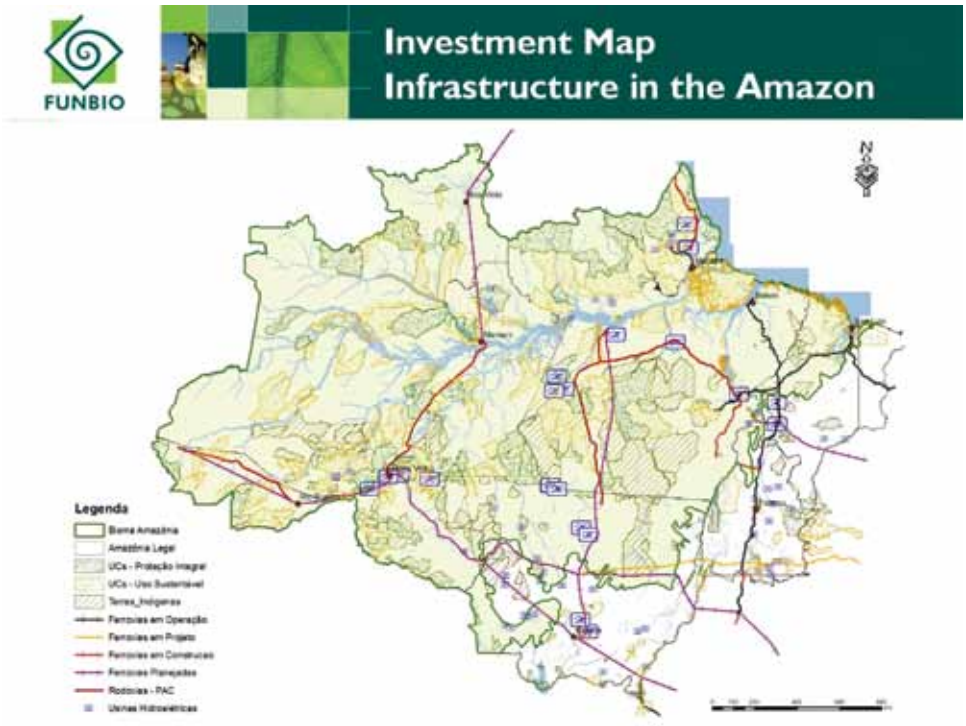
Case Study

Biodiversity Conservation Mechanism in the State of Rio de Janeiro – FMA/RJ

Context

In Brazil, environmental compensation is a major source of extra-budgetary resources that are available for financing protected areas (PAs).

In contrast to other countries, compensations in Brazil are meant to "compensate" environmental damages caused by implementing development projects that could not be prevented or mitigated, although the approval process requires using the best methodologies available. Mitigation measures, required to obtain the license to install or operate a project, are 10 times greater in terms of volume and resources than compensation measures. Nevertheless, compensation amounts, including both federal and state resources, reached R$ 2 billion (about 1,187 billion US dollars). Execution has faced significant challenges from the start, however, ranging from legal issues between the private and public entities, to limited capacity to meet the demands and absorb the resources of PA management organizations.



According to the originally proposed model, developers were responsible for executing compensation resources. This generated "diseconomies", as they usually involved very different activities from the purposes sought by these companies and their scales of action.

Legal Context

Environmental Compensations, provided in Article 36 of Law 9.985/00,[1] are demanded when implementing projects that may generate significant environmental impacts. This is determined based on the environmental impact assessment and its respective report (EIA/RIMA), and obliges developers to help implement and maintain the protected areas (PAs) of the Integrated Protection group.

Certain activities, even having unavoidable negative impacts on the environment, have to be carried out in the name of public interest. In these cases, once all preventative or mitigation measures have been taken, environmental compensation[2] will be invoked to compensate for those collateral effects. In Brazil, the federation, its states and their municipalities can issue licenses for economic activities.

[1] "In cases of environmental licenses for projects with significant environmental impacts, identified as such by the competent environmental agency based on an environmental impact assessment and its respective report (EIA/RIMA), **developers are obliged to support the implementation and maintenance of the conservation unit of the Integrated Protection Group**, in accordance with what is set forth in this article and in the regulations of this Law." (Art. 36 of Law 9.985/00)

[2] "When a project affects a specific conservation unit or its buffer zone, the license referred to above in this article may only be granted through authorization by the body that is responsible for its administration, and even if the affected unit does not belong to the Integrated Protection Group, it should be one of the beneficiaries of the compensation referred to herein." (§ Art. 36 of Law 9.985/00)

The competent environmental agency will define which PAs may benefit from the compensation, granting priority to the PAs of the Integrated Protection Group. However, in exceptional cases, if projects directly affect of buffer zones of group units for sustainable use, they will also benefit. As a rule, each impacted PA should benefit.

Apparently, from a normative viewpoint, certain concepts still need to be clarified regarding the nature of the resources, whether they are deemed public or private, and the method used to calculate compensation amounts.

Background

Seeking to solve the difficulties reported by businesses and maximize the scope of positive outcomes, in December 2007 the *Secretaria de Estado do Ambiente for Rio de Janeiro* (SEA/RJ) hired the *Fundo Brasileiro para Biodiversidade* (Funbio) to design a mechanism that would make it viable to manage and execute the State's environmental compensation resources in a speedy, transparent fashion.

This Biodiversity Conservation Mechanism for the State of Rio de Janeiro, hereinafter called FMA/RJ, makes it possible to manage and execute resources from various sources, such as environmental compensation, donations and new economic instruments.

In December 2008, the experimental (pilot) phase of the FMA/RJ began, specifically with resources from environmental compensations and donations. Funds were executed from the environmental compensation of Thyssenkrupp CSA's *Siderúrgica do Atlântico* project for a total of R$ 3.1 million and a donation from the German bank KfW for approximately R$ 500 thousand.

In December 2009, following satisfactory conclusion of the pilot phase, an agreement was signed between SEA and FUNBIO for operation, maintenance and control of FMA/RJ.

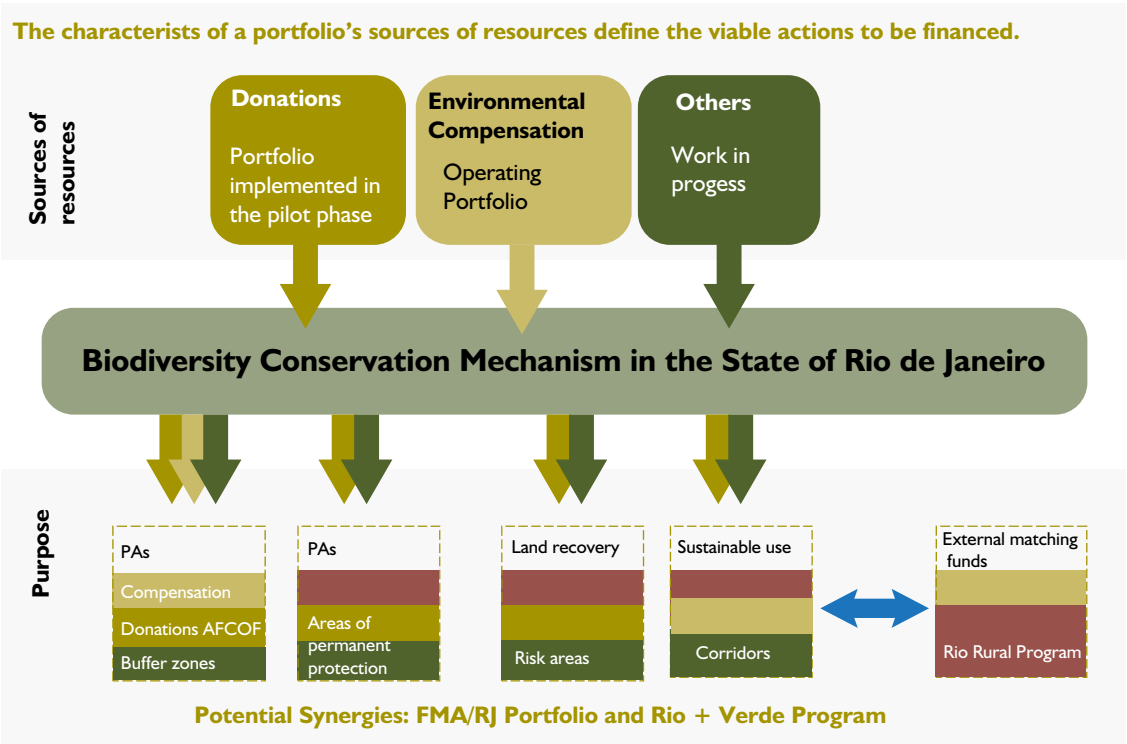
The next steps in this initiative include setting up an Endowment Fund, to cover the recurring costs of state PAs on the long term, and developing a plan to implement these resources.

Governance Structure

FMA/RJ's primary governance actors are:

- The Secretaria de Estado do Ambiente (SEA/RJ) is in charge of coordinating the operation, maintenance and control of the mechanism and signing the Agreement.
- The Câmara de Compensação Ambiental (CCA/RJ), related to the Secretaria de Estado do Ambiente (SEA/RJ), is responsible for approving projects to be funded and for the use of resources from environmental compensations.
- The Instituto Estadual do Ambiente (INEA/RJ), the governing body of the state PAs, is one of the beneficiaries of the resources from environmental compensations deposited in the FMA/RJ. Other beneficiaries are ICMBio, which manages federal PAs, and the municipal environmental agencies that manage municipal PAs.
- The FMA/RJ manager, currently Funbio, is in charge of the technical and financial monitoring of projects approved by the Chamber of Environmental Compensation, providing procurement services (purchases and contracts), financial resource management (includes proposing and implementing an assets management policy), coordinating with environmental bodies, presenting physical-financial monitoring and accountability reports, and developing / implementing a computer system for project implementation, follow-up and accountability.

Overview of the FMA/RJ



Mechanism execution is assessed yearly via independent audits, and Funbio's operating costs are reimbursed, with SEA/RJ authorization, through yields on environmental compensation funds managed by FMA/RJ.

Rules and procedures

In the environmental licensing process, INEA/RJ presents developers with available options for executing the environmental compensation: direct execution, execution by contracting third parties under its responsibility, or working through the FMA/RJ. The chosen alternative results in the developer and INEA/RJ formalizing the Environmental Compensation Pledge.

In the specific case of choosing the option of working through the FMA/RJ, in addition to formalizing the Pledge, developers need to sign a letter of intent that the Licensing Department of the INEA/RJ will provide for SEA/RJ and FUNBIO. Developers will make the deposits, under the conditions established in this Pledge, in a specific bank account indicated by Funbio.

Beneficiaries may access these resources through projects that have been approved by CCA/RJ, in accordance with the procedures set forth in the SEA/RJ resolutions. SEA/RJ will deliver these projects to Funbio, which will establish a direct link with the beneficiaries to implement the agreement.

Advantages of Working Through the FMA/RJ

From a private-sector viewpoint, the primary advantage is that it frees developers from their responsibility for implementing the environmental compensation, resulting in more speedy, efficient execution of these resources. Another aspect is the low risk involved in this operation provided by the public governance of the FMA/RJ, which inspires trust in developers, since resource allocation is decided on and overseen by the competent environmental authorities.

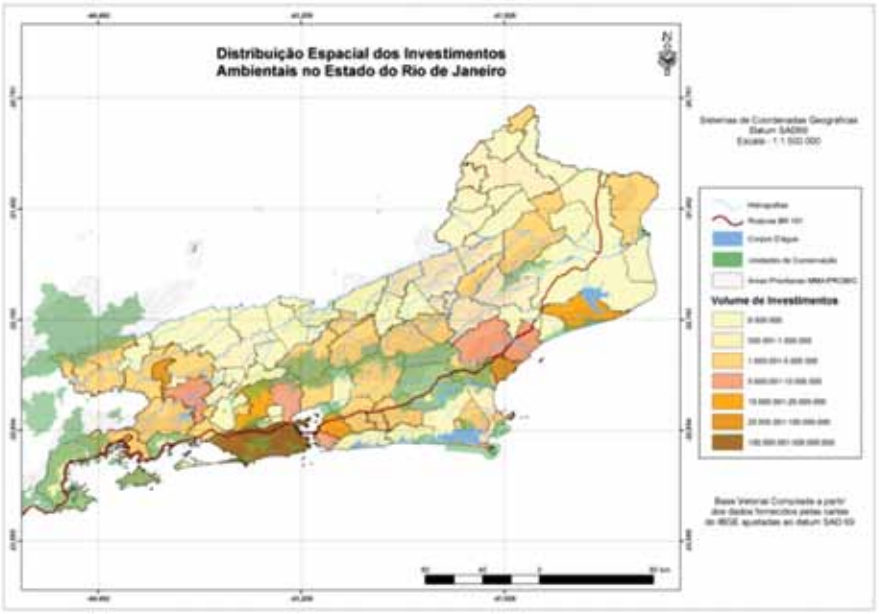
From a public sector perspective, creating the FMA/RJ helps solve conflicts that arise from implementing PAs. For example, it expedites the process of legalizing land title deeds, which minimizes the "Tiebout effect" (population mobility) and "rent seeking" behavior (negative reaction of economic agents).

PAs are usually deemed burdensome. In addition to opportunity costs, resulting from an area whose customary economic activities are limited, PAs demand resources in order to perform the function for which they were created. These costs are normally seen and valued by society. On the other hand, PAs play an important role in the economy, whether by generating various environmental goods and services, or by injecting resources directly into the local, regional or national economy. PAs can often expand or diversify the economic activities of municipalities through small businesses, thereby enabling managers of environmental organizations to change their positions vis-à-vis other

public administration sectors and with regard to the private sector. However, society is hard put to see these positive externalities, some of which do not even have a market value.

The following map shows the convergence between the existence of PAs and investments of "environmental origin," which may reach a total of R$ 1 billion (about US$ 594 million) over the next few years, making it the twelfth largest economy in the state of Rio de Janeiro.

Geographical distribution of environmental investments in the state of Rio de Janeiro



From a civil society viewpoint, the resources contributed by FMA/RJ increase PA investment capacity, with direct impacts on the quality and quantity of environmental services provided by these units, especially parks being opened to public use, which in turn generates new resources, thus putting into motion a virtuous cycle.

Outcomes

The Biodiversity Conservation Mechanism now has a portfolio of around R$ 227 million (about US$ 135 million) and is already benefitting 15 PAs, including state, federal and municipal units.

Conclusions

Introduction

Facilitators and participants discussed **what environmental funds need to know about biodiversity offsets and compensation**, and what the workshop would cover. The purpose of the course was to help:

Senior managers of Environmental Funds (EFs):

- Be aware of the opportunities and risks presented by biodiversity offsets and compensation and to understand the business case.
- Be aware of the variety of roles that EFs can play in the design and implementation of biodiversity offsets and compensation.
- Gain a broad understanding of the key concepts involved, so as to be capable of communicating internally (e.g. with the EF's Board and staff) and externally and of meeting the needs of stakeholders such as government, companies, NGOs, communities.
- Be able to assess costs of involvement including financial provision for implementation, risk management.
- Be confident that staff, consultants, and partners have necessary skills.
- Be able to communicate with key stakeholders.

And to help the staff, advisers, partners and consultants of Environmental Funds:

- To be capable of handling technical assessments needed to gauge risk and opportunity.

- To assess the business case through dialogue with stakeholders. Understand and have the skills needed to perform their role.
- To know how to gain a detailed understanding of the issues; availability of tools and methods and knowledge how to use them. Identify and work with experts.
- To know where to find available tools; and determine the human and financial resources needed to design and implement offsets.
- To understand the key elements required to develop fully-costed management plans.
- To have skills, tools, information to work with the private sector, partners and key stakeholders involved in the design and implementation of compensation and biodiversity offsets.

By providing some context from environmental funds, Dr Scott Lampman of USAID presented some findings from a RedLAC workshop held on 7 November 2011, on a variety of experiences of environmental funds on mitigation activities and engaging with companies that have a footprint on biodiversity. These activities tended not to involve offsets or compensation, but several entailed broader mitigation measures. He noted that few environmental funds are presently capable of engaging in potential revenue-generating activities related to compensation and offsets, as this lies beyond their core competencies. The participants in the workshop explored what they could do now, and what they would need to develop (including due diligence processes) in order to engage in offsets and compensation. Scott summarised contrasting experiences from Colombia and the Philippines.

INTERACTIVE EXERCISE: Applying the mitigation hierarchy at the Ambatovy project

This exercise entailed analyzing a number of components of the (composite) offset of the Ambatovy Project in Madagascar. Participants**' task was to** place each action in its proper place in the mitigation hierarchy (avoidance and minimization of predicted impacts, undertaking rehabilitation or restoration after the minimized impacts, and offsetting or compensating for the residual impacts). Participants categorized the actions as follows:

- Conservation 'set-aside' at mine site: This is avoidance, but can also be offset, provided the conservation status of the set-aside area is increased and it will be protected for the very long term, beyond the duration of the project's impacts.
- Rerouting pipeline around specific forest patches: avoidance.
- Restoration along the pipeline: partly restoration following impacts, and partly restoration can count as an offset (if the restoration addresses not only losses caused by the project, but also other, historical losses caused by slash and burn agriculture unrelated to the project).
- Protection of Ankerana Forest: offset.

CASE STUDY: Presentation on the Rio de Janeiro State Compensation Fund

> **Manoel Serrao from Funbio described** *Rio de Janeiro's State Atlantic Forest Fund, which generated US$130m over 1.5 years. He described the challenges posed by the complexity of the range of licensing processes and policies which trigger compensation in Brazil, with the distinction between public and private actors and the challenges for companies of being in compliance. Manuel estimated that US$0.5bn of compensation will be generated in the next 5 years, although comparatively little of this funding has been applied to conservation activities, and there's limited capacity of protected areas to absorb this funding. Compensation could become the 12th most important source of income for the State of Rio.*

The group discussed the **two broad categories of activities which generate the conservation 'gains'** needed to balance project impacts 'losses' and thus count as offset activities: **averted loss or averted risk** (i.e. securing biodiversity clearly at risk of loss) and active restoration/enhancement and stopping degradation (i.e. **improving biodiversity condition**). They also noted that there are **three ways to implement** offsets or compensatory conservation. First, the developer and/or its partners (NGO, consultant, multi-stakeholder group) can undertake the offset. Second, the offset or compensation can be accomplished by the developer making a payment to a government authority 'in lieu' of undertaking the conservation activities itself. Third, where such a system exists, the developer can buy sufficient 'credits' from a landowner or conservation bank to offset its impacts.

The group looked at **residual impacts; direct, indirect and cumulative impacts** and noted that the latter two categories are often considerably greater than the direct footprint caused by a developer. Partnerships are often needed to tackle indirect and cumulative impacts, since responsibility for them is shared with other stakeholders and they require landscape-level planning. There was discussion about the **impact assessment process**. While Envi-

ronmental Impact Assessment (EIA) is generally not set up so as to achieve 'no net loss' of biodiversity, it is possible to integrate the design of biodiversity offsets into EIA.

Module 2: Risks & opportunities for Environmental Funds

The group turned to consideration of the **opportunities available to society broadly, and to environmental funds specifically, in undertaking biodiversity offsets and compensation**. They asked themselves: What's in it for government and society? They also discussed the **risks** inherent in compensation and biodiversity offsets, and **what steps can be taken to manage these risks**.

Participants undertook a SWOT analysis for biodiversity offsets and compensation, identifying in turn the strengths, weaknesses, opportunities and threats posed to environmental funds by offsets and compensation.

EXERCISE: SWOT analysis for EFs. Points identified by participants included the following:

STRENGTHS

- Financing capacity and institutions already in place in environmental funds (EFs)
- Credibility of EFs for handling financial issues/ Branding
- Recognition that EFs are complementary to government action
- Involvement and participation of private sector on EFs' board. Their multi-stakeholder boards facilitate an intermediary role in processes.
- Experience of EFs in working in biodiversity and experience with fiduciary duties for local projects.
- Accountability
- Accounting and asset management skills
- Independence/autonomy of EFs
- Ability to create arm's length relationships with developers and protected areas
- Ability through endowments to create permanence
- Funds have ability to absorb large amounts of funds quickly and to smooth out distribution.
- EFs often work intensively with the community.
- Strong monitoring and enforcement
- Extensive network of allies to work on these things.

WEAKNESSES:

- Staff capacity to deal with environmental assessment or at least to be able to manage decision-making on that topic
- Lack of flexibility of some EF's mandate and high level of bureaucracy
- Lack of capacity quantify losses and gains needed for offsets
- EFs' lack of expertise in working with the private sector.
- EFs' boards are not yet fully prepared for this approach to conservation.
- Lack of commercial focus and skills of EFs.
- EFs tend not to communicate their results. 'Branding' is hard for EFs.
- EFs struggle to scale up and adapt to rapid growth.
- Offsets/compensation may represent conflicts with the purposes and mandate of some EFs.

OPPORTUNITIES:

- More funding for conservation initiatives
- Policy dialogue
- Good PR
- Improved informed strategic decision-making – a richer approach to planning and decision-making.
- An opportunity to push for more rigour in the approach of companies to the mitigation hierarchy
- Educational benefit, awareness raising, especially for communities.
- A way to enhance biodiversity values
- An opportunity to establish metrics to measure biodiversity impacts, losses, gains. This would help not only with offsets but help EFs monitor the rest of their activities.
- Participation in environmental networks which supports capacity building.

- Helps country deal with economic growth.
- Helps companies deal with environmental risk.
- Engage in international circles, conventions.
- Helps facilitate the relationship between the private and public sectors.

THREATS:

- Legal frameworks often not in place to monitor and implement the offset/compensation mechanism.
- Could threaten relationship with government.
- Could be a free-riding exercise.
- Less interest in working on such issues since the economic crisis.
- Government often doesn't have the capacity to do a good job engaging in offsets and compensation.
- Could distract EFs and divert them from their core mission.
- May weaken EFs' independence and ability to criticise or engage on policy or specific project ideas.
- Risk protected area status might be lifted
- Lack of political will. Weak political framework and weak regulation.
- Pull-out of donors supporting biodiversity conservation.
- Offsets could compromise other PES activities, for instance, by affecting downstream water quality.
- Without rigorous and tidy management, EFs might cross-subsidise their accounts.
- Corruption.
- Dominance by international NGOs.

Module 3: Emerging Standards for Environmental Funds to apply

The next Module focussed on two recent standards that address the application of the mitigation hierarchy and no net loss: **Performance Standard 6 of the International Finance Corporation** (IFC's PS6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources), the revised version of which takes effect on 1 January 2012, and the Standard on Biodiversity Offsets of the Business and Biodiversity Offsets Programme.

With this background in mind, participants from three different EFs shared a set of 'case study' experiences of their engagement with the private sector to date. These experiences were discussed by the group to understand the differences between biodiversity offsets (which aim for NNL or a net gain, as set out in the IFC's Performance Standard 6 and in the BBOP Standard), compensation (which does not necessarily aim for or achieve NNL), and other engagements with the private sector (e.g. for Corporate Social Responsibility Reasons). It was acknowledged by the group that the EFs engagements with the private sector had not been intended as biodiversity offsets to date, but that work with the private sector could in some cases evolve to include biodiversity offsets over time.

- **PANEL DISCUSSION: Experience of company engagement by EFs in participants' countries**

  Jose Luis Gomez and Maria Claudia Fandiño presented Fondo Accion's engagement with AngloGoldAshanti for the La Colosa project in Colombia, when the company approached the fund looking for an institution that could manage its grant-making. (Note: This is not a compensation effort or offset.) The fund undertook due diligence procedure developed by CELB. We looked at that and developed our own procedure to carry out due diligence and hired an external risk advisor, as well as visiting other company operations in Colombia. A memorandum of understanding helped set out the roles and responsibilities of the partners and manage expectations. Currently, the company's impacts are small, as it is in the exploration phase. The company may be prepared to discuss offsets with the fund in the future.

  Manoel Serrao offered three examples from Funbio's engagement with the private sector in Brazil in his presentation. He highlighted one in the discussion: Alcoa's Juruti mine, which has spent some 40m Rs on compensation. Funbio initially received US$2m from Alcoa for disbursement to 22 projects, based on clear calls for proposals.

  Humberto Cabrera from Profonanpe, which administers funds for protected areas, described the fund's experience with Pluspetrol Peruvian Corporation, which is extracting gas from the mountain forest of Peru. The company committed to a voluntary contribution of US$7 million, out of which US$ 6 million were directed to an endowment fund and US$1 million were used in the first five years of operation (2004 to 2008). Humberto also described experience with ConocoPhilipps, PlusPetrol Norte and Hunt Oil, all of which have involved considerably smaller sums to date.

INTERACTIVE EXERCISE: **Offset implementation options**

Participants' task in this exercise was to match scenarios to most appropriate implementation option. They decided the answers were as follows:

- Situation A: Palm Oil companies in Indonesia: Aggregated Offset/Compensation
- Situation B: Gold Mine in Central Africa: Single Offset/Compensation
- Situation C: Housing Projects in Australia: Conservation Banking

The group dived into the scientific and technical aspects of biodiversity offsets, exploring '**thresholds**', and '**non-offsetable impacts'** (as there are limits to the impacts that can be offset). The next topic is at the heart of the definition of biodiversity offsets: what is 'ecological equivalence' and 'like for like or better'? Another core challenge of biodiversity offsets is that it is impossible to measure each single component of biodiversity (every insect, microbe, plant, animal) and that different people place different values on components of biodiversity (for their intrinsic worth, for economic uses or for their social and cultural values). Participants were introduced to the 'Key Biodiversity C**omponents Matrix**': a tool to check all significant biodiversity affected is deliberately considered in offset design and to check the offset honours the 'like for like of better' approach to ecological equivalence is satisfied. They then moved onto the core of biodiversity offsets: the methods used to quantify the residual losses of biodiversity caused by a project and the gains achieved by the offset activities. Participants explored a range of different 'metrics' (or 'currencies') for calculating losses and gains, the current prevalence of 'area x condition' metrics as best practice and the use of a '**benchmark**' approach to using them; some worked examples of loss-gain calculations and an illustration revealing that an offset area several times larger than the impact area is generally needed to achieve no net loss, since incremental gains in condition at the offset sites (per hectare) are often less than the loss in condition (per hectare) at the impact site. Since the publication of reports from The Economics of Ecosystems and Biodiversity (TEEB), interest in **economic valuation** of biodiversity has grown, and the group discussed the role of valuation in the design of compensation and offsets. While metrics based on biodiversity rather than economics form the basis of most offset systems around the world, economic valuation can help as an additional tool, particularly to ensure that local communities are adequately compensated for losses of biodiversity-based livelihoods as a result of projects or the conservation activities designed to offset them.

The significance of offset activities that address **local communities' livelihoods** was stressed. Offsets designed to address underlying causes of loss of biodiversity at offset sites, meet biodiversity-related livelihood needs of local communities (e.g. food, energy); and contribute to achieving priority development outcomes are likely to succeed in the long term, and are also more likely to enjoy the essential support of local communities.

The final topic participants discussed in this module was which set of activities generate the conservation gains that qualify as compensation and offsets.

INTERACTIVE EXERCISE: **Which activities count towards a biodiversity offset?**

Participants' task in this exercise was to discuss a range of activities proposed for offsets, and to decide which ones could result in measurable conservation outcomes in situ, so as to count as offsets. Their views were as follows:

- Funding publication of conservation journal: no
- Contributions to a Protected Area: provided for measurable conservation outcomes that are additional, beyond what's already slated in the management plan and budget for the protected area.
- Capacity building for Protected Area staff: not unless you can show the resulting measurable conservation outcomes on the ground.
- Awareness raising for local communities: no
- Conservation research: unlikely, unless you can show the resulting measurable conservation outcomes on the ground.
- Set-aside an area that is not to be developed: this is avoidance rather than offset, unless can also be offset, provided the conservation status of the set-aside area is increased and it will be protected for the very long term, beyond the duration of the project's impacts.
- Establishing a plant nursery of medicinal plants with local communities: no. However, using the medicinal plants for in situ restoration or to compensate local communities for biodiversity losses caused by the project (or offset) could count.

Module 5: Planning and the role of Environmental Funds in it

The group turned to the **planning context** for offsets and compensation. As an example, they looked at the policy context for offsets and compensation in Brazil (with the Forest Code, SNUC law, federal, state and sectoral provisions), acknowledging the complexity of complying with regulatory frameworks. They discussed a **nested approach** to planning for offsets from the national level, where conservation and development planning & prioritization are often set, through Strategic Environmental Assessment, often at the regional level, to landscape level planning, and to environmental impact assessment of individual projects. Participants then discussed how planners can include biodiversity, carbon, water, poverty alleviation issues in the same landscape: planning for 'multiple benefit offsets'. They outlined a number of **challenges** for environmental funds in engaging in compensation and biodiversity offsets, including: engaging stakeholders; compliance with national laws & additional 'voluntary' measures to manage risk; and ensuring adequate human and financial resources.

EXERCISE: Planning an EF for No Net Loss or compensation through landscape level planning in agricultural expansion

The participants' tasks in this exercise were to identify the benefits of landscape level planning for biodiversity and agricultural expansion in Colombia, and the opportunities that can result from good planning; and to identify the risks of not doing landscape planning.

Some of the benefits and opportunities of timely landscape planning identified included:

- Strategic, iterative approach to spatial planning - chance to optimise the relative siting of (and land allocation to) different broadly defined land-uses over time.
- Chance to limit conflict between generally incompatible land uses (e.g. agriculture and mining, large-scale urban development and biodiversity conservation – cannot overlap in space).
- Chance (at a finer level of detail) to maximise benefits from different conservation-compatible land uses or mechanisms by siting these 'optimally'.
- Strategic planning for offsets:
  - Guides application of the mitigation hierarchy
  - Underpins offset site selection
  - Supports planning for aggregated offsets and conservation banking
  - Helps address cumulative impacts related to various projects and affecting people, wildlife, ecosystem processes and functions
  - Helps integrate biodiversity patterns/processes operating across regions
  - Allows for a focus beyond protected areas
  - Enables strategic decision-making based on conservation/development scenarios and weighing up the relative options, costs and benefits
  - Creates a framework for site-level planning and decision-making
  - Creates a framework for collaboration of various stakeholders
  - Key to working towards overall goal of a resilient 'living landscape'

Some of the risks associated with a lack of landscape planning identified included:

- Piece-meal approach to impacts and to conservation
- Many impacts, including cumulative impacts, ignored
- Lack of strategic decision-making on sustainable options and long-term solutions (especially where rapid development)
- Conflicting land uses overlap and compete - prioritisation of these is done on an ad hoc basis, not informed by good contextual information so that land use decisions are made which are potentially irreversible and not in the long-term interest of a region
- Conservation of biodiversity and ecosystem services loses out to large-scale development
- Loss of ecosystem resilience in the face of climate change
- Degradation and loss of ecological functions and infrastructure, loss of natural resources and resulting costs (environmental, social, economic)
- Protected areas are located in areas where opportunity costs for conservation are very high but which are also not of highest biodiversity significance

- Agriculture is situated in areas that are of very marginal productivity
- Duplication of (small-scale planning) effort and waste of financial and human resources

Module 6: Roles in biodiversity offsets and compensation for Environmental Funds

Participants discussed the broad **range of potential roles** for environmental funds in compensation and offsets. A number of different **models for financing offsets** for the long term were presented and discussed, as well as **governance structures** for the funding of biodiversity offsets. The group concluded that representatives from government, developers, NGOs, community groups or associations and donors might play a variety of roles, including **direction / oversight / management** of the offset, **field-level** activities, **monitoring** and financial **governance** and execution. Two examples were explored: BushBroker in Victoria as a successful state-run model, and the shortcomings of the compensation model for the Chad Cameroon Pipeline.

EXERCISE: What roles can EFs play? What are the legal, institutional (capacity and resources) and financial gaps that would need to be filled for this to work?

Participants outlined the following as possible roles for EFs in biodiversity offsets and compensation:

- seller of credits,
- buyer of credits
- broker of credits
- credit registry operator (this role requires great technological infrastructure, which lays outside the core business of Environmental Funds. It is a viable role, but such IT investments from Funds must be taken into account)
- land manager (as part of a trust for offset purposes)
- conservation stakeholder (offering input into design and implementation, convene public stakeholder engagement)
- reviewing EIAs and undertaking biodiversity assessments
- offering support to policy-makers to improve EIA practices, land-use planning and promote the mitigation hierarchy
- designer of the financial mechanism
- capacity builder for local communities
- long term intermediary institution between all parties of the initiative
- monitoring role for the project implementation, and possibly impact monitoring
- seller advisor
- provider of permanence (endowment fund)
- rating of projects (project and risks evaluation)
- design of "opportunity funds" to co-finance offset projects (matching funds with the private sector)

Module 7: Exercise: Windy Ventures

Participants worked in two groups in an interactive exercise to design a biodiversity offset for a windfarm project. The participants were requested to reconcile different requirements and perspectives from the local **NGO** 'Keep the Zeder in the Burg', which opposes project; ***SA*Bank**, an 'Equator Bank', which requires adherence of requirements to IFC-PS6, interested in financing a viable project; and **EFSA**, a well-established Environmental Fund, which has been in early discussions with Windy Ventures about the project and offset opportunities .

Both groups of participants were able to identify a 'solution' to the problem posed, in the form of a composite offset of several different sites and activities which combine to deliver no net loss or – depending on the success and outcomes of different activities - a net biodiversity gain.

Module 8: Conclusions and next steps:

Participants reviewed the course's learning objectives and some key lessons learned over the last three days. They concluded:

- Biodiversity offsets and compensation represent an opportunity for Environmental Funds, e.g.: more funding, more focus on strategic biodiversity planning, enhanced values for biodiversity, and the change to improve practice in managing biodiversity impacts in the private sector.

- Companies are already approaching EFs seeking partnership. And EFs can reach out to companies.
- Engaging in biodiversity offsets and compensation is not a trivial matter.
- There are risks involved in engaging in biodiversity offsets and compensation, e.g.: free riding by companies, reputational risks for EFs, independence of EFs compromised, lack of political will by government, companies and others, and lack of capacity in EFs (e.g. offset methods including mitigation hierarchy, loss/gain, engagement with companies).
- Those environmental funds wishing to get involved in compensation and offsets should: do nothing hasty, evaluate & manage risks and work with experts.
- Key Issues to consider include: Check the mitigation hierarchy followed; check the residual impacts capable of being offset; ensure the loss-gain calculation demonstrates 'No Net Loss (NNL) / 'Net Gain' (NG); check there's full stakeholder involvement; ensure there are secure implementation mechanisms, including: clear roles and responsibilities, legal and institutional arrangements, and long term financial provision.
- The EFs represented in the workshop are willing and well-placed to engage: They have management, administrative, accounting, and asset management skills. They are embedded in community: NGOs, government (incl. Protected Areas), networks. They work with mechanisms that can help ensure permanence. And they can absorb and disburse funds.
- The BBOP team who lead the workshop said they are ready to help RedLAC & its members as they take forward their work on compensation and offsets.

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