

BioTools: Developing and Investing in Biodiversity Responsible Business

by

Mary Catherine Sater
Dr. Randall Kramer, Advisor
September 2010

Masters project submitted in partial fulfillment of the requirements for the Master of
Environmental Management degree in the Nicholas School of the Environment, Duke University

2010

Dr. Randall Kramer

ABSTRACT

The objective for these tools is to encourage the conservation of biodiversity through private sector investment in biodiversity business. The tools seek to enable both investors and business developers to create viable business models that are biodiversity responsible, either through the use and consumption of biodiversity within the space that the project occupies or through the responsible management of biodiversity within the project space. The long-term objective of the Tools is to harness private capital to create green ventures that achieve the objectives of the UN Convention on Biological Diversity.

To develop the BioTools, a review of academic business and scientific literature was conducted, as well as a review of current developments in the grey literature of international policy organizations. These sources provided background on the current efforts to conserve biodiversity, the juncture between business and policy to conserve biodiversity, and tools for all facets of business operations. During the development of the tools, both business frameworks and applications to environmental problems were researched and adopted and modified to fulfill the objectives of BioTool development.

The Convention on Biological Diversity has three objectives in its mandate: the conservation of biodiversity, sustainable use, and equitable sharing of benefits. Within the work program the Convention has identified businesses as a key constituency to aid the goal of slowing the loss of biodiversity. Given these tools, businesses and investors can develop and invest in projects that seek to employ biodiversity resources in a sustainable and equitable fashion.

1. OBJECTIVES AND PURPOSE	1
2. METHODS	2
3. BACKGROUND TO DEVELOPING BIODIVERSITY BUSINESS	2
3.1 THE RATIONALE FOR BIOTOOLS	4
4. BIOTOOLS AND THE BUSINESS MODEL	8
4.1 WHAT IS A BIODIVERSITY BUSINESS?	10
4.2 CONSIDERING LESSONS LEARNED BEFORE STARTING A BIODIVERSITY BUSINESSES	13
5 BIOTOOLS	14
5.1 TOOL ONE: CREATING A BIODEFINITION	18
5.2 BIOSWOT AND BIOPESTEL – RISK AND OPPORTUNITY ANALYSIS	26
5.3 BIOSTRATEGY	35
5.4 BIOMANAGEMENT	39
5.5 BIOPLAN - PUTTING TOGETHER THE BIODIVERSITY BUSINESS	54
5.6 BIOREPORTING	59
5.7 INVESTOR GUIDELINES	62
6. PARTING THOUGHTS	64
6.1 BRINGING FOR-PROFIT ENTERPRISES INTO BIODIVERSITY CONSERVATION	64
6.2 INVESTING IN BIODIVERSITY BUSINESS	65
6.3 MAKING MONEY AND SAVING NATURE	66
6.4 LOSS OF BIODIVERSITY	67
6.5 BIODIVERSITY NEUTRAL VERSUS BIODIVERSITY IMPACTING BUSINESSES	69
6.6 SMALL AND MEDIUM ENTERPRISES	69
6.7 ECONOMIC DEVELOPMENT	71
APPENDIX I – DEFINITIONS	75
ANNEX II – ADDITIONAL RESOURCES AND SOURCES OF INFORMATION	80

Tables

Table 1 Investors Guide to the BioTools	6
Table 2 Business Guide to BioTools	16
Table 3 BioDefinition	25
Table 4 PESTEL Framework	31
Table 5 BioSWOT Analysis	32
Table 6 VRIO Analysis	34
Table 7 BioStrategy steps	38
Table 8 brings together the outputs from the BioSWOT and the performance indicators to create management objectives for biodiversity. This table can also highlight needs that the business has to assist the development and achievement of the objectives. Table 8 Management tool for biodiversity	41
Table 9 Developing Indicators	45
Table 10 Biodiversity specific questions	46
Table 11 Indicator Links	53
Table 12 BioPlan	57

Figures

Figure 1 The Biodiversity Business Process

1. Objectives and Purpose

The objective of this project is to develop a set of tools to enable the development of biodiversity responsible small and medium businesses located within biodiversity-wealthy developing countries. These tools are intended to contribute to the growing policy work centered on integrating conservation and development objectives to achieve both biodiversity conservation and rural development (Sanderson and Redford 2003; Adams, Aveling et al. 2004).

The output of the work will include: Guidelines to aid and support the generation of biodiversity businesses in developing countries. These tools are the: BioDefinition, which includes guidance on selecting indicators; BioAnalysis, which guides businesses through risk assessments to identify threats and opportunities for the business and generate biodiversity objectives based on the analysis; a BioPlan, which guides the development of a business plan; BioManagement, which is used to identify integrate biodiversity into the business management framework in light of the biodiversity objectives that have been identified; BioMonitoring, which is used to monitor and evaluate the status of the biodiversity resources against the goals of the business; BioStrategy and BioReporting, which are used to incorporate biodiversity into the strategy formation and reporting requirements for the business. The tools work best when applied in conjunction with each other, there is significant carry over from the beginning to the end of the project cycle and outputs from each phase of tool application are applied at later stages of business development to create a comprehensive project and strategy for business development.

2. Methods

The concept for the BioTools arose from an earlier project called Kijani, a partnership between the International Finance Corporation and the International Union for the Conservation of Nature and led by Dr. Francis Vorhies and Deborah Vorhies. This project was focused on developing a set of tools for application to businesses in Africa that intended to conserve and sustainably use biodiversity. Ultimately these tools were never completed which led to the development of this project. The work that was done on the project formed the initial base of knowledge to build out the entire portfolio of business tools.

To develop the BioTools, a review of academic business and scientific literature was conducted, as well as a review of current developments in the grey literature of international policy organizations. These sources provided background on the current efforts to conserve biodiversity, the juncture between business and policy to conserve biodiversity, and available tools for the various facets of business operations. Literature was located through academic database searches, class reading lists, and works cited within papers. During the development of the tools, both business frameworks and applications to environmental problems were researched and adopted and modified to fulfill the objectives of BioTool development.

3. Background to Developing Biodiversity Business

3.1 Biodiversity and Public Policy

In 1992 the Earth Summit at Rio convened to adopt the UN Convention on Biological Diversity (CBD or Convention). The CBD has three objectives, which drive its program of work:

- Conserving biological diversity

- Sustainable use of biological diversity
- Sharing of benefits fairly and equitably

Within the Convention, business is explicitly written into articles 10 and 16. Article 10 mandates sustainable use of components of biological diversity. Article 16 provides for technology transfers that are relevant to the conservation of biodiversity. In 2002 the Convention adopted decision VI/26 and implemented Strategic Plan for the Convention on Biological Diversity. The Strategic Plan goes beyond focus on biodiversity and encompasses social and economic considerations. It recognized that beyond intrinsic value biodiversity “provides goods and services that underpin sustainable development in many important ways, thus contributing to poverty alleviation. First, it supports the ecosystem functions essential for life on Earth, such as the provision of fresh water, soil conservation and climate stability. Second, it provides products such as food, medicines and materials for industry. Finally, biodiversity is at the heart of many cultural values.” (VI/26)

In addition to provisions within the text of the Convention, business continues to grow in importance it has been incorporated into the strategic plan through Decision VIII/17, which targets business exclusively to “promote the business case for biodiversity.” A range of work needed is cited under this decision, including the need for biodiversity and ecosystem standards, tools and guidance relevant to private sector needs and decision-making processes. Other international organizations have addressed biodiversity loss as well, in 2002 the World Summit on Sustainable Development held in Johannesburg South Africa addressed biodiversity in chapter IV paragraph 44, calling for, “achievement by 2010 of a significant reduction in the

current rate of loss of biological diversity will require the provision of new and additional financial and technical resources to developing countries.” (WSSD, IV/44) With the looming deadline to the goal for the 2010 Biodiversity Target and the 2015 Millennium Development Goals, engaging in dialogues with stakeholder groups that impact development continues to be a key strategy of the CBD.

The BioTools toolkit is intended to assist both investors and businesses to recognize the dependencies and impacts that a firm has on biodiversity and ecosystem services. These tools take traditional business techniques and frameworks and add a biodiversity component to the system to encourage users to look at the business beyond its immediate scope of operations. These tools are applied differently depending upon the users purpose, investors will want to use the tools to review business propositions that aim to achieve the objectives of the CBD while businesses will want to use the tools to develop or modify their business plan to achieve CBD goals.

3.1 The Rationale for BioTools

The objective for these tools is to encourage the conservation of biodiversity through private sector investment in biodiversity business. The tools seek to enable both investors and business developers to create viable business models that are biodiversity responsible, either through the use and consumption of biodiversity within the space that the project occupies or through the responsible management of biodiversity within the project space. The long-term objective of the Tools is to harness private capital to create green ventures that achieve the objectives of the UN Convention on Biological Diversity. 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. (TEEB 2010)

Venture capitalists, or investment firms, may find the BioTools useful for assessing potential investments that seek to demonstrate biodiversity sustainability and conservation, or for integrating biodiversity responsibility into existing firm investments. Venture capitalists will be able to use the structure of the BioTools, if not some of the content, to guide the due diligence process and decision making during the pre-investment phase. The tools can inform investors decisions to seek out biodiversity responsible ventures, or to assist existing investments minimize their impact on the biodiversity landscape. Investors may be interested in biodiversity businesses as a result of, *inter alia*, various driving forces: they may have dedicated ‘green’ funds to invest in such ventures, they may be interested in minimizing risks to their investments from unexpected shocks to the supply chain, they may operate within a strict regulatory framework that mandates biodiversity conservation and sustainable consumption, or they may see a unique niche market that can be filled by businesses that adhere to a certain standard.

Private biodiversity ventures that are likely to achieve the objectives of the BioTools include eco-tourism and agribusiness ventures. The tools can be utilized by businesses themselves to integrate biodiversity into the planning and operations of the business venture from the earliest stages. In addition to biodiversity ventures, conventional businesses seeking to minimize risk in their supply chain, or around their operating space, may find these tools useful as they direct managers to examine context specific details on their biodiversity dependencies. These businesses may have at their core a mission to conserve and sustainably use biodiversity for a

profitable venture, or may recognize the value in pursuing a green product to attract an additional share of the market.

Table 1 Investors Guide to the BioTools

Tool	Application
Purpose for employing BioTools	The Investor in Biodiversity Businesses may be driven by various factors into undertaking an investment decision; they may seek to increase their ‘green’ investment portfolio, they may face regulatory environments that incentivize businesses to minimize negative impacts on biodiversity, lastly they may see the opportunity to invest in biodiversity as a good business venture. These tools are intended to enable investors to examine business opportunities with an eye toward both business and biodiversity success.
Applying the Tools	Investors will want to clarify their end objectives before beginning to apply the tools to a business investment. Different tools will assist with achieving the investment objectives, see Table 2 for the Business Guide to BioTools to see which tools businesses should engage to achieve different strategic advantages. Based upon the mutual objectives of the business and investor, certain tools will be emphasized over others, for example a new business will need to focus on development of the business plan, including all components of the plan, and entry into a market. An established business should have its business plan solidified and may simply need to revisit its operations to improve performance on CBD objectives and then re-tool marketing efforts to match their objectives.
Background/ BioDefinition	These sections can be applied to familiarize the investment firm with the role of biodiversity and ecosystems play in providing services to humans. Investors can use this information to flag businesses that demonstrate good practice towards such resources, and conversely, those that demonstrate impacts above and beyond what could be expected.
Risk and Opportunity Analysis Tools	These tools are modeled after the traditional SWOT and PESTEL employed in business strategy and development. The difference here is the SWOT and PESTEL focus intensely upon the businesses proposed linkages with the three CBD objectives, and should clearly highlight the business relationship and actions vis-à-vis these objectives.
BioSwot and BioPESTEL	The results of these tools can inform the investment firm of the depth and breadth of research a potential investment has undertaken and demonstrates an understanding of the niche it

	will occupy. Investors may want to utilize the tools themselves to conduct desk research to verify and confirm what businesses have produced. The SWOT and PESTEL also highlight potential vulnerabilities to biodiversity that businesses may develop.
BioStrategy	The strategy segment of the business should highlight core competencies highlighted in the risk analysis, and should also demonstrate a clear plan for the business product to reach its intended market. Strategic logic requires that the future pattern of actions to be taken should match strengths with opportunities, ward off threats, and seek to overcome weaknesses. The investors should pay special attention to this portion of the tools, the ability of the business to attain a market share and strategically position the product will impact the future profitability and sustainability of a firm.
BioManagement	BioManagement Plan is used to design a strategy that integrates biodiversity planning into the objectives of the business. The BMP then takes these objectives and identifies actionable processes to achieve these objectives by: determining where expertise and assistance are needed; identifying beneficial partnerships; and lastly integrating the BMP into the BioPlan. The BMP focuses on the operational and managerial aspects of the business; as such this may be where the investor needs to step in and suggest alternative or more efficient means for a business to attain its objectives.
Biodiversity Monitoring	The monitoring plan for the business will influence the behavior of the operations; if the business is to act in accordance with the CBD objectives then this section of the business must reflect those objectives. Outside assistance from biologists or environmental professionals may be needed here to improve the monitoring plan, or to suggest alternative and more efficient protocols for monitoring the biodiversity assets around a business.
Business Plan Development	
BioBusinessPlan	The business plan should represent the entire scope of the business proposal, for new ventures this will entail more extensive planning and preparing for business development. For established ventures seeking to modify their management of biodiversity in the business model, the plan should rely upon their existing core competencies but demonstrate how they are going to modify their operations to achieve CBD objectives.
Business Communications	
BioReporting	These tools outline suggested methodologies for communicating business accomplishments to investors. Within this section the investors should look for solid financial and operational decisions, as well as activities that align with achieving the CBD

	objectives.
Investing	Ultimately, investors should review the business proposal and investment opportunity not only with an eye toward financial profitability, but also with the CBD objectives in mind. The integration of CBD objectives into the business model requires flexibility from the investor to recognize that the business must account for additional activities beyond its core operational competencies.

4. BioTools and the business model

This toolkit seeks to fill a gap between policy goals and currently available tools to small and medium enterprises (SMEs). The toolkit is primarily for SMEs that want to access investment capital and develop green businesses and for venture capital funds that want to increase their green investment portfolio. A range of tools for biodiversity business are developed here, including guidance on the developing and analyzing the business environment; as well as guidance for devising a business plan, management operations, and reporting requirements.

This is not intended to replace traditional business analysis tools, but rather to create a series of tools that can dovetail into traditional analysis and suggest alternative rubrics against which biodiversity responsible businesses may need to be judged. The ultimate goal of a biodiversity responsible business is to make money while saving nature, and these tools intend to assist with this objective.

Policy makers and international NGOs have explicitly recognized private business as an underemphasized partner in biodiversity conservation. Policy efforts are now focused on business as an explicit partner in various endeavors, notable the BBOP program for biodiversity offsets, the Green Economy Initiative, the TEEB project and the green development mechanism (BBOP 2009; TEEB 2010). In addition, private businesses have begun partnering extensively

with NGOs to produce projects that provide a level of benefit to the public at large, for example the partnership between Unilever and WWF that led to the development of the Marine Stewardship Council (Unilever 2003). Grounding for businesses in social enterprises comes from a variety of sources, some companies recognize environmental threats to their supply chain and seek to mitigate that risk, and others are driven by the concept of Corporate Social Responsibility and policy commitments to sustainability and good stewardship. Regardless of internal motives, harnessing the ability of for profit business to both generate profit and operate in a biodiversity responsible or ethical, manner can generate opportunities for sustainable development.

Creating a biodiversity business is a challenge, particularly when undertaken in developing countries. Lessons learned from the scoping studies and reports on biodiversity business undertaken by IUCN and others have noted the need to link business and technical expertise with appropriate financing. The costs of providing business development assistance in these countries can be greater than expected, mainly because qualified personnel are not available leading to dependencies upon international consultants. Developing adequate financial management systems is a priority during the early phases of operation, as these determine whether a project can be commercially viable and without which biodiversity benefits may not be sustained (Bishop 2008).

Developing a successful biodiversity business will entail additional considerations and steps to complement what a traditional business would be advised to undertake. External business consultants and or business developers should recognize that conservation measures are more

likely to succeed when they provide immediate benefits to local people and likely to fail when imposed upon the region (McNeely 1993; Chan, Pringle et al. 2007). Stakeholder involvement cannot be underestimated or undervalued for projects that have potentially large impacts on local communities. The biodiversity business concept relies upon fulfillment of the three objectives of the CBD. These objectives can be generalized to the concepts of conservation; sustainability; and equitable sharing of benefits. When these traits are placed within a business context, they begin to closely follow the concepts adopted by triple bottom line management systems.

4.1 What is a biodiversity business?

Biodiversity business was defined in the IUCN-Shell publication Building Biodiversity Business as an enterprise that generates profits via activities which align with the CBD, namely they conserve biodiversity, use biological resources sustainably, and share the benefits arising from this use equitably (Bishop 2008). Biodiversity enterprises operate not only within the normal business context, for example by identifying and exploiting a market opportunity to create profit, but also within a conservation-oriented world. (Bishop 2008) An entrepreneur who seeks out biodiversity business opportunities does so to maximize gains from green business opportunities, and use such opportunities to demonstrate their concern for the environment. (Pastakia 1998) For the purposes of these tools, the biodiversity business opportunities that provide the most opportunity for responsible development are those that are located in areas that have both ordinary and remarkable biodiversity, and business opportunities and access to resources are negotiated with stakeholders so as not to compromise the viability of biodiversity. (Houdet 2009)

Conceptualizing biodiversity as multi-dimensional definition can lead into discussions of how to measure biodiversity. Translating the concept of biodiversity into a measurement that can adequately convey the quantification and what a 'unit' of biodiversity looks like is difficult, if not impossible, biodiversity covers both the range and abundance of species as well as the interactions between them and the systems that support them. (Armsworth, Kendall et al. 2004)

Expanding beyond just species, the ecoregion concept recognizes and examines the linkages that exist within a bounded area. This bounded area can include a geographically distinct composition of natural communities that share species and ecological dynamics, similar environmental conditions and interactions that are crucial for their long-term persistence. (WWF 2010)

A biodiversity business operates within a local environment (in both the natural resource and socio-economic senses) where they utilize various resources to generate a good and or service. A normal enterprise would focus on the localized impacts of its activities. A biodiversity enterprise extends its analysis of interdependencies and impacts to include what the field of economics terms as 'externalities.' In this sense a biodiversity business will not only understand what its dependencies are upon biodiversity, but will seek to reflect the true costs of generating its value proposition by acting in a biodiversity responsibly manner. Biodiversity responsibility requires a broader view beyond the edges of the business, focusing on understanding how resources that are utilized within the supply-chain link up with the larger picture, a systems type approach to natural resources.

Modifying a business enterprise to become biodiversity responsible does not exclude utilizing natural resources. Business can use resources, so long as it is a manner that does not negatively

impact the long-term viability of a species (or network of species, aka ecosystem integrity).

Management plans are one way of demonstrating solutions to a business' impacts, for example sustainable harvest programs; integrative use concepts (e.g. organic agriculture that benefits from rotational or site selective land use); offsetting activities (e.g. extractive industries can create natural resource buffers around their activities thereby creating a space between their activity and humans while creating a de facto protected area.) Demonstrating a biodiversity responsible business plan can be done in a myriad of ways that is ultimately limited only by the resource constrained landscape that the business is operating within and the creative minds behind the concept development.

When developing and screening biodiversity responsible business for generation of benefits adopting the concept embedded within the Voluntary Carbon Market standards of real, additional and measurable benefits can assist with screening biodiversity responsible businesses from 'green washed' business opportunities. Benefits must be real in the sense that businesses must be able to physically demonstrate the vehicle they have chosen for displaying their responsibility towards biodiversity. Benefits must be measurable in the sense that a physical space should be allocated to species benefits, and ideally species should thrive within the area set aside for them.

Benefits should be additional in the sense that without human intervention the conservation would not have taken place. If a biodiversity business can join with other protected areas, such as a World Protected Area or other protected area set-aside by a national mandate, it should demonstrate additional benefits beyond what the park has been supplying. These benefits can be demonstrated by creation of alternative livelihoods (e.g. ecotourism guides and protected area

guards) or by the development of NTFPs that can be exported to developed countries and which create income sources for indigenous peoples.

4.2 Considering Lessons Learned before starting a Biodiversity Businesses

There are risks and challenges facing the development of biodiversity businesses that warrant discussion before introducing the tools and steps that apply to biodiversity businesses. Lessons learned from earlier development of biodiversity businesses are worthy of consideration when businesses are being developed and investments are being considered.

The Lessons Learned from Building Biodiversity Business for Conservation, released in June 2009 by IUCN, highlights several big picture considerations that should be present in the planning and development phase of biodiversity businesses. When a business is being planned, entrepreneurs must develop an understanding of the environment that they seek to develop their business under. The external social, economic and natural resource environment that a business will operate and develop within can determine the success or failure of a biodiversity business. To maximize the probability a successful biodiversity business, entrepreneurs should strive to look at the bigger community, economic and environmental landscape and develop a vision for the business that fits into the landscape. Likewise, involving local stakeholders from the beginning of the business cycle can greatly impact the success and legitimacy of a biodiversity business. By establishing partnerships with external stakeholders, value can be added to the business. Expectations for the business should be forthright and honest, particularly when considering impacts and benefits on the local social and economic climate, and particularly on the biodiversity resources. Lastly, understanding the market that the business wants to target and an awareness of the complexities surrounding entry into the market is essential, not only for

tailoring the business operations but for demonstrating awareness and responsibility to potential investors (Borges 2009).

For the business itself the Lessons Learned from Building Biodiversity Business for Conservation identified commonalities to developing successful biodiversity businesses.

Successful businesses clearly identified their targets and determined their objectives; assessed their product and the targeted market; analyzed the value chain and market niche; outlined the value proposition and market strategy; developed financial mechanisms and partnership strategies and operationalized plans and monitored performance (Borges 2009).

When facing concerns of social equity, considerations are likely to present a large challenge as the business seeks to profit from its activities and maintain good standing within the larger social fabric of the community it operates within. Although the primary audience for these tools is small and medium enterprise entrepreneurs, it is worth noting, that concepts of fair and equitable vary by industry, and the most effective benefit sharing appears to come from partnerships between private enterprise and source country institutions (Ten Kate 2000). Managing for equitable sharing of resources among user groups will require thoughtful consideration by the management team and is discussed further along in the tool development.

5 BioTools

The basis for the BioTools comes from the Kijani project mentioned in the methods section, and from business tools that have been used and developed for conventional businesses. The traditional business tools have been developed to guide to provide guidelines for different facets

of business operations, such as strategy development, market analysis, planning and risk assessment, and reporting. The BioTools takes these traditional tools and alters their focus to incorporate a biodiversity component into the lifecycle of the business. As such, the intent is to create a business planning and development cycle for biodiversity businesses that reflects what investment partners look for in traditional start-up businesses, such as clear goals, a thorough market analysis, and a review of the financial opportunities. Complementing these stages of business planning, BioTools seek to enable the integration of biodiversity considerations into the business. To accomplish this objective the tools develop a framework that integrates biodiversity components into traditional business tools to create a viable business model that is able to communicate its objectives to potential investors.

There is a range of tools developed here for application to different stages of the biodiversity business life cycle. Each tool is briefly discussed here, with suggestions for when and how the tool should be applied to the life-cycle of the business. The individual tools are described in detail in the sections that follow, as well as providing guidance through questions and a worksheet to frame a complete biodiversity business plan that addresses a range of issues that new businesses, and existing businesses, should resolve. In some cases, if no internal expertise exists for developing biodiversity indicators, monitoring and management plans, partnerships with local universities, NGOs, or consultants should be sought out for assistance. The BioTools were developed to be broadly applicable to enable the widest range of use across different business ventures.

Table 2 provides guidance for the application of the business tools to different phases in the lifecycle of the business. This table should be taken as an introduction to the range of tools available within this document and should not limit their application to the categories covered here.

Table 2 Business Guide to BioTools

Tool	Application Framework
Applying the Tools	A business developer may be driven to develop a biodiversity business due to several different factors. The business may see an opportunity to access investment capital by positioning itself as a Biodiversity Business; it may see the success of other businesses based on biodiversity conservation and sustainable use and seek to attain a similar level of success; it may be facing an increasingly strict regulatory regime and desire a strategy to minimize risk from external actors; or it may see an opportunity to produce a product for market based on the unique value proposition embedded within its business.
Framework	The following sections offer advice on how businesses can apply the tools to their unique situation and develop a biodiversity business.
Investors seeking biodiversity responsible business	<p>The broadest category for a biodiversity business is to approach a venture capital fund, or potential investor, with a biodiversity business proposition. The business proposition must demonstrate a clearly articulated business concept, clear linkages to CBD objectives, and a viable market for the product. The business proposition may need outside capital for any number of reasons to aid its delivery of benefits to the consumer, and to local stakeholders through its operational plans and focus on biodiversity.</p> <p>Key tools: BioDefinition and BioBusiness Plan</p> <p>Applying the tools: The business should focus on defining its value proposition and ensuring that all objectives of the CBD are addressed within the business model, especially the management and monitoring of biodiversity. Conveying the business opportunity to investors, and how the investment fits within their profitability and green objectives is crucial to the successful acquisition of funding.</p>
Conservation and Sustainable Use	<p>The conservation and sustainable use business model is one possible iteration for a biodiversity business; this business model may take on the form of eco-tourism or agribusiness ventures. The opportunity for businesses with this niche is to demonstrate the conservation and sustainable use attributes of the business, and to create linkages to the local economy and beyond for the creation of business value.</p> <p>Key tools: BioDefinition, BioManagement, BioStrategy</p>

	<p>Applying the tools: The conservation and sustainable use attributes of the biodiversity drive the operational make up of the biodiversity business, and these attributes should influence the strategy and marketing decisions for the business as well. The tools should be applied to maximize strategic advantage for the business while conveying to consumers the unique opportunity that the business represents.</p>
Minimize Risk	<p>Many established businesses, as well as up and coming businesses, might choose view their opportunities for a biodiversity business through a lens of risk minimization and mitigation. This may be due to a regulatory regime that encourages biodiversity conservation, or it may be due to proximity to a recognized protected area or area of high conservation value due to high levels of endemic species. In this case, care must be taken by the business to integrate itself into the local landscape while minimizing impact.</p> <p>Key Tools: BioSWOT and PESTEL, BioManagement and Monitoring, BioStrategy.</p> <p>Applying the tools: The tools should be applied with an eye towards recognizing risks from the business and supply chain and then developing strategies and options to minimize the risk. The entire scope of the business should be examined, from inputs to outputs, and throughout the supply chain.</p>
Market Opportunity	<p>Recognizing a unique market niche for a business proposition is the most entrepreneurial opportunity available to a biodiversity business. In this scenario, the business should focus on strategically positioning and marketing its value proposition, whether it is an ecotourism opportunity, sustainably produced agriculture or horticulture, a consumer product that has a minimal ecological footprint, and capitalizing upon the opportunity through production and communications to capture that segment of the market.</p> <p>Key Tools: All tools, with special emphasis on BioStrategy, BioReporting, BioManagement</p> <p>Applying the tools: The tools should focus on clarifying core competencies of the business, managing the biodiversity resources, identifying the target market, developing a strategy for reaching the market, and communicating with the public the unique attributes of the business.</p>

5.1 Tool One: Creating a BioDefinition

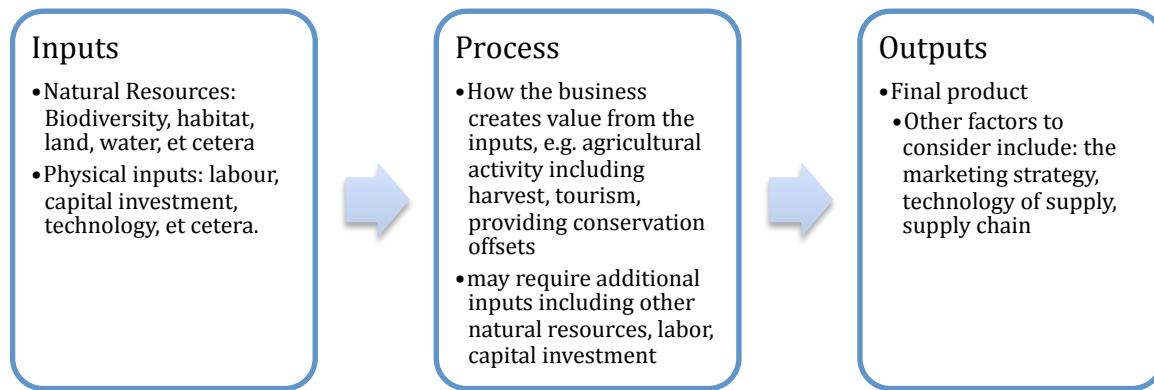
This is the first step for developing a biodiversity business with BioTools. This tool should clearly establish the local connection between biodiversity and the business, as well as identify broader linkages between the business and the Ecoregion. The entrepreneur should identify: how they intend to insure sustainable use and procurement of natural resources, and demonstrate a general understanding the local and/or regional stakeholders. In addition to establishing these connections, this tool is intended to help the entrepreneur begin to begin to identify biodiversity indicators for monitoring and management purposes, and to identify where biodiversity relationships exist in the supply chain.

5.1.2 Objectives

The purpose of the BioDefinition is to identify linkages between the business and the three objectives of the CBD: conservation, sustainable use and equitable sharing. Fundamental to the creation of a biodiversity business is identifying the flows of biodiversity that the business intends to utilize as an input to create its' final product.

BioDefinition steps: Describe the business product or service and it's prima facie link to biodiversity, begin to describe a vision for conservation, sustainable use and equitable sharing elements of the business; Articulate mission, vision and core ideology.

Figure 1 The Biodiversity Business Process



5.1.3 Biodiversity Business and Conservation

Two ways of thinking about biodiversity have evolved in the literature, there is so called “remarkable biodiversity” which reflects the increased value that society has placed upon various species, and are often associated with a level of recognition through status proclaiming its’ protection or vulnerability to extinction. “Ordinary biodiversity” would be the species that provide necessary ecosystem services but which are not protected by a level of protection (Chevassus-au-Louis 2009; Houdet 2009). There is value in protecting both types of biodiversity attributes, however for the purposes of a biodiversity business it is necessary to clearly demonstrate the relationship between biodiversity and the business concept. Ordinary biodiversity can be exceptionally valuable to a business; the general presence of species and ecosystem functions may provide invaluable inputs to the business without which production may not occur. Ultimately, the BioDefinition tool should seek to identify flow of benefits and services that is or will be derived from the environment. These flows can be as simple as pollination services provided by insects or as complex as water filtration provided by the

watershed. What should be spelled out in the section is how the business is dependent upon the resources and how they propose to operate within the environment.¹

5.1.4 Biodiversity Business and Sustainable Use

Sustainable use is a valuable tool to promote conservation of biological diversity, since in many instances it provides incentives for conservation and restoration because of the social, cultural and economic benefits that people derive from that use. In turn, sustainable use cannot be achieved without effective conservation measures. (CBD VII/12) The Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity provides principles, guidelines and tools for implementing a governance framework to ensure sustainable use of biodiversity. Referencing these resources during the development of a biodiversity business can assist with the design of the business, particularly within the use and management operations of the business. The biodiversity business should articulate how it will achieve meaningful sustainability within the business operations and relative to the use of biodiversity as an input into the final product or service.

5.1.5 Biodiversity Business and Equitable Sharing of Benefits

Access and benefit-sharing systems should be based on an overall access and benefit-sharing strategy for the business. This access and benefit-sharing strategy should aim at the conservation and sustainable use of biological diversity, and may be part of a national biodiversity strategy and action plan and promote the equitable sharing of benefits. (CBD VI/24) Biodiversity

¹ Adapted from The Little REDD Book December 08 version, p.16 available at <http://www.un-redd.org/>

business should identify strategies and create opportunities for local stakeholders to contribute to achieving the overarching themes of the CBD through the business project, whether it is through direct employment opportunities or through increased opportunities to create services for additional consumers drawn to the area. There should be strong linkages between the potential for the business project to generate additional benefits beyond the immediate scope of the project.

5.1.5.1 Determining local fit with communities

A successful biodiversity business should create net biodiversity benefits to the local Ecoregion, and may generate benefits and value that spill beyond the boundaries of the project. A more thorough analysis of the local environment should be undertaken during the SWOT phase of development, but for a quick analysis entrepreneurs should be able to articulate linkages between the business and the existing policy of the country. To this end analyzing the fit between the business and: National Biodiversity Action Plans, World Wildlife Fund Ecoregions, International Union for the Conservation of Nature Red List which documents the status of the world's species, Protected Areas and World Heritage Sites.

5.1.5.2 Determining Stakeholders

Project stakeholders are people or parties who are directly or indirectly affected by a project, as well as those who may have interests in or the ability to influence its' outcome, positively or negatively. Depending on the location and nature of the project stakeholder may include (but are not limited to): Local communities, especially if the resources are public goods (e.g. water, communal forests, parks, etc); Local non-governmental organizations or civil society organizations, particularly those involved in conservation and development activities; other businesses that utilize the resources; Public officials; Investors.

Maintaining positive relations with other stakeholders is essential for the success of the project, and for some external financing groups, necessary. Integrating stakeholders into the business project may be essential for local buy-in and development of the project. Even if the external impacts of the business upon the surrounding community and biodiversity resources are negligible, developing strong community relations may be valuable for continued success in the future if an unexpected environmental or political shift occurs.

5.1.6 Value of the Business

The value of the business comes from the combination of core competencies and organizational core competencies. Core competencies should be identified during the initial start up phase and then analyzed during the BioSWOT analysis, they can also be identified through a human resources audit to determine the know-how within the company, and a value added analysis can be done to identify what area of the business contributes to the overall value of the company.

Organizational core competencies are: a set of differential technological skills, complementary assets and organization routines and capacities that provide the basis for a business's competitive capacities in a particular business (Friend and Zehle 2009).

This section will demonstrate the geographic scale the project is operating within. The deliverables of the project will be inclusively the output or value proposition of the business proposition and the contribution of the project to the local biodiversity complex. Business proposals should highlight any environmental inputs necessary for the final good or service

envisioned by the business, e.g. species presence to attract tourism to the region, forest cover to attract offset purchasers, land for agricultural consumption.²

5.1.7 Value added analysis and value chain

Determining what the business proposition creates in value added and how the value chain contributes to competitive advantage can complement the development of the SWOT.

Competitive advantage is important to biodiversity businesses, particularly when it can affect the ability of the business to perform in such a way that is lower in cost than rivals or creates value through unique activities (Porter 1985). Many biodiversity businesses will create unique value to purchasers by virtue of the biodiversity concept – saving nature and creating goods and services around those resources.

A supply or value chain analysis can identify additional biodiversity relationships that may not be evident at the outset of the project; or can help identify areas where dependencies and negative externalities imposed by the business can be reduced. Components of the business operations covered in the value chain analysis include primary functions of the business and support activities (NZBCSD 2003). Primary functions of the supply chain include: inbound logistics, or how inputs will arrive at the business; operational details about where production of the good or service occurs, including details to allow that operation to exist; outbound logistics, or how the goods will be distributed to the consumers; marketing and sales considerations, primarily who or where is the desired market and how will the product reach this audience; and

² Adapted from The Little REDD Book December 08 version, p.16 available at <http://www.un-redd.org/>

service, if the business is providing a service how is it to be packaged and delivered to the consumer. Support functions related to the business must also be analyzed, these functions include: firm infrastructure, including accounting, facilities, planning and control and general administration; human resources; technology development; procurement of raw materials and other necessary inputs to the production or operations. Understanding the connectivity between these activities and their link to the business provide a level of certainty that unexpected barriers or events will not disrupt the business, and will help the business plan for the range of activities it must monitor to ensure delivery of its goods and protect against operational disruption.

5.1.8 Questions to be answered

The objective of biodiversity business is to save nature and create a viable business plan in the process. Core questions have been derived from the literature and process of creating the tools, and provide an important step in the planning process. These questions include:

- What is the business concept? e.g. eco-tourism, organic agriculture
- What linkages exist between the business and the local landscape?
- How can the business contribute to the local biodiversity stock?
- How can the business contribute to regional biodiversity?
- How can the business fulfill sustainable use and equity considerations?
- What are the opportunities to utilize local resources? (including, but not limited to, human capital, infrastructure, stakeholders, other inputs into the supply chain)
- What actions will the business take to conserve biodiversity? Will there be onsite areas for protection? Will there be offsets for business activities?
- Will biodiversity use and conservation be integrated into the larger scope of the business and are negative externalities such as pollution and depletion accounted for?

- What are the long- and short-term objectives of the business?
- What is the ideological statement of the business, e.g. what is the mission statement?

Table 3 provides a comprehensive range of questions the business developers and investors should seek to answer about their impact and dependency on biodiversity as the project develops. Due to the highly specialized knowledge that is needed to answer many of these questions, outside assistance should be sought from professionals familiar with the flora and fauna of the area.

Table 3 BioDefinition

	Identifying Conservation Values
At what level is this project measuring biodiversity?	Questions to Consider
Genetic diversity	How does this contribute to preserving genetic diversity? Are there linkages to other sources of genetic diversity?
Species presence	Are there high levels of endemic and native species? Are there invasive species problems? Will this project contribute to the introduction of invasive species? Is this considered a “biodiversity hotspot” Are there recognized high values of biodiversity or threatened species in the area? Without biodiversity responsible interventions, what are the possible outcomes of the project?
Habitat or ecosystem	What is the history of the habitat and ecosystem Integrity of the ecosystem as a whole Is the ecosystem pristine, moderately degraded or highly degraded? What is the time frame for ecosystem degradation? Projects can be successful in both instances, but in the both cases a sound argument should be made for how the project is going to improve biodiversity without contributing to degradation What are the components of the entire ecosystem, how does the project fit into the whole picture (helicopter view of the system)

	What services does the ecosystem provide, how does biodiversity contribute to these systems (e.g. watershed filtration through trees, understory contributes to habitat for local birds, amphibians, mammals, etc which then provide seed dispersal, soil fertilization, etc to the larger landscape)
Process for determining sustainable use	
What are the linkages between the business and biodiversity?	
Extraction or degradation of biodiversity in question?	Can these impacts be mitigated or minimized? How will harvest be monitored to ensure continued presence and viability of biodiversity/ species populations Does harvest rate match natural regeneration rates? Are best management practices available for application (depends upon sector)
Presence or existence of biodiversity?	What is the connection? Are there potential “bads” arising from this dependency?
Services from ecosystems or species?	Will use of these services impact stakeholders? Will use of these services impact biodiversity as a whole?
Process for determining equitable sharing of resources	
Has a stakeholder analysis been done	Are there potential conflicts between the business and local stakeholders; will the project negatively impact local communities? Are benefits from the business sharable? E.g. Will the business contribute to a gain in biodiversity conservation or minimize rates of loss?

At the end of the BioDefinition business developers should be able to answer the above questions and articulate the business model that they propose. There should also be rudimentary objectives, values and core competencies of the business emerging from this process, which will serve to guide the ongoing development of the project.

5.2 BioSWOT and BioPESTEL – Risk and Opportunity Analysis

The BioSWOT and PESTEL are included to help the business understand its internal strengths and weaknesses, and clarify the role of the external environs upon the business proposal. Key to achieving a successful business is utilizing these tools to identify and capitalize upon

biodiversity relationships and opportunities that exist within the proposed business. Lastly, it is important to ensure that the business concept fits within the local environment and is communicable to its target market – or if the target market is underdeveloped the ability for growth exists.

The BioSWOT and BioPESTEL fulfill two different roles. The BioSWOT should review the results of the BioDefinition and highlight areas of further exploration relevant to the business project, and should contribute to developing the Biodiversity Business Plan. The BioPESTEL focuses on the Political Economic Social Technological Environmental and Legal aspects surrounding the business. This should be used to assess not only the local environment, but also the environment that will affect the future market access and objectives of the business concept. A framework for each tool is included at the end of this section.

Benefits derived from analyzing the business with the BioSWOT and BioPESTEL will only be as good as the level of critical analysis brought into the process. Honesty and a balanced assessment are the best strategies for completing the exercise, and allowing the business to benefit from the clear assessment developed. In recent years, academics have focused on the SWOT analysis and have critiqued its format. From these analyses valuable lessons for the BioSWOT can be drawn. Care must be taken to avoid overly vague statements, but in the context of developing a business with little access to more elaborate analytical tools, the SWOT (and PESTEL) can still play a valuable role when applied rigorously and transparently to the business project (Pickton and Wright 1998; Houben, Lenie et al. 1999; Valentin 2001).

The results of the BioSWOT and PESTEL should allow the business to continue to clarify the objectives and direct its energies and products to align with the core competencies and opportunities existing within the business. From these core competencies the business can then move to formulate priorities and objectives, and identify concrete steps that can be undertaken to achieve the biodiversity objectives.

5.2.1 Objectives

To critically analyze the business project, reviewing all aspects of supply and delivery of the final product or service. This tool will review inputs, production process, and outputs (including the supply chain) through a SWOT analysis and will review external aspects that may influence success of the enterprise through a PESTEL analysis.

5.2.1.1 Developing the SWOT and PESTEL

When creating a BioSWOT it is important to analyze all relevant factors that will influence the business, and to take a hard look at what the business has to offer and how these offerings can translate into a competitive advantage. In the BioStrategy tool contingency plans are covered, but here business developers are urged to review their core competencies, the perceived opportunities and the potential threats and weaknesses that confront the business. The purpose of the SWOT and PESTEL analysis is to identify the relevant variables that may impact the business and provide a basis for mitigating variables or planning for dealing with these variables.

Throughout the process of developing a PESTEL and SWOT the following questions should remain pertinent to analysis of the project:

- How is the business contributing to the conservation of biodiversity and what level of biodiversity is the project targeting?
- How will sustainability be achieved with regard to use of biodiversity?
- Are stakeholders integrated into the project, and are there clear equity benefits?

5.2.1.1.1 Final Outcomes

The final outcomes of the analyses conducted on the business should assess the total operational environment that the business will operate within, and a clear picture should emerge describing how the core competencies of the business will align with the business offerings and biodiversity objectives. The analyses should also seek to identify additional opportunities to integrate business operations to biodiversity objectives beyond the immediate actions of the business.

5.2.2 Frameworks

5.2.2.1 PESTEL Framework

The PESTEL analysis is intended to provide guidance for the business to think beyond the borders of the business operations and look at the external social and political realities that can affect a business project. Suggested topics of analysis follow the framework. The final output should convey the landscape that the business sits within, and should address relevant factors across all dimensions of the constructed human dimensions and natural world.

A PEST analysis is a Political, Economic, Social and Technological analysis of factors that may affect the performance of a business. Environmental and Legal factors can be explicitly added to make a PESTEL analysis, for Biodiversity Business adding in the Legal category is recommended to address global, national, and local laws. The Environmental category should be analyzed with respect to factors beyond the control of the business.

There are a multitude of attributes to consider during the PESTEL exercise, these are some of the more common variables. Political factors to analyze include: Taxes, direct and indirect; Corporate taxation; Public spending by government; Monetary policy and interest rates; Changes in international trade; Competition law; Regulation and deregulation changes; Local practices; Education and training. Economic factors to analyze include: Business cycle; Employment levels; Inflation; Interest rates and exchange rates; Housing prices and stock market prices; Economic development can influence the type of goods and services demanded; Availability of credit; Oil and commodity prices. Social factors to analyze include: Population growth; Age structure; Rural to urban migration; Social and cultural shifts; Job creation. Technological factors to analyze include: Level of expenditure on research and development by competitors; new markets; Production methods; Rate of adoption of new technology. Environmental factors include: local resources; changing ecosystems; availability of resources for inputs (e.g. water); variability of weather; climate change; physical threats or risks that may impact the business. Legal factors to analyze include: International Conventions; Country statutes and regulations; Trade law; Legal protection (e.g. property rights, Intellectual property rights) ;ILO (Truitt 2002; Friend and Zehle 2009)

Table 4 provides a matrix for performing the PESTEL analysis. Forming the rows across are different aspects of the company operations, the columns are the different external dimensions that should be considered during the exercise. The framework is provided to begin the process and can be modified as needed.

Table 4 PESTEL Framework

	Variables to Analyze					
Units to analyze	Political	Economic	Social	Technological	Environmental	Legal
Inputs (include supply chain if relevant)						
Production Process						
Outputs (delivery, marketing, sales)						
Biodiversity Conservation						
Sustainable Use						
Equitable Sharing						

5.2.2.2 BioSWOT Framework

BIOSWOT analysis allows you to look at the strengths and weaknesses of the firm in light of the opportunities and threats. A BIOSWOT analysis should bring together the elements from the strategic review (Valentin 2001; Friend and Zehle 2009).

The BIOSWOT is fundamental to developing an understanding of the business project; this exercise deals with analyzing variables and actions that are directly related to the business. The four categories that should be addressed through the BIOSWOT are the business itself, the market, the product and the portfolio and lastly the supply chain that the business relies upon.

The supply chain is “a network of multiple businesses and relationships” that provide necessary

inputs, raw materials, technology, actions, and labor to produce the final product of the business (Lambert 1998). The analysis of the firm focuses on internal capabilities, core competencies and weaknesses within the organizational structure. The market analysis should focus on identifying competitors within the targeted audience, barriers to reaching the market, price sensitivity or quality demands of the market, et cetera. The product and portfolio mix should focus on what the business is offering as its end product or service. The analysis should focus on the process of producing the product, what actions does the business input to deliver the final product and is a potential profit to be made in the product. Additional analysis can develop if a portfolio of offerings is imagined, for example mutually complementary businesses such as an ecotourism company and an eco-friendly hotel may partner to provide a package to attract tourism dollars to a particular park or ecosystem. Alternatively, if there are core competencies within the business that provide the knowledge to produce and market two complementary services such as a mutual development of an eco-hotel with an offering of tourism opportunities to attract clients, this may be considered in the scope of portfolio offerings. Lastly, the supply chain analysis should look carefully at all of the external inputs that the business relies upon to produce its product, in essence everything that must be brought in from outside of the business including labor, inputs, technology, delivery, sales, capital investment.

Table 5 lays out the different business against the objectives of the CBD to assist with clarifying the relative importance of each factor. The business categories are not static and can be modified as needed, this is provided to begin the process of analysis.

Table 5 BioSWOT Analysis

	Variables to Analyze			
Components of Analysis	Strength	Weakness	Opportunity	Threat

Business				
Product and portfolio offerings, if any				
Market				
Supply Chain				
Biodiversity Conservation				
Sustainable Use				
Equitable Sharing				

When developing the BIOSWOT analysis to ensure usefulness, particularly from the business proponent perspective, it should meet the following criteria (Coman and Ronen 2009):

Conciseness – four or five items per list; Actionable – items should spur action and concrete goals or objectives for remedying problems; Significance – items should substantially impact business performance and value; Authentic – the list should reflect reality . Focusing the BIOSWOT will assist with identification of strengths and weaknesses. Logically the strengths of a company will generally flow from the core competencies and the weaknesses will flow from a small number of problems that can be identified through analysis (Coman and Ronen 2009).

After the BIOSWOT is complete, an additional layer of analysis can be applied to the business project by conducting a Valuable Rare Imitable and Organization (VRIO) analysis. This analysis should take a hard look at the Strengths and Opportunities identified in the BIOSWOT, and should look at the biodiversity resources that are at the core of the business plan. A quadrant can be set up similarly to the BIOSWOT.

5.2.2.3 VRIO Analysis

The VRIO analysis expands upon the earlier analyses and focuses explicitly on the impacts of removing a resource or a competitor entering the market with a similar product offering. A resource is valuable if it can be used to increase market share, achieve cost advantage or charge a premium price. If competitors possess the resource as well, there is no inherent advantage. If a valuable resource is not available to all competitors it is “rare” and a source of competitive advantage. It is difficult or expensive for competitors to imitate or acquire the resource. If a resource is easy to imitate it confers a temporary competitive advantage, not a sustainable one. A business must be capable of taking advantage of the resource. If a resource is rare, valuable and difficult to imitate a business must be able to exploit it, otherwise it is of little use.

Table 6 lays out the different resources against the level of value it brings to the organization. Resources can be many, so focusing on the most relevant to the business operations here can provide some clarity and streamline the process.

Table 6 VRIO Analysis

	Variables to Analyze			
Resources	Valuable	Rare	Imitable	Organization
E.g. Biodiversity				
E.g. Business advantages				
E.g. Human				

It may be useful for the business developer to conduct a VRIO analysis over the entire supply chain. This can provide the management and leadership teams with additional insight into weaknesses that could affect the business if the supply chain involves resources that are non-

substitutable or difficult to acquire. If that occurs, a scenario can be built up around the disappearance of the resource and a contingency plan can be developed to deal with the shortage and insure continual operations of the business.

5.3 BioStrategy

The BioStrategy is used to develop an honest assessment of the business opportunities and risks that have been identified through the earlier phases of business development. The strategy document should identify short-term objectives, as well as long-term goals. During the strategy development the business should seek to clarify its Guiding Principles, which will assist achievement of its goals by identifying how the business will go about achieving its long-term objectives. The operating model for the business should also be addressed during this phase; responsibilities and targets for segments of the business should begin to emerge to guide the internal operations and production. Another useful component of the BioStrategy is the identification of the long-term goals for the business, in the business world often referred to as the “Big Hairy Audacious Goals” that set the stage for the business to develop and grow in pursuit of its 10-30 year objective.

5.3.1 Strategic Analysis for the BioBusiness

Creating a strategy for carrying out the business proposition should consume much of the planning and development energies. Once a business idea has been developed and has concrete objectives and an identifiable means of delivering the product a thorough analysis of the company, its surrounding environment, including the natural, socio-political, economic, and technological, demographic and market components, and strategic aim should be established (Wehrich 1982). Strategic logic requires that the future pattern of actions to be taken should

match strengths with opportunities, ward off threats, and seek to overcome weaknesses (Stacey 1994). The strategic analysis will develop around information uncovered in the BIOSWOT and PESTEL phase, and further develop a plan for bringing the business product to market.

5.3.1.1 Scenario Planning

Scenario planning is a systematic method for thinking about futures that are complex and uncertain. Business scenario planning centers around the consideration of a variety of possible outcomes, each possible outcome seeks to incorporate identifiable uncertainties that are present in the external environment that the business operates within. Scenario planning does not attempt to predict a single outcome, but prepares the business for what could possibly affect their operations, market, and ultimate success (Peterson, Cumming et al. 2003).

The steps involved in scenario planning are: to identify factors of high uncertainty and high impact; to identify and describe alternative behavior patterns for those factors; to select the three or four most informative scenarios, in this case the business should not expect the most favorable outcomes but rather create scenarios that range from severely challenging to the business model to some challenges to the business; and lastly, the scenario descriptions should be written out and contingency plans should be developed around these scenarios. The purpose of the scenario planning exercise is to prepare and protect the business operations against uncertainties, and if uncertainties occur then there are plans available to weather the impact and continue to produce deliverables.

5.3.2 Marketing

The marketing plans for the Biodiversity Business should answer two key questions: what is the market (market selection) and what is the marketing mix? The marketing mix is composed of four components or the Four Ps: the product policy, the price policy, the distribution policy and the communication policy (McCarthy). The product policy revolves around what the business is selling to the consumer, for an organic farm the product would be the agricultural product that is delivered to market. The price policy involves the cost charged for the product, primarily what the consumer will pay, what the wholesalers (if any) will pay, and if there will be discounts or rebates made available. The distribution policy deals with product and service delivery to the consumer, how is the business going to reach its market and what channels must it move through to do so. The final point, the communication policy, is the advertising and promotion of the product or service. This is how the business will communicate and develop potential consumers for the product; the scale of communications will depend upon the business venture and the intended market. Driving the development of the marketing strategy is the consumer, clearly identifying the market segment that the business wants to target and then developing strategies to reach this segment is essential to the success of the business. Recognizing the market, and identifying potential competitors and roadblocks to reaching this market should be dealt with throughout the marketing strategy development, and should also be explored in the earlier BIOSWOT and PESTEL phase of the business.

The answers to these questions will help the business develop its marketing strategy, but also answer fundamental questions for the business, such as establish the intended consumer of the product and service offerings that the business will deliver. Based upon the target audience, be it local, national or international, different strategies will be needed to communicate with the

public and access to local markets may be necessary to ensure if the product is to be delivered to these markets.

5.3.3 Exit strategy

Many investors will want to know how they can recoup their investment. Two probable methods of exiting a successful biodiversity business are through a trade sale, which involves selling the business to a competitor or firm, which may have a strategic interest or through an initial public offering, which would involve selling stock and listing the company on a suitable stock exchange. Other methods of recouping losses include employee buy-ins, where the business morphs into a firm owned and operated by those it employees; or the primary entrepreneurs could simply buy out their investors to become the sole owner(s) and operators of the business should they so desire. Discussions around future ownership models should be conducted with potential investors to determine an agreed upon strategy for recouping investments and exiting the business (Friend and Zehle 2009).

Table 7 details the analyses that must be conducted for the business, the details that each analysis should consider and the final outcomes of each analysis. A strong business background may be needed to complete these steps, or additional outside help may be sourced and brought in to assist some of these phases.

Table 7 BioStrategy steps

	Strategic aspects to detail	Outcomes
Strategic Analysis	<ul style="list-style-type: none"> • Actions to be taken to match strengths with opportunities, ward off threats, and seek to overcome weaknesses 	<ul style="list-style-type: none"> • A complete plan to capitalize on businesses strengths and engage in the target market

Market Analysis	<ul style="list-style-type: none"> • Develop a: <ul style="list-style-type: none"> ○ Product policy ○ Price policy ○ Distribution policy ○ Communication policy 	<ul style="list-style-type: none"> • Identifying potential competitors and roadblocks to reaching the target market
Scenario Analysis	<ul style="list-style-type: none"> • Identify factors of high uncertainty and high impact. E.g. social, economic, environmental, or political factors should be considered • Identify and describe alternative behavior patterns to respond to those factors; • Develop contingency plans if uncertain factors develop into issues for the business 	<ul style="list-style-type: none"> • Preparation and planning for future uncertainties
Exit Strategy	<ul style="list-style-type: none"> • Identify possible exit strategies for investors • Determine how long investors can expect their capital to be engaged in the business model 	

5.4 BioManagement

Adaptive management of biodiversity and natural resources should be practiced, based on: (a) Science and traditional and local knowledge; (b) Iterative, timely and transparent feedback derived from monitoring the use, environmental, socio-economic impacts, and the status of the resource being used; and (c) Adjusting management based on timely feedback from the monitoring procedures (CBD VII/12).

The purpose of the BioManagement tool is to define a set of actions by which biodiversity performance of the business can be optimized, and to assist in integrating the Biodiversity Management Plan (BMP) with the business development plan. The BMP is usually developed

during the later stages of business planning or as a key element of pre-investment appraisal, following the application of the BioDefinition and BioSWOT.

The BioManagement Plan is used to design a strategy that integrates biodiversity planning into the objectives of the business. The BMP relies heavily on the outcomes of the SWOT and the BioPlan to guide its development. Recall that the SWOT serves to identify the strengths of the Plan and defines the business objectives. The BMP then takes these objectives and identifies actionable processes to achieve these objectives by: determining where expertise and assistance are needed; identifying beneficial partnerships; and lastly integrating the BMP into the BioPlan. The BMP focuses on the operational and managerial aspects of the business; in the next section suggestions and examples for developing an internal biodiversity monitoring process are covered.

More specifically, there are many ways to integrate environmental issues into the control systems: (i) developing specific performance indicators (e.g., inputs of energy, outputs of solid waste, financial impact, etc.), (ii) frequently using those indicators to monitor compliance, to support decision-making, to motivate continuous improvement and for external reporting, (iii) fixing specific goals in the budget for the environmental expenses, incomes and investment, and (iv) linking environmental goals and indicators to rewards (Lamberton 2005).

Table 8 brings together the outputs from the BioSWOT and the performance indicators to create management objectives for biodiversity. This table can also highlight needs that the business has to assist the development and achievement of the objectives.

Table 8 Management tool for biodiversity

	Performance Indicator for biodiversity objectives (from indicator worksheet):	Business Objectives (from BioSWOT):	Place within the Business (from BioSWOT):	Stakeholder engagement?
Long term management objective				
Medium term management objective				
Short term management objective				
Expertise needs for management				

5.4.1 Developing the BioManagement Plan

This step involves identifying the biodiversity objectives generated from the BioSWOT and the BioPlan. Short-, medium-, and long-term benchmarks and actions should be generated to aid accomplishment of the biodiversity objectives. Developing the BAP should involve the entire business; the collective decision making of a group often surpasses expert opinion and works best when the group has diverse opinions and viewpoints (Surowiecki 2004). Additional assistance may be sought by key stakeholders, which can add value to determining the actions and benchmarks for biodiversity objectives.

For each goal and benchmark identified a list should be developed to identify inputs needed to attain the benchmark. These inputs can include, inter alia, financial assistance, scientific

expertise and strengthening external partnerships. Once objectives and inputs have been identified the next stage is to seek out local and regional expertise and partnerships to help the business achieve its potential. These partnerships can range from experts on the biodiversity of the area to local community organizations that can assist with achievement of business objectives. Once the plan has been created it needs to be fully integrated into the BioPlan to ensure that the business accounts for the activities and expenses associated with the biodiversity related activities.

5.4.2 Managing Biodiversity within the Business

The successful management of biodiversity in the business model, and communication of biodiversity responsibility, can be achieved by the business enterprise. Everard (2009) suggests 12 steps to successfully managing biodiversity within a business. By developing a management strategy around these key ideas the biodiversity business can achieve internal long-term value. Recognize that biodiversity and ecosystems provide valuable goods and services; Recognize that resources are finite and over-exploitation will result in diminished human benefits; Management of ecosystems for sustainability will incur long-term benefits; Recognize that engaging with common interests and other diverse stakeholders may help achieve successful management; Recognize the wealth of scientific expertise available to assist with determining what constitutes sustainable use; Collaboration and consensus are more effective in protecting resources; Entering into agreement with other parties to secure long-term viability of the biodiversity that connects common interest; Urging regulators to take steps toward securing our common future may be necessary; Protection of biodiversity may serve as a valuable market differentiation; Develop a transparent method of reporting; Publicity can be a force for good, offering market

differentiation and public awareness. Protection of biodiversity generates additional returns within the business and to the external communities and the greater environment (Everard 2009).

For companies that wish to compete internationally, the ISO 14000 standard addresses Environmental Management. It specifically looks at what the company does to: minimize harmful effects on the environment caused by its activities, and to achieve continual improvement of its environmental performance³.

5.4.2.1 BioIndicators and BioMonitoring

The purpose of this tool is to: Identify biodiversity indicators to reflect relationships that exist between the business and biodiversity. The choice of biodiversity indicators is critical to the BioTool process. The quality of analysis that can be generated by applying BioTools to a project will reflect the detail and attention that the biodiversity indicators are able to convey. The use of indicators to estimate variables that cannot be measured precisely has a long history of use in environmental science (Moldan, Billharz et al. 1997), and is considered appropriate where variables that are inherently complex cannot be directly observed (Lamberton 2005).

Categories are broad areas of environmental influence, which are composed of a number of aspects. Aspects contain general information related to the category, and describe what is to be measured. Indicators are then the specific measures of the aspects to be measured (WBCSD 2000). The purpose for developing a conceptual framework is to provide the business with a baseline measure of biodiversity that can then be used to measure progress against.

³ See: http://www.iso.org/iso/iso_catalogue/management_standards/iso_9000_iso_14000.htm accessed 2.26.10

5.4.2.2 Objectives

To create a useful set of indicators to recognize the relationship between the business and biodiversity it may be helpful to develop a conceptual framework. This framework should build upon identified biodiversity relationships that are present in the business, and expand to show how those biodiversity components link to the greater ecosystem. The indicators should be identified as early as in the BioDefinition stage, the tool intends to solidify and develop a baseline measurement for these indicators so that meaningful monitoring and evaluation can take place.

5.4.2.2.1 Identifying Biodiversity

Franklin et al. (1981) recognized ecosystem attributes to consist of: composition, structure and function. Composition speaks to the identity and variety of elements in a collection, including species lists and measures of species and genetic diversity. Structure is the physical organization or pattern of the system, measuring habitat complexity at the community or landscape scale. Function involves ecological and evolutionary processes, including genetic flow, disturbances and nutrient cycling. (cited in (Noss 1990) These three attributes are interrelated and connected as functioning parts of ecosystems and larger, global, processes.

In the BioDefinition tool the business should begin to identify linkages between the biodiversity resources and the business activities. The BioIndicator tool is to extend the initial linkages to solidify the indicators relevance to the business proposition and where they are firmly identified and measured. In many cases business entrepreneurs will have limited knowledge about species and ecosystem linkages, for example an eco-tourism development may rely upon charismatic

megafauna or unique experiences within an ecosystem but may fail to recognize the ecosystem functions and interactions that support these characteristics. In these cases investors may need to assist entrepreneurs with developing a comprehensive understanding of the larger ecosystem the business operates within, this assistance can include funding for biological surveys or identifying experts who can assist with this phase of the business. Understanding how the business interacts with the local biodiversity and what role the business can play in and around the landscape it operates within can impact the value proposition, particularly if certification or ecolabels are desired to assist with marketing efforts. Many certification bodies have developed criteria around ecosystem integrity and if necessary a desk review or consultation with the desired standards may be necessary.

At the species level, biodiversity can be measured on three attributes: number of species, overall abundance, and species evenness (high evenness occurs when many species have similar abundance with no single species dominating) (Buckland, Magurran et al. 2005). Table 9 provides a framework for assessing the dependencies on biological resources, cataloguing its use, and establishing a methodology for tracking the species presence and health through the lifecycle.

Table 9 Developing Indicators

	Biological Resource Dependency	Use of Resource	Indicator methodology for monitoring (e.g. measuring species presence, abundance, etc.)
Project Level			
Inputs			
Process			
Outputs			

Connection to Ecoregion			
-------------------------	--	--	--

In addition to identifying the biodiversity resources used for the business, there should be a review of the project life cycle, as well as the supply chain, to determine if there are critical dependencies elsewhere in the business. These dependencies can include direct inputs and outputs for the project, as well as externalities that the project imposes upon the environment such as green house gas emissions. Table 10 creates a series of questions to consider about the interaction between the business and biodiversity. External assistance may be needed for this phase of the project to clarify how biodiversity interacts with the business and to determine what the best method for monitoring the biological resources.

Table 10 Biodiversity specific questions

	Biodiversity Conservation Questions to Consider
Project Level	<ul style="list-style-type: none"> • How does biodiversity interact with the project? E.g. what biodiversity resources are utilized in the business concept • Does the project create net biodiversity benefits? E.g. are there offsets planned, designated conservation areas, selective harvest and management? • How are these benefits monitored? • Without human intervention, would these generated benefits be lost? E.g. if the business did not exist and normal consumption continued, what would the ecological health of the area become? • Are the biodiversity benefits real, measurable, additional and sustainable?
Local Level	<ul style="list-style-type: none"> • What benefits are derived from this project? E.g. does the creation of net biodiversity benefits extend beyond the project and impact the local ecological communities? • Will this project encourage additional local action? • Is there potential for a “bandwagon effect”? What are possible outcomes, both positive and negative? • Are pertinent stakeholders aware of the project and on-board with the idea?
Eco-region	<ul style="list-style-type: none"> • Does this project contribute to eco-region viability? • Does the project link up with, or contribute to, ongoing efforts throughout the Ecoregion?
National	<ul style="list-style-type: none"> • Does the plan fit into the NBAPs? • Is the concept replicable on a larger scale within the country?
Global	<ul style="list-style-type: none"> • Are the indicator species, or ecosystem components of the area, that are used by the project recognized by global leaders responsible for tracking biodiversity loss and change? (See IUCN’s Red List and WWF’s Ecoregions)

5.4.2.2.1 Selecting Indicators

BioMonitoring should provide basic data about the composition, spatial distribution, and status of taxa and ecosystem types and should repeat these descriptions over time (Teder, Moora et al. 2007). Indicators are measurable surrogates for environmental endpoints that are assumed to be of value to the public, or for a biodiversity business, of value to both the business proposition and the larger public (Noss 1990). Indicators should fulfill a range of functions including a sensitivity to provide early warning of change, broad geographical coverage, flexibility to provide continuous assessment, easy and cost effective to measure, collect and calculate, able to differentiate between normal cycles and those induced by anthropogenic stress, and relevant to ecologically significant phenomena (cited in Noss, 1990; Cook 1976; Sheehan 1984; Munn 1988).

In addition to these criteria for selecting indicators, some thought must be put into the selection of those indicators. It is important to concretely link the chosen indicators to the business proposition. When selecting indicators one should consider the following questions. What are we monitoring and or assessing and why? Indicators should reflect the specific objectives of the business, and should be able to convey information about the net biodiversity impact via monitoring. Indicators can be selected from any level of biodiversity, but should be sufficient in scope and targeted enough to provide real information. Indicators are highly specialized to specific ecosystems; developing indicators may involve coordination with local experts.

An effective ecological indicator should be able to provide information about changes in important processes, for example. Be sensitive enough to detect important changes but not so sensitive that signals are masked by natural variability. Be able to detect changes at the appropriate temporal and spatial scale without being overwhelmed by variability. Be based on well-understood and generally accepted conceptual models of the system to which it is applied. Be based on reliable data that are available to assess trends and are collected in a relatively straightforward process. Be based on data for which monitoring systems are in place. Be easily understood by policy-makers (Millennium Ecosystem 2005).

The biodiversity indicators will be used throughout the project cycle to monitor and evaluate the progress of the business toward its objectives. The indicators will be explicitly utilized in the BioMonitoring plan developed later in the business development.

Linking project level biodiversity indicators to the under-development 2010 Biodiversity Indicators can provide insight into how the project fits into the larger objective of conserving biodiversity. The 2010 Biodiversity Indicators Partnership has developed 7 focal areas with 18 sub indicators to assist the assessment and communication of trends toward biodiversity conservation (BIP, 2009). Some of these indicators can be applied to the project and local level benefits, while others provide larger scale assessment of efforts to conserve biodiversity, for example protected area coverage. Linking up project benefits to specific indicators and demonstrating the connectivity between macro-objectives and local level contributions strengthens the responsibility metric of the project.

5.4.2.3 Biodiversity Monitoring

The BioMonitoring Tool should reflect the ongoing and iterative process of the business cycle and adapt to changing conditions that impact the biodiversity relationships, bearing in mind “What gets measured gets managed.” The tool is applied throughout the life of the project from the time business activity commences, or at any time during the lifetime of the biodiversity business, after the completion of the key inputs, namely determination of biodiversity objectives and BioManagement Plan completion (Bishop 2008).

Monitoring plans can vary from developing a management system to field-based scientific monitoring of species. Business models that have direct impact upon biodiversity are better served by a management system that minimizes and mitigates their impact upon the local natural resources. Business models that are dependent upon biodiversity, e.g. eco-tourism, do better with a mixed monitoring system that both frames the use of biodiversity and monitors the health of the biodiversity values.

Various researchers have proposed schemes for monitoring and recording biodiversity. One proposed monitoring framework suggests recording and mapping taxa and ecosystems and assessing their status (Teder, Moora et al. 2007). Another system proposed utilizing the use of land systems and land categorizations as surrogates for biodiversity (Oliver, Holmes et al. 2004). Biodiversity businesses face additional challenges. An ecologically based concept of "adaptive management" (Holling 1973; Hilborn, Walters et al. 1995) which emphasizes that, in situations of high uncertainty, management plans should be formulated so as to improve knowledge and reduce uncertainty by approximation (Norton and Toman 1997).

Evaluating the outcomes of the monitoring data should be matched against the objectives identified in the BioManagement tools. If objectives are not being met then the BioManagement strategy should be revisited and corrected to accomplish the goals articulated within that document.

5.4.2.3.1 Developing the Plan

At the simplest level, monitoring plans are based on the systematic gathering of information from a set of indicator variables and then developing monitoring plans around those indicators to report on the functioning of the system as a whole (Dale and Beyeler 2001; Parrish, Braun et al. 2003; Mezquida, De Fernández et al. 2005). Returning to the BioIndicator tool of the business development the biodiversity indicators that were selected will now be put to use as variables in the monitoring plan.

5.4.2.3.2 Creating the Plan

Adaptive management involves planning, acting, monitoring, and evaluating—a continuous process where one tries to learn from experiences and adjusts actions accordingly (Shindler 1999). The management plan should be developed around the concept of adaptive management, if use or management of a species is unsuccessful in maintaining the existence or sustainability of the species then new management techniques should be employed, including lessening consumption of the species if necessary to increase populations.

After the variables have been identified, the next step is to clarify: the level and frequency of monitoring; who will become responsible for monitoring; verification process of monitoring outcomes; and how the monitoring will be reflected in the BioManagement Plan. Assistance

from local universities, NGOs and others with monitoring and biological expertise may be needed during this stage of development.

5.4.2.3.3 Appraising the plan

Evaluating the plan for effectiveness should be the final stage of plan development. Garry Brewer proposed that appraisal be done by considering four dimensions of a policy design (Brewer 1973): Conceptual soundness: is the idea sensible? Technical: is the idea translated into practice well? Ethical: who loses and who wins? Pragmatic: does it work?

Alternatively, the Product Based Environmental Management System is designed to be an ongoing, dynamic environmental outgrowth of the “Plan,” “Do,” “Check,” “Review,” quality process and supports the traditional management system model. The PBEMS is structured to enable: Establish and maintain a product-based environmental policy appropriate to activities; Identify significant environmental aspects arising products; identify applicable legal and other environmental requirements, including customer requirements; identify priorities and set product-based environmental improvement objectives and targets; establish an eco-design program to implement the product-based environmental policy and to achieve objectives and targets; facilitate planning, control, monitoring, corrective action and auditing activities to ensure the policy is implemented and that the PBEMS remains appropriate, and conduct management reviews on the effectiveness of the PBEMS (Donnelly, Beckett-Furnell et al. 2006). Regardless of the type of analysis chosen to evaluate effectiveness of the monitoring plan, it ultimately should be reviewed frequently to ensure that it is accomplishing the desirable biodiversity and other objectives that it is designed to achieve.

5.4.2.3.4 Measuring ‘net biodiversity benefits’

The aim of a biodiversity business is to create a sustainable business model that actively creates profit while engaging with local natural resources in a symbiotically beneficial relationship.

Measuring the biodiversity benefits of a business model is the key to determining if the proposed model is a biodiversity responsible business that will generate returns financially and environmentally.

Monitoring the change in biodiversity in relation to the business activities requires developing an initial baseline report that conveys a snapshot of the initial conditions. Benchmarks and monitoring indicators should be clearly identified and documented at this stage with justification for their selection as representatives for biodiversity richness. Projects may choose to document both the macro- and micro-level biodiversity of a given landscape and project scope. This can be beneficial in long term performance measurements to display overall landscape changes and the role of the business in both utilizing and providing a space for biodiversity to remain.

A three-phase approach to monitoring biodiversity may provide a comprehensive management protocol for the business that is not unduly burdensome to the daily management activities.

Phase one involves identifying the monitoring questions, phase two identifying monitoring methods and phase three consists of data analysis, interpretation and integration (Gaines 1999).

Table 11 gives details that the monitoring plan should accomplish. Each indicator of biodiversity species should be monitored as an indicator and the business impacts should be documented and monitored as well.

Table 11 Indicator Links

	Monitoring Focus	Monitoring Methods	Link to Business (Input/Output)	Adaptive Responses to monitoring results
Biodiversity Indicator				
Business Impact on Indicator				
Overall health of indicator				

Questions for Monitoring

1. What externalities does the business create that has impacts upon biodiversity?
2. What inputs or outputs does the business depend upon that are affected by biodiversity?
3. What actions can the business take to minimize the negative impacts (consumption or harvest) and maximize the benefits?
4. Does business consumption of a resource stock exceed natural regeneration or sustainable consumption? If so can consumption be lowered to a sustainable level without detriment to the business model?
5. Are there other users of the resource stock that may affect sustainable management of the resource and can their consumption be altered?
6. Are management actions linking directly with the objectives of the business?
7. What level of management involvement is needed, e.g. daily, weekly, monthly, yearly?
What training is necessary for staff and is that training available?

The results of the monitoring program put in place by the business should be used as a reference for management to benchmark their performance against. As the business develops systematic monitoring can highlight both areas for improvement and areas of success relative to biodiversity management and conservation objectives. These results can then be used internally to improve

performance for efficiency and can be communicated to stakeholders and investors to demonstrate commitment to the company objectives. A log frame approach can assist conceptualizing the linkages between indicator monitoring and overall objectives.

Since the purpose of a biodiversity business is to achieve the three objectives of the CBD monitoring programs should be developed for sustainable use and equitable sharing of benefits. Managers should link activities that evolve from the business project and demonstrate the sustainability and equity of such activities. The WBCSD has a useful toolkit for monitoring sustainability, the Measuring Impact Framework (MIF) provides guidance for managers to measure and monitor sustainability activities. The steps are: to define the business scope, measure the direct and indirect impacts, assess the contribution to development and lastly to prioritize management response. Integrating the MIF questions into the measurement system that the business employs can assist with reporting and communicating benefits of the business to the general public.

5.5 BioPlan - Putting together the Biodiversity Business

The BioPlan is intended to guide business entrepreneurs through the planning phase of developing a biodiversity business. The BioPlan should cover a range of topics, and can be treated as a living document that is intended to grow in sophistication and detail as the business progresses. The development of a business proposal will follow the traditional business proposal concept. When writing the business proposal, entrepreneurs should cover what the business concept is, identify future customers, outline the marketing strategy and plan, discuss legal and regulatory issues, and importantly outline the financial flows expected from the business. In addition to these traditional segments, biodiversity business proposals will need to account for

how they expect to utilize natural resources in a sustainable and equitable manner and demonstrate reliably how they expect their business to positively impact in situ biodiversity.

Many of the components of the BioPlan should be identified early on in the process of developing the business project; this tool is intended to bring together the components of the early phases of planning. The topics that the BioPlan should cover include a project description, what the business model is and what the purpose and outputs of the business will be, and discussion of the project vision and objectives should be included. The project space within the political, legal, social and environmental contexts should be defined and described, this section should draw upon the insights gleaned during the PESTEL analysis. Clear linkages should be drawn relating the business model and operations to conservation of biodiversity, sustainability and equity. The BioIndicators should inform the biodiversity value of the project, and the resources should be clearly defined, and some description upon what level of biodiversity the project intends to place its' focus. For many projects habitat and landscape levels will be most appropriate and will return the greatest benefits to the project and to biodiversity conservation in general. The plan should include discussion of the supply chain and how the business will be structured and organized around the product delivery and the biodiversity considerations of the business. . The BioStrategy should be formulated, and there should be solid plans for marketing the product to the target segment of consumers. The outcomes of the project should be identified, as well as plans for monitoring and managing biodiversity and the role that the business is prepared to take managing itself adaptively and reflectively vis a vis the evolving environment Finally, the BioPlan should address how accounting and reporting are to be accomplished given

the projects scope and projected impacts. Suggested metrics and frameworks are included at the end of the BioTools (Friend and Zehle 2009).

5.5.1 Business Vision, Mission and Objectives

A biodiversity business should strive to achieve biodiversity responsibility. Responsibility for achieving responsibility will fall heavily onto the daily operations; however communicating and internalizing this outcome should be done through development of: vision, mission, objectives.

The vision statement should clearly articulate what business the organization is involved in, and broadly define where the organization is going. Explaining how the business organization is going to achieve its vision falls to the mission statement. The mission statement should articulate the process and structures the organization will employ to deliver its marketable good. The final stage is to develop objectives against which the strategy can be measured. Objectives should be SMART: Specific; Measureable; Achievable within a given time frame; Relevant to the vision; and Time bound. Quantitative objectives can assist with conveying the business success to investors, consumers, and provide valuable feedback to the business itself (Truitt 2002; Friend and Zehle 2009).

Although indicators should be articulated within the BioDefinition, measuring just species presence or habitat may miss larger connections between biodiversity and the business. Characterizing indicators by the attributes they measure suggests that commonly chosen environmental indicators often fail to capture the relationship between environment and societal consumption patterns. Indicators should strive to integrate either single or multiple characteristics of the environment with one or more characteristics of societal issues (Gutierrez-

Espeleta 1998). Integrative measures between the business performance and CBD objectives should be developed when and where possible to capture the nonmarket value created by the business itself.

Table 12 is the guidelines to creating a business plan for the biodiversity business. Each of the sections should demonstrate understanding of the business in addition to a well thought out business opportunity. The final output from this document should be presentable to investors and will mark the starting point of an investment relationship for a biodiversity business.

Table 12 BioPlan

	Questions to Answer
Who – details of project developers	Contact information Summary information of business proposers Overview of relevant experience and expertise Short description of business and other partners, if any Is this a new business or a direction change for an established business?
What – is the strategy	Mission, Vision and Objectives Guiding Principles (how the articulated objectives will be achieved) Market analysis – who is the market, where are they located, what makes this a unique offering,
Where – Location and description of project space	Physical location of business Description of the business environment (e.g. PESTEL analyses) Legal and regulatory issues Biodiversity interdependencies Legal considerations of business development, including resource consumption Local stakeholder assessments
Why – Status of the project space	What biodiversity value does this project propose? What are the flows of biodiversity into the project? Who utilizes these resources, what alternatives are available Threats and causes of negative biodiversity change – direct and underlying, current and future

	<p>Other efforts to conserve or minimize biodiversity loss – local and national efforts (e.g. NBAPS)</p> <p>What are the macro-economic trends of the country?</p> <p>Are there potential competitors in the country, exporting to or importing into the target country(s)?</p>
What – Expected project outcomes	<p>How does the project propose to achieve the objectives of the CBD?</p> <p>The conservation of biological diversity – how will the project conserve biodiversity, on what scale, how is biodiversity being measured, monitored and reported to the investors?</p> <p>The sustainable use of the components of biological diversity – what measures does the business propose to promote sustainable consumption of biological diversity, what indicators have been chosen to measure and monitor resource consumption?</p> <p>The fair and equitable sharing of the benefits arising out of the utilization of genetic resources – how does the project provide equitable sharing of benefits, have the relevant stakeholder groups been engaged in the project, are mitigation measures possible for marginalized users, etc.?</p> <p>Monitoring and Evaluation – how are the outcomes to be measured and monitored?</p>
How – Project Description	<p>Overall – how does this business propose to achieve the above objectives and make money?</p> <p>What is the value proposition?</p> <p>What are the resource dependencies of the business?</p> <p>What are the business’ core competencies?</p> <p>What is the competitive advantage?</p> <p>Where/to whom do the benefits flow? What will be the impact?</p>
How Much – Project Finance (see note)	<p>What are identified sources of investment?</p> <p>What are the projected needs of the project?</p> <p>What are the investment opportunities?</p>

5.5.1.1 Note on Financing

Financial needs of the project should be discussed within the scope of the project, the projected outcomes and the identified needs that the project exhibits. Capital investments for equipment

may be necessary, or smaller investments to aid marketing and advertising efforts may be needed. Other financing needs may include consultancy costs to develop biodiversity-related policies, plans and actions if internal knowledge of biodiversity is underdeveloped.

5.6 BioReporting

Most organizations produce an annual report communicating overall financial and non-financial performance and information. There is no clear or agreed upon definition of what constituted environmental performance (Henri and Journeault). Reporting for Biodiversity Business should seek to communicate to shareholders the actions and accomplishments of the business with respect to achieving the firms' objectives and the objectives of the Convention on Biological diversity. The content of the BioReporting should come from monitoring activities that are identified within the BioManagement tool and implemented through the business operations and organization. This report should be in addition to any legally required disclosure statements that the company must make and file to remain in good standing, and should demonstrate the business' commitment to responsible stewardship of the environment upon which it relies.

5.6.1 Reporting Environmental Intangibles

The primary objective of the sustainability accounting framework is to measure organizational performance toward the objective of sustainability. A sustainability accounting model can be designed to provide information to enable performance toward an objective to be evaluated (Lamberton 2005). Information measuring performance toward sustainability could serve either the accountability or decision useful objectives evident in the provision of conventional accounting information (Ijiri 1983). Critical to this objective is the chosen definition of sustainability, which determines the depth and complexity of the accounting framework. If, as is

becoming increasingly common, a three dimensional definition of sustainability is adopted to measure the environmental, social and profitable benefits derived from a business the accounting framework must then report on organizational performance from an ecological, social and economic perspective.

For the biodiversity business, these three areas of reporting mesh well with the CBD objectives that the business should aim to achieve. By setting objectives for the business during the application of the BioDefinition tool for the business to achieve and developing a reasonable scope of influence for the business the business can then report on activities and its progress toward achieving its objectives.

The primary objective of the sustainability accounting framework together with the chosen definition of sustainability determines the principles, which guide the capture and reporting of accounting information. These principles are analogous to the principles and conventions that underpin financial accounting, such as the historical cost, going concern and conservatism principles, and conventions concerning the accounting period and reporting entity. Including social and environmental factors in the sustainability concept necessitates the use of an array of measurement units. Monetary units are relevant for assessing economic performance, but are not appropriate for assessing social or environmental performance. Attempts to monetarize social and ecological impacts risks seriously misrepresenting and understating the significance of these issues relative to economic issues. The accounting principle of capital maintenance is applied to sustainability accounting in Gray's suggested sustainable cost and natural capital inventory approaches (Gray, 1993). Defining sustainable development in the context of the capital

maintenance principle implies maintaining stocks of ecological, social and economic capital, and leads to the contentious issue of substitutability between categories of stock, and the distinction between weak and strong versions of sustainability (Costanza & Daly, 1992).

5.6.2 Report Development

In addition to legally required, or investor required, financial disclosure biodiversity businesses should devote significant energy to conveying their biodiversity activities and performance during the previous year. The biodiversity objectives identified through the BioSWOT and the results of the BioManagement Plan and BioMonitoring should be used as the framework for the BioReporting. For each biodiversity objective the goals, actions and results should be reported upon, as well as an analysis of future achievement of biodiversity objectives.

An overall assessment of the three objectives of conservation, sustainability and equity should be included. If partnerships are integral to the success of the business, highlighting successful efforts and activities involving partners should be conveyed. The purpose of reporting the firms performance vis-à-vis CBD objectives is to provide information to potential investors, or existing investors, that the firm is socially and environmentally responsible, and also a profitable venture that is an appealing investment opportunity that generates benefits beyond its scope of performance.

5.6.2.1 Other Reporting Frameworks: Global Reporting Initiative

The Global Reporting Initiative has undertaken efforts to clarify what should be measured, reported upon, and the authenticity of such reports. GRI Guidelines follow 11 principles: transparency; inclusiveness; auditability; completeness; relevance; sustainability context;

accuracy; neutrality; comparability; clarity; and timeliness. These standards are meant to ensure that (1) present a reasonable and balanced account of economic, environmental, and social performance, (2) facilitate comparison over time and across organizations, and (3) credibly address issues of concerns to stakeholders (Lamberton 2005).

1. *Transparency* which requires (f)ull disclosure of the processes, procedures, and assumptions in report preparation

2. *Inclusiveness* which requires (t)he reporting organization [to] systematically engage its stakeholders to help focus and continually enhance the quality of its reports

3. *Auditability* which requires (r)eported data and information [should] be recorded, compiled, analyzed, and disclosed in a way that would enable internal auditors or external assurance providers to attest to its reliability (GRI 2002).

Following the GRI guidelines offers an established methodology for businesses to follow. These guidelines can be useful, and rather than creating a new format can ensure legitimacy and the format can be easily recognized by outside investors.

5.7 Investor Guidelines

Investment into a biodiversity business should be approached as a business investment, but with additional considerations for the investment firm. It may be useful to appoint an environmental investment officer within the organization, or partner with knowledgeable NGOs or professionals until internal expertise can be developed to recognize biodiversity benefits and attributes of the business. This section details some of the attributes that a potential project should demonstrate to the future investor, recognizing that projects will be unique and business developers may or may

not be able to convey these needs without some additional assistance from external sources, particularly when developing biodiversity management plans and indicators.

5.7.1 Screening Projects

Screening for biodiversity business necessitates additional research beyond traditional investment screening. Ideally internal expertise can be tapped to examine the business proposal for valid linkages between biodiversity resources and the business proposal. Desk research may be necessary to confirm the resource availability and to screen against unsustainable use within business proposals. Identifying external expertise, for example academic or professional resources that work and operate in the desired location, may be necessary to verify the validity of the business proposal with respect to biodiversity conservation and social considerations.

If the investment firm wishes to expand its own investment in biodiversity responsible businesses, as expertise develops within the firm an internal set of standards may be desirable. If such standards are developed then additional working relationships between businesses and the investment firm should be explored to assist potential business partners to develop businesses that align with the goals of the investment firm. This will represent a greater investment by the venture capital in the biodiversity business, but also promotes close alignment of goals and objectives with both the business project and the investment firm toward responsible business activities.

5.7.2 Due diligence

The due diligence should involve both desk review and analysis and a site visit to verify authenticity of the investment opportunity. A team should be assigned to review the validity of

assumptions that the business has made, particularly with respect to marketing audience, and should carefully review the legal barriers that may hamper business success. A full legal, financial and regulatory review should be conducted prior to a site visit, which should be planned to review the business environment, both internal and external, and to verify the analyses conducted through the application of the BioTools to the business.

5.7.3 Structuring the relationship

The relationship between the biodiversity business and the investment firm needs to be articulated from the beginning of the relationship, and possibly documented legally. There may be cases where a biodiversity business simply needs some initial capital to launch itself, and the business relationship would be build around a supply and demand of capital. Other relationships can be imagined where more of a partnership is needed between the venture capital and the business project to assist the developing project with the various aspects of growing and running a business.

6. Parting Thoughts

6.1 Bringing for-profit enterprises into biodiversity conservation

CBD Article 11 on Incentive Measures, states: Each Contracting Party shall, as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.

Assessing biodiversity within the context of a business framework can be a complex and difficult issue to overcome. Businesses can maneuver themselves into a position to influence the use and

conservation of natural resources above and beyond the role of government. Financial institutions that fail to identify which companies are most at risk from biodiversity issues can become exposed to biodiversity-related business risks themselves (Mulder 2007). Through various policy-making mechanisms such as the CBD and other UN and international initiatives there is an increased effort to engage private sector enterprises in the effort toward sustainable use of resources.

By actively managing the environmental and social aspects of their operations, leading companies are significantly reducing operating costs, enhancing customer loyalty and employee morale, and reducing exposure to long-term financial risks. The challenge is to create markets that systematically reward responsible corporate practices by applying government leverage to spur innovation in development and uptake of sustainable development technologies and business practices (Moffat and Auer 2006).

6.2 Investing in Biodiversity Business

Socially responsible investment has grown into a significant area of investment, academic reviews of investments have found that either positive or neutral performance differences between socially screened and unscreened investments (Waddock, Bodwell et al. 2002). This suggests that investing in business that achieves levels of social responsibility not normally demanded by investment screening is good business from a return on investment perspective. A review of 160 socially responsible mutual funds from 22 members of the Social Investment Forum (SIF) found that the vast majority of the funds -- 65 percent -- outperformed their benchmarks in calendar year 2009, most by significant margins (Waddock, Bodwell et al. 2002).

Another study found that large cap Socially Responsible Investment funds out performed the S&P 500 by 6 percentage points, and over time periods of three and ten years continued to outperform investments listed on the S&P 500 (Forum 2009). Based on financial return on investment these performances by socially screened investments argue for increasing the attention paid to business that seeks to act in a socially responsible manner.

By screening businesses for responsible and sustainable management of biodiversity resources, which includes concerns for equity and stakeholders, there is a distinct possibility that there is a significant investment opportunity for future investors to increase their returns by seeking out such businesses. Although wealth and conservation are not necessarily linked, in fact wealth is not a reliable indicator for improved conservation practices, there are opportunities to link economic activities with conservation efforts to create a mutually beneficial outcome (Mills and Waite 2009). There are businesses that rely extensively upon biodiversity that manage to maintain biological resources for continual generation of benefits.

6.3 Making money and saving nature

For the purposes of biodiversity businesses these tools focus exclusively on businesses that rely on nature as an input, other resources are available to extraction industries, such as mining, to manage their impact on nature. Creating a sustainable business model around the concept of biodiversity responsible enterprise requires additional thinking and analysis beyond a traditional entrepreneurial start up. The primary step when developing a biodiversity responsible business is to identify the biodiversity objectives and goals of the organization. If an organization is to successfully operate and sell its products as biodiversity responsible it must clearly articulate these goals and means for achieving the outcomes.

In addition to operating in a biodiversity responsible manner, businesses seeking to be labeled as such must recognize they face additional risks beyond traditional business challenges. The sudden loss of biodiversity (measured at any level including ecosystem, landscape, species, population, etc.) may adversely affect their business and market niche. Some changes may be beyond the scope of immediate human control, for example drought, blight, disease, natural and manmade disasters, et cetera may adversely affect the operational environment. Return on investment may also be below what would be expected in a more traditional business operation, a fiscal discrepancy that should be offset by the benefits generated by the operation of a business.

Conventional business strategy can be modified to develop a ‘biodiversity responsible’ ethic around the primary business activities, by ensuring that business managers are at the forefront of identifying, monitoring and mitigating the impacts of business activities on biodiversity (Houdet 2009). Biodiversity dependent businesses can also interface with biodiversity to develop strategies focusing on the exploitation or the conversion of ecological resources into economic activities to deliver societal needs and fulfill demands (Everard 2009). These economic activities suitable for furthering the interface include the water industry, forestry, activities depending on land as an input such as agriculture, and commercial or recreational fishery interests. (Everard 2009).

6.4 Loss of Biodiversity

The current rate of loss of biodiversity is driven by a range of underlying factors including: market failure, information failure, policy failure, lack of secure property rights, awareness failure, social and behavioral factors, and population growth. Many of these underlying factors

are linked to one another, overall access to markets by communities affects biodiversity through changes in social behavior and household economies. (Kramer, Urquhart et al. 2009). Insecure property rights can drive individuals to seek the maximum return from the resource, a problem described in “The Tragedy of the Commons” (Hardin 1968). Policy failure can drive resource exploitation, and can alienate users from their traditional role in resource management.

Direct drivers vary in their importance within and among systems and in the extent to which they are increasing their impact. Historically, habitat and land use change have had the biggest impact on biodiversity across biomes. Climate change is projected to increasingly affect all aspects of biodiversity, from individual organisms, through populations and species, to ecosystem composition and function. Pollution, especially the deposition of nitrogen and phosphorus, but also including the impact of other contaminants, is also expected to have an increasing impact, leading to declining biodiversity across biomes. Overexploitation and invasive species have been important as well and continue to be major drivers of changes in biodiversity (Millennium Ecosystem 2005).

The consequences for species loss are often not immediately evident, however ecological resiliency may be lost when ecosystems are presented with biophysical, economic or social events that could have otherwise been absorbed (Peterson, Allen et al. 1998). Degraded ecosystems may become more vulnerable to collapse, although the point at which this occurs is uncertain, but the potential consequences of ecological collapse has repercussions for populations of species, both human and non-human, that depend on the services flowing from the ecosystem (Lawton 1994).

6.5 Biodiversity neutral versus biodiversity impacting businesses

Companies can be divided into two categories – those that depend upon ecosystem goods and services and those that have (*high*) impacts on ecosystems (Mulder 2007). Businesses vary in between those two extreme spectra, and they can be placed into both categories by both depending upon ecosystem services as an input and creating negative externalities during their business operations. Many businesses are dependent upon biodiversity at some point in their supply chain, how they manage and account for those relationships determines if they have a large negative impact on biodiversity or are capable of remaining neutral or potentially positively influencing biodiversity resources.

Businesses that can have a high impact on ecosystem are those that, inter alia, are involved in the extraction of resources e.g. timber, water, mining, fisheries; businesses that significantly alter landscape characteristics e.g. commercial agriculture, real estate development, or are heavily polluting, e.g. chemicals. Biodiversity neutral businesses use biodiversity as an input for their final product, but manage their impacts to ensure continued value flows from biodiversity for ongoing benefits (Everard 2009). Biodiversity neutral enterprise examples can be found across these sectors: ecotourism, agriculture, fisheries and aquaculture, forestry and non-timber forestry products, and various mechanisms for transferring payments for ecosystem services and offsets are payments.

6.6 Small and Medium Enterprises

Policy makers have recognized the value that biodiversity contributes to the world, and private sector markets have moved forward toward responsible citizenship through Corporate Social Responsibility and Socially Responsible Investment. Small and medium biodiversity focused

enterprise development in developing countries develop the focus upon SMEs which have been promoted as a key vehicle for socio-economic development and have come to take centre stage in many debates and interventions. Worldwide experience shows that SMEs can potentially play a substantial part in promoting economic and social development (Jeppesen 2005).

6.6.1 Barriers and tools

Formally registered SMEs are seldom engaged in activities beyond the local market, for instance as part of a global supply chain, which might make them more competitive. Rather, the large firms are often responsible for 90 per cent or more of a country's exports (Jeppesen 2005). What is needed is the provision of tools necessary to develop business opportunities in the resource rich parts of the world. Given these tools, SMEs and venture capitalists can unite to develop and invest in an identified pipeline of projects that seek to employ resources in a sustainable and equitable fashion. These projects will support dual objectives: to save nature and to make money doing so. Additional attributes, particularly in underperforming marketplaces, can be to create pro-poor investment opportunities and alternative livelihoods to economic value for their local environs through certification and marketing opportunities. In turn these value added propositions can contribute not only to the conservation of nature but can also create pro-poor opportunities by targeting local stakeholders and communities as human capital for the project.

More recently, it has been suggested that corporations can be conscious agents of development, by identifying opportunities to source from or sell to disadvantaged people in ways that improve their quality of life (Prahalad 2004)(Bendell 2005).

6.7 Economic Development

Traditional economic development of countries has relied on consumption and exploitation of natural resources and comparative economic advantage. The Brundtland Commission defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” It contains within it the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs (WCED 1987).

Economists have noted the tradeoffs between development and resource consumption, Solow stated that earlier generations have the right to draw down the pool of resources so long as they add to the stock of reproducible capital (Solow 1974). Economic development has relied upon the consumption of natural resources to generate goods and services to be traded, on a local and international scale, to generate fiscal resources to invest domestically. TEEB for Policymakers identifies growing demand for goods and services as the main underlying cause of biodiversity loss, ecosystem conversion or degradation, and highlights that consumption of these resources is based on choice, not survival (TEEB 2009).

Developing countries face trade-offs between conserving environmental goods and creating commercially tradable goods, although the development of various green trading schemes, for example the BioTrade Initiative between IFC and UNCTAD and the proposed development of the green development mechanism can reduce some of the conflict between consumption and conservation. The challenge then is to create opportunities for entrepreneurs to sustainably and responsibly harness the value of their given natural resource stocks to create economic benefits

for the local economy. To fill this gap between current conservation efforts a space for 'biodiversity business' opportunities in developing countries can be identified. By assisting local entrepreneurs to identify opportunities for biodiversity responsible business and matching those opportunities with investors the gap between biodiversity financing needs and financing availability can be narrowed.

References:

- Adams, W. M., R. Aveling, et al. (2004). "Biodiversity Conservation and the Eradication of Poverty." Science **306**(5699): 1146-1149.
- Armsworth, P. R., B. E. Kendall, et al. (2004). "An introduction to biodiversity concepts for environmental economists." Resource and Energy Economics **26**(2): 115-136.
- BBOP, B. a. B. O. P. (2009). Biodiversity Offset Design Handbook. BBOP. Washington, D.C.
- Bendell, J. (2005). "In Whose Name? The AccountAbility of Corporate Social Responsibility." Development in Practice **15**(3/4): 362-374.
- Bishop, J., Kapila, S., Hicks, F., Mitchell, P. and Vorhies, F. (2008). Building Biodiversity Business. London, Uk and Gland, Switzerland Shell International Limited and the International Union for Conservation of Nature.
- Bishop, J. S. K., Frank Hicks, Paul Mitchell and Francis Vorhies (2008). Building Biodiversity Business. London, UK and Gland, Switzerland, Shell International Limited and the International Union for Conservation of Nature.
- Borges, A. M. (2009). Lessons learned from building biodiversity business for conservation. Gland, Switzerland, IUCN.
- Brewer, G. D. (1973). Politicians, bureaucrats, and the consultant: a critique of urban problem solving, New York, Basic Books
- Buckland, S. T., A. E. Magurran, et al. (2005). "Monitoring change in biodiversity through composite indices." Philosophical Transactions of the Royal Society B: Biological Sciences **360**(1454): 243-254.
- Chan, K. M. A., R. M. Pringle, et al. (2007). "When Agendas Collide: Human Welfare and Biological Conservation." Conservation Biology **21**(1): 59-68.
- Chevassus-au-Louis, B., Salles, J.-M., Bielsa, S., Richard, D., Martin, G., Pujol, J.-L. (2009). Approch economique de la biodiversite et des services lies aux ecosystems: contribution a la decision publique. Rapport du CAS. Paris, France.
- Coman, A. and B. Ronen (2009). "Focused SWOT: diagnosing critical strengths and weaknesses." International Journal of Production Research **47**(20): 5677 - 5689.
- Dale, V. H. and S. C. Beyeler (2001). "Challenges in the development and use of ecological indicators." Ecological Indicators **1**(1): 3-10.
- Donnelly, K., Z. Beckett-Furnell, et al. (2006). "Eco-design implemented through a product-based environmental management system." Journal of Cleaner Production **14**(15-16): 1357-1367.

- Everard, M. (2009). The Business of Biodiversity. Southampton, Boston, WIT Press.
- Forum, S. I. (2009). "Performance of Social Investment Forum Member Mutual Funds as of December 31, 2009 " Retrieved February 25, 2009, from http://www.socialinvest.org/resources/factsheets_resources/documents/123109SIFFundPerformance.pdf.
- Friend, G. and S. Zehle (2009). Guide to business planning, New York : Bloomberg Press.
- Gaines, W. L. H., Richy J.; Lehmkuh, John F. (1999). Monitoring biodiversity: quantification and interpretation. . General Technical Report PNW-GTR-443. U. D. o. Agriculture. Portland, OR, Pacific Northwest Research Station: 27.
- GRI (2002). Sustainability Reporting Guidelines. G. R. Initiative. Amsterdam, Netherlands.
- Gutierrez-Espeleta, E. (1998). Designing Environmental Indicators for Decision Makers. Joint Conference of the International Association of Survey Statisticians and the International Association of Official Statistics "Statistics for Economic and Social Development". Aguascalientes, Mexico.
- Hardin, G. (1968). "The Tragedy of the Commons." Science **162**(3859): 1243-1248.
- Henri, J.-F. and M. Journeault "Eco-control: The influence of management control systems on environmental and economic performance." Accounting, Organizations and Society **35**(1): 63-80.
- Hilborn, R., C. J. Walters, et al. (1995). "Sustainable Exploitation of Renewable Resources." Annual Review of Ecology and Systematics **26**(ArticleType: primary_article / Full publication date: 1995 / Copyright –© 1995 Annual Reviews): 45-67.
- Holling, C. S. (1973). "Resilience and Stability of Ecological Systems." Annual Review of Ecology and Systematics **4**(ArticleType: primary_article / Full publication date: 1973 / Copyright –© 1973 Annual Reviews): 1-23.
- Houben, G., K. Lenie, et al. (1999). "A knowledge-based SWOT-analysis system as an instrument for strategic planning in small and medium sized enterprises." Decision Support Systems **26**(2): 125-135.
- Houdet, J., Trommetter, M., Weber, J. (2009). Changing Business Perceptions Regarding Biodiversity: From Impact Mitigation Towards New Strategies and Practices D. D'Economie. Paris, France, Oree: 28.
- Ijiri, Y. (1983). "On teh accountability-based conceptual framework of accounting." Journal of Accounting and Public Policy(Summer): 75-81.
- Jeppesen, S. (2005). "Enhancing Competitiveness and Securing Equitable Development: Can Small, Micro, and Medium-Sized Enterprises (SMEs) do the Trick?" Development in Practice **15**(3/4): 463-474.
- Kramer, D. B., G. Urquhart, et al. (2009). "Globalization and the connection of remote communities: A review of household effects and their biodiversity implications." Ecological Economics **68**(12): 2897-2909.
- Lambert, D., Cooper, Martha, Pagh, Janus (1998). "Supply chain management: Implementation issues and research opportunities." International Journal of Logistics Management **9**(2): 19.
- Lamberton, G. (2005). "Sustainability accounting--a brief history and conceptual framework." Accounting Forum **29**(1): 7-26.
- Lawton, J. H. (1994). "What Do Species Do in Ecosystems?" Oikos **71**(3): 367-374.
- McCarthy, E. J. Basic marketing : a managerial approach, Homewood, IL : Irwin, c1990.

- McNeely, J. A. (1993). "Economic Incentives for Conserving Biodiversity: Lessons for Africa." Ambio **22**(2/3): 144-150.
- Mezquida, J. A. A., J. V. L. De Fernández, et al. (2005). "A Framework for Designing Ecological Monitoring Programs for Protected Areas: A Case Study of the Galachos del Ebro Nature Reserve (Spain)." Environmental Management **35**(1): 20-33.
- Millennium Ecosystem, A. (2005). Ecosystems and human well-being : synthesis, Washington, DC : Island Press.
- Mills, J. H. and T. A. Waite (2009). "Economic prosperity, biodiversity conservation, and the environmental Kuznets curve." Ecological Economics **68**(7): 2087-2095.
- Moffat, A. and A. Auer (2006). "Corporate Environmental Innovation (CEI): a government initiative to support corporate sustainability leadership." Journal of Cleaner Production **14**(6-7): 589-600.
- Moldan, B., S. Billharz, et al. (1997). Sustainability indicators : a report on the project on indicators of sustainable development, New York : Wiley.
- Mulder, I. (2007). Biodiversity, the Next Challenge for Financial Institutions? A scoping study to assess exposure of financial institutions to biodiversity business risks and identifying options for business opportunities. IUCN. Gland, Switzerland, IUCN.
- Mulder, I. (2007). Coping with the next challenge. Business.2010. N. Bertrand. Montreal, Quebec, Canada, Convention on Biological Diversity. **2**.
- Norton, B. G. and M. A. Toman (1997). "Sustainability: Ecological and Economic Perspectives." Land Economics **73**(4): 553-568.
- Noss, R. F. (1990). "Indicators for Monitoring Biodiversity: A Hierarchical Approach." Conservation Biology **4**(4): 355-364.
- NZBCSD (2003). Business Guide to Sustainable Supply: A Practical Guide. Auckland, NZ, New Zealand Business Council for Sustainable Development.
- Oliver, I., A. Holmes, et al. (2004). "Land Systems as Surrogates for Biodiversity in Conservation Planning." Ecological Applications **14**(2): 485-503.
- Parrish, J. D., D. P. Braun, et al. (2003). "Are We Conserving What We Say We Are? Measuring Ecological Integrity within Protected Areas." BioScience **53**(9): 851-860.
- Pastakia, A. (1998). "Grassroots entrepreneurs: change agents for a sustainable society." Journal of Organizational Change Management **11**(2): 157.
- Peterson, G., C. R. Allen, et al. (1998). "Ecological Resilience, Biodiversity, and Scale." Ecosystems **1**(1): 6-18.
- Peterson, G. D., G. S. Cumming, et al. (2003). "Scenario Planning: a Tool for Conservation in an Uncertain World." The Journal of the Society for Conservation Biology **17**(2): 358-366.
- Pickton, D. W. and S. Wright (1998). What's swot in strategic analysis? Strategic Change, John Wiley & Sons, Inc. / Business. **7**: 101-109.
- Porter, M. (1985). Competitive Advantage: creating and sustaining superior performance. New York, NY, The Free Press: Simon and Schuster.
- Sanderson, S. E. and K. H. Redford (2003). "Contested relationships between biodiversity conservation and poverty alleviation." Oryx **37**(04): 389-390.
- Shindler, B. C., Kristin Aldred; Stankey, George H. (1999). "Monitoring and evaluating citizen-agency interactions: a framework developed for adaptive management." UNITED STATES DEPARTMENT OF AGRICULTURE FOREST SERVICE GENERAL TECHNICAL REPORT PNW(452).

- Solow, R. M. (1974). "Intergenerational Equity and Exhaustible Resources." The Review of Economic Studies **41**: 29-45.
- Stacey, R. D. (1994). Strategic Management and Organisational Dynamics. London, Pitman.
- Surowiecki, J. (2004). The wisdom of crowds : why the many are smarter than the few and how collective wisdom shapes business, economies, societies and nations, New York : Doubleday
- Teder, T., M. Moora, et al. (2007). "Monitoring of Biological Diversity: a Common-Ground Approach." Conservation Biology **21**(2): 313-317.
- TEEB (2009). TEEB - The Economics of Ecosystems and Biodiversity for National and International Policy Makers. Summary: Responding to the Value of Nature.
- TEEB (2010). "The Economics of Ecosystems and Biodiversity Report for Business - Executive Summary "
- Ten Kate, K. a. S. L. (2000). "Biodiversity and Business: Coming to Terms with the 'Grand Bargain'."
- Truitt, W. B. (2002). Business planning : a comprehensive framework and process, Westport, Conn. : Quorum Books.
- Unilever (2003). Fishing for the Future II: Unilever's Fish Sustainability Initiative. Unilever.
- Valentin, E. K. (2001). "SWOT Analysis from a Resource Based View." Journal of Marketing Theory & Practice **9**(2): 54.
- Valentin, E. K. (2001). "SWOT ANALYSIS FROM A RESOURCE-BASED VIEW." Journal of Marketing Theory & Practice **9**(2): 54.
- Waddock, S. A., C. Bodwell, et al. (2002). "Responsibility: The New Business Imperative." The Academy of Management Executive (1993) **16**(2): 132-148.
- WBCSD (2000). Measuring Eco-Efficiency: A Guide to reporting company performance. Geneva, Switzerland, WBCSD.
- WCED (1987). Our Common Future, Oxford ; New York : Oxford University Press.
- Wehrich, H. (1982). "The TOWS matrix--A tool for situational analysis." Long Range Planning **15**(2): 54-66.
- WWF. (2010). "WWF Science Ecoregions." Retrieved June 3, 2010, from <http://www.worldwildlife.org/science/ecoregions/item1847.html>.

Appendix I – Definitions

The following definitions are adapted from Article 2 of the UN Convention on Biological

Diversity. In addition, Articles 7, 8, 10, and 11 are duplicated here to aid business developers and

investors understand the background context for activities in countries that are signatories to the CBD.⁴

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

"Biological resources" includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.

"Ecosystem" means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

"Ex-situ conservation" means the conservation of components of biological diversity outside their natural habitats.

"Genetic material" means any material of plant, animal, microbial or other origin containing functional units of heredity.

"Genetic resources" means genetic material of actual or potential value.

"Habitat" means the place or type of site where an organism or population naturally occurs.

"In-situ conditions" means conditions where genetic resources exist within ecosystems and natural habitats, and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

"In-situ conservation" means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed

⁴ <http://www.cbd.int/convention/convention.shtml>

their distinctive properties.

"Protected area" means a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.

"Sustainable use" means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

Article 7. Identification and Monitoring

Each Contracting Party shall, as far as possible and as appropriate, in particular for the purposes of Articles 8 to 10:

- (a) Identify components of biological diversity important for its conservation and sustainable use having regard to the indicative list of categories set down in Annex I;
- (b) Monitor, through sampling and other techniques, the components of biological diversity identified pursuant to subparagraph (a) above, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use;
- (c) Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques; and
- (d) Maintain and organize, by any mechanism data, derived from identification and monitoring activities pursuant to subparagraphs (a), (b) and (c) above.

Article 8. In-situ Conservation

Each Contracting Party shall, as far as possible and as appropriate:

- (a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;
- (b) Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity;
- (c) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;
- (d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;
- (e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas;
- (f) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies;
- (g) Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health;
- (h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;
- (i) Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components;
- (j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the

conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices;

(k) Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations;

(l) Where a significant adverse effect on biological diversity has been determined pursuant to Article 7, regulate or manage the relevant processes and categories of activities; and

(m) Cooperate in providing financial and other support for in-situ conservation outlined in subparagraphs (a) to (l) above, particularly to developing countries.

Article 10. Sustainable Use of Components of Biological Diversity

Each Contracting Party shall, as far as possible and as appropriate:

(a) Integrate consideration of the conservation and sustainable use of biological resources into national decision-making;

(b) Adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity;

(c) Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements;

(d) Support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced; and

(e) Encourage cooperation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources.

Article 11. Incentive Measures

Each Contracting Party shall, as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.

Annex II – Additional Resources and sources of Information

- Ramsar Convention on Wetlands, 1971 <http://www.ramsar.org/>
- UNESCO World Heritage Sites <http://whc.unesco.org/>
- United Nations Biosphere Reserves <http://www.unesco.org/mabdb/br/brdir/europe-n/USAmap.htm>
- National Biodiversity Strategies and Action Plans prepared under the Convention on Biological Diversity. BAPs typically include the following components: preparing inventories of biological information for selected species or habitats; assessing the conservation status of species within specified ecosystems; creation of targets for conservation and restoration; and establishing budgets, timelines and institutional partnerships for implementing the BAP.
<http://www.cbd.int/nbsap/>
- Conservation International's Biodiversity Hotspots and Wilderness Areas
<http://www.biodiversityhotspots.org/Pages/default.aspx>
- WWF's Global 200 Ecoregion
<http://www.worldwildlife.org/science/ecoregions/item1847.html>
- Bird Life International's Important Bird Areas <http://www.birdlife.org/action/science/sites/>

- IUCN's Centers of Plant Diversity

http://www.iucn.org/about/union/secretariat/offices/iucnmed/iucn_med_programme/species/key_biodiversity_areas/