

**IN REVIEW – CORPORATE ENVIRONMENTAL STRATEGY**

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**CORPORATE BIODIVERSITY OFFSETS:  
A NEW TOOL FOR ENVIRONMENTAL MANAGEMENT**

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**KEY WORDS:** environmental mitigation conservation

## **ABSTRACT**

Companies are increasingly expected to manage their impacts to biodiversity. Those that fail to do so may face boycotts in the marketplace, or they may lose their social license to operate. Companies have responded by participating in a large number of corporate-NGO initiatives to develop best practices for managing biodiversity impacts in sectors such as forestry, mining, and oil and gas.

A new tool in corporate biodiversity management is the *biodiversity offset*, whereby companies invest in conservation projects that produce benefits commensurate with the impacts of their own operations. Biodiversity offsets are not a “license to trash the environment”, and are only used to offset residual impacts once a company has first taken reasonable measures to avoid unacceptable biodiversity impacts, and to mitigate necessary impacts by the adoption of best practices.

As yet, there is no generally accepted methodology for implementing biodiversity offsets. However, because of the tremendous potential of offsets as a risk mitigation tool, companies are forging ahead and implementing offsets on a trial basis. In this paper we describe a basic approach for companies wishing to implement biodiversity offsets, and include recommendations for best practices.

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## **BUSINESS AND BIODIVERSITY**

In recent years, biodiversity has emerged as an important corporate responsibility issue. This is particularly true for companies in the forestry, oil and gas, and mining sectors. These companies typically use considerable amounts of land for their operations, as well as influencing land use over much larger areas through the access they create. Furthermore, many companies in these sectors work in wilderness areas of high conservation value, often in developing countries where the majority of the world's biodiversity is found.

Some companies have ignored their "biodiversity risk" and faced damaging shareholder activism, market campaigns, loss of access to increasingly important green and ethical capital pools, and loss of their social license to operate [1]. Businesses that have grasped the importance of managing their biodiversity impacts have used their performance to grow their market share and to maintain access to key resources.

Despite the compelling reasons for companies to manage their biodiversity impacts, there are also significant challenges in doing so. *Biodiversity* is a term that encompasses diversity at the levels of genes, species, and ecosystems. In many parts of the world, scientific knowledge of biodiversity is poor or non-existent. Even in countries where knowledge of species is available, the measurement of biodiversity is expensive in the field, presenting a costly barrier to evaluating and managing a company's impacts. Furthermore, there may be a lack of consensus among governments, environmental non-governmental organizations (NGOs), communities and conservation scientists about which sorts of biodiversity impacts are acceptable and which are not.

The challenges to biodiversity management are not only technical however. Some stakeholders may view a company's efforts to manage its biodiversity impacts with cynicism, or, the mere fact that a company is trying to improve its environmental performance may attract increased scrutiny. Finally, companies may worry that making voluntary commitments about their biodiversity impacts may create long-term legal obligations and liabilities.

The purpose of this article is to discuss how companies can overcome these challenges and engage in biodiversity management. After describing some important elements of a general framework for corporate biodiversity management, we focus on a new conservation tool called the *voluntary biodiversity offset*, by which companies can mitigate residual biodiversity impacts that are not addressed by more traditional approaches to environmental management. Offset methodology is still in its early stages. We therefore offer recommendations for best practices that will allow companies to begin implementing biodiversity offsets immediately, rather than waiting years until a widely accepted methodology has been agreed in the international conservation policy arena.

## CURRENT STATUS OF CORPORATE BIODIVERSITY MANAGEMENT

The past decade has seen the launch of numerous initiatives to guide corporate biodiversity management, many of which have included the active participation of leading companies or their associations (**Table One**).

We recently synthesized the work of 24 such initiatives to identify the key elements of a generalized approach to corporate biodiversity management for companies operating in sectors with high biodiversity impacts [2]. Here are some of our findings:

- Companies should make an explicit commitment with respect to their biodiversity impacts. This commitment should be the responsibility of a senior manager, and approved by the board of directors. At a minimum, the company should commit to respect all relevant environmental legislation. However, companies are encouraged to go beyond and commit to having no net impact on biodiversity (or in other words, to become *biodiversity neutral*), or even to make a net positive contribution (see **Box Two** for some examples of corporate commitments).
- Companies should avoid creating unacceptable biodiversity impacts by having a clear and credible policy with regards to important biodiversity areas in which they will not operate. For example, companies may choose to avoid operating in national protected areas and internationally recognized wetland sites.
- Prior to developing new sites, companies should conduct credible and comprehensive biodiversity impact assessments that involve stakeholder participation. Companies should manage their biodiversity impacts throughout the life of the project, and regularly report to the public on the success of their efforts.
- Companies should minimize their “acceptable” impacts to the greatest extent feasible during project design.
- Companies may consider investing in biodiversity conservation projects to offset their residual, acceptable biodiversity impacts, after project design has minimized their impacts to the greatest extent possible. Since development at any site is bound to cause some impact to biodiversity, biodiversity offsets are an essential tool for those companies who have made public commitments to

have no net impact, or even make positive overall contributions to biodiversity conservation.

With the exception of *corporate biodiversity offsets*, the elements of corporate biodiversity management are reasonably straightforward, and considerable guidance exists in the literature.

## **CORPORATE BIODIVERSITY OFFSETS**

There are many unanswered questions as to how corporate biodiversity offsets should be implemented. For example, how should corporate impacts and the benefits from conservation projects be measured? How should a company choose the best type of offset? To what extent should third parties be involved?

Fortunately, even though experience in conducting voluntary offsets is limited, guidance is available from at least four other sources. First, the experience of countries with regulatory requirements for offsets is highly relevant, including wetlands mitigation and conservation banking in the United States, native vegetation offsets in Australia, and forest offsets in Brazil [3]. Second, much of the recent work on developing procedures for voluntary *carbon* offsets is directly relevant to biodiversity offsets [4]. Third, conservation practitioners are working hard to improve their ability to monitor and measure the effectiveness of their work – experience that is directly relevant to measuring the corporate impacts to biodiversity, and benefits generated by biodiversity offsets [5]. Finally, a small number of corporations and NGOs are exploring the conceptual basis of offsets as well as gaining firsthand experience in implementing offset projects (**Boxes Three and Four**) [6].

Here we draw from these sources to describe six basic steps that companies can follow to offset their biodiversity impacts (**Figure One**). Even though at each step there are unresolved technical issues, we show that these need not impede companies from doing offsets. Rather, by adopting best practices, companies can exceed stakeholder expectations and minimize controversy that might occur before a generally accepted methodology is available.

1. **Assess biodiversity impacts:** the first step in implementing a biodiversity offset is to determine the magnitude and type of corporate biodiversity impacts that the offset(s) must compensate for. Typically a company will carry out an environmental impact assessment (EIA) before developing a site, but standard EIA's may not be adequate to identify and minimize biodiversity impacts. Procedures for expanding the scope of traditional EIAs so that they adequately detect potential significant impacts to biodiversity are available [7]. In carrying out the EIA process, the company should be able to demonstrate that it has taken all reasonable measures to avoid any unacceptable impacts to biodiversity, and adopted appropriate measures to

minimize impacts that cannot be avoided. An unresolved issue is whether biodiversity offsets should seek only to compensate for impacts to species, or whether they should also seek to replace lost ecosystem services, such as the role the impacted ecosystem played in maintaining water quality and quantity in the local watershed.

*Best practices:* a credible estimation of a company's biodiversity impacts is the foundation of the offset. If this is not done well, then the offset itself will have no credibility. At a minimum, we recommend that a company consult relevant government and NGO conservation prioritization schemes in order to identify species and habitats of high conservation value that might be present on the site **[8]**. We also recommend that the EIA involve independent conservation scientists familiar with the major plant and animal groups in the area, both in conducting the EIA, and independently reviewing the finished product. In cases where a company's activities will result in significant loss of ecosystem services to local communities, we recommend that companies seek offsets that provide similar ecosystem services, in addition to replacing lost biodiversity value.

- 2. Identify offset options:** initial consultation with stakeholders will help the company produce a shortlist of offset projects for consideration. Companies may choose from a variety of types, including habitat restoration projects, new habitat preservation projects, or providing additional funding to existing under-funded protected areas such as national parks. The important thing is that the company's conservation investment is "additional", or in other words, that it can be clearly linked to conservation gains that would not have occurred without the company's involvement.

Whichever project types are considered, the projects themselves must be well designed. This includes being conducted at a scale that is biologically meaningful, and making a convincing case that the project management will be able to successfully mitigate future threats.

Within these constraints, there is great flexibility in choosing projects. Projects may be located adjacent to the company's operations (onsite), or they may occur at some distance (offsite). Projects may replace similar components of biodiversity that have been impacted by the project (in-kind), or they may generate different types of conservation benefits altogether (out-of-kind).

Offset benefits should either precede or occur approximately along the same time line as the impacts from development. For example, using a restoration project that will take hundreds of years to mature to offset the immediate destruction of large amounts of pristine habitat is probably not a good match.

*Best practices:* we recommend that companies only consider offsite and/or out-of-kind offsets when they can provide equal or greater conservation benefits to onsite options, at a lower cost. For example, a biodiversity offset may be located in an ecosystem with a higher conservation value than the one where impacts occurred, or, by moving offsite, an offset may be able to be part of a larger conservation initiative, and gain the benefits of operating at an increased scale.

- 3. Choose appropriate offset:** the next step is to choose the best option to implement among the possibilities identified in Step 2. It is important at this point for the company to revisit the reasons why they are conducting the offset. What types of “biodiversity risk” is the offset meant to mitigate? What types of benefits is it meant to produce? Are the main stakeholders local communities or international NGOs and markets? The final selection will be based on considerations of cost, availability of partners, significance of conservation gains relative to the company’s impacts, and level of support from key stakeholders. The latter will be especially important, and in many cases will be the pivotal factor in decision-making at this and other stages of offset design and implementation.

*Best practices:* a company should be prepared when talking with stakeholders to communicate the pros and cons of each offset possibility; in particular, you describe the conservation science justification for moving offsite, or out-of-kind. It is vital to ensure that key stakeholders fully support the final choice.

- 4. Choose appropriate offset ratio:** an important aspect of offset design is the ratio of project benefits to corporate impacts. For example, a company whose operations resulted in the loss of 100 hectares of forest, and who supported the creation of a new private forest reserve that conserved 200 hectares of forest, would have an offset ratio of 200:100, or 2:1. The ratio for offsets will always be at least one-to-one, but may be adjusted upwards for a variety of reasons. For example, the ratio may be increased if there is significant uncertainty about the magnitude of corporate impacts or project benefits. Increasing the ratio can also serve to increase stakeholder support for an offsite conservation project. Companies may also wish to increase the ratio if they have committed to have a net positive impact on biodiversity.

*Best practices:* the development of offset guidelines is still in its infancy, and there are many unresolved issues and stakeholder concerns. For this reason, we recommend that companies implement offsets with ratios significantly greater than one-to-one.

- 5. Ensure long-term management:** the next step is to ensure that conditions are in place for the long-term success of the offset. Requirements of the conservation project will vary, but are likely to include securing

permanent legal tenure of the offset site, developing a long-term management plan, and ensuring the long-term financial viability of the offset. The latter can be achieved through endowing a trust fund to cover management costs indefinitely.

*Best practices:* it usually makes sense to hand over management of the project to qualified third parties. This reduces demands on the company's time while enhancing the credibility of the conservation project. It is important to choose experienced partner institutions (governments or NGOs), which are likely to be around for a long time. It also makes sense to consider the partner institution's commitment to accountability and performance measuring - attributes which vary widely in the NGO community.

- 6. Ongoing monitoring and reporting of project impacts and offset function:** the last but recurring step is to conduct long-term monitoring of the offset's performance, and to regularly communicate the results to key stakeholders. Monitoring biodiversity at the corporate site is important to ensure that impacts do not exceed original estimates. Likewise, monitoring of biodiversity at the offset site is important to ensure that offsets are indeed delivering the conservation benefits for which they were designed. Communicating the results of credible assessments of offset performance provides an opportunity for the company to remind stakeholders of the company's commitment and contributions to biodiversity conservation.

*Best practices:* whether or not third parties conduct the actual management of the offset, it is valuable to have some form of independent monitoring and verification of the offset project. Ideally this would include the participation of key stakeholders. Results should be communicated to stakeholders on a periodic basis, perhaps in the company's sustainability report and/or through community dialogues.

## **THE FUTURE OF BIODIVERSITY OFFSETS**

We expect that leading companies will increasingly use biodiversity offsets to mitigate their biodiversity risks. At present, the lack of a standardized, widely accepted methodology means that biodiversity offsets are relatively costly, with companies having to develop a unique approach for each application. Methodological uncertainty also means that companies will likely implement offsets with high ratios of benefits to impacts, again increasing their cost. Our hope though is that over time, greater use and experience in implementing biodiversity offsets will lead to the development and acceptance of a standardized cost-effective methodology. In order to assist in this endeavor, we have prepared a checklist that allows companies to compare their own offset against our current assessment of best practices [9]. The checklist is attached as an appendix to the

web version of this paper. We will keep this checklist current, incorporating relevant experience and new technical work as it becomes available.

Whatever the future holds for corporate biodiversity offsets, biodiversity is one of the most technically challenging themes to be tackled by corporate responsibility, and the companies leading this effort are to be commended.

## ENDNOTES

[1] A review of the extent that various sectors are managing their biodiversity risks in Europe: ISIS Asset Management, Is biodiversity a material risk for companies?: an assessment of the FTSE sectors to biodiversity risk (2004). Available at: <http://www.strategyguide.org/Pdfs/ISIS/Isbiodiversityamaterialriskforcompanies.pdf>. For large oil and gas companies: World Resources Institute. Changing Oil: Emerging environmental risks and shareholder value in the oil and gas industry (2002). Available at: [http://pubs.wri.org/pubs\\_description.cfm?PubID=3719](http://pubs.wri.org/pubs_description.cfm?PubID=3719). On the key role of corporate responsibility in ensuring access to new legacy resources in the energy sector: Goldman-Sachs Research Department, Energy and Environmental Social Report. 116 pp. (2004) Available at: [www.unepfi.org/fileadmin/documents/materiality1/eesi\\_goldman\\_sachs\\_2004.pdf](http://www.unepfi.org/fileadmin/documents/materiality1/eesi_goldman_sachs_2004.pdf)

[2] The reviewed initiatives include those of the International Union for the Conservation of Nature, World Business Council for Sustainable Development, International Finance Corporation, Insight Investment, Energy and Biodiversity Initiative, International Council on Mining and Minerals, and the Global Reporting Initiative. For the complete report, see: C. Wong, R.E. Gullison, A Framework for Corporate Biodiversity Management. 53 pp. (2005) Available at: [http://www.biodiversityneutral.org/index\\_content.html](http://www.biodiversityneutral.org/index_content.html)

[3] For a review of legislative offsets, see: B. McKenney, Environmental Offset Policies, Principles, and Methods: a review of selected legislative frameworks. 85 pp. (2005). Available at: [http://www.biodiversityneutral.org/index\\_content.html](http://www.biodiversityneutral.org/index_content.html)

[4] A good starting point is the Greenhouse Gas Protocol, a joint initiative between World Resources Institute and the World Business Council for Sustainable Development. [www.ghgprotocol.org](http://www.ghgprotocol.org)

[5] A good starting point for resources on measuring the effectiveness of conservation projects is the Foundations of Success website (<http://fosonline.org/>).

[6] For an exploration of conceptual issues, see: VBDO. 2005. Business and Biodiversity. Offsetting the impact on biodiversity. Annex to the report "Business and Biodiversity". 51 pp. Available at: <http://www.vbdo.nl/index.php?en/publicaties/30>. For a survey of stakeholder opinions, see: ten Kate, K., J. Bishop, & R. Bayon. Views, experience, and the business case. 95 pp. (2005) Available at: <http://www.biodiv.org/doc/case-studies/inc/cs-inc-IUCN-II-report-en.pdf>.

[7] For example, see Energy and Biodiversity Initiative, Integrating Biodiversity into environmental and social impact processes. 25 pp. Available at: <http://www.theebi.org/pdfs/esia.pdf>. And Convention on Biological Diversity. (2003) Proposals For Further Development And Refinement Of The Guidelines For Incorporating Biodiversity-Related Issues Into Environmental Impact Assessment Legislation Or Procedures And In Strategic Impact Assessment: Report On Ongoing Work. UNEP/CBD/SBSTTA/9/INF/18.

[8] For a review of conservation prioritization schemes, and discussion of their relevance to biodiversity offsets, see: A.G. Blundell, T.V. Burkey. Setting Conservation

Priorities for Biodiversity Offsets. 30 pp. (2006) Available at: [http://www.biodiversityneutral.org/index\\_content.html](http://www.biodiversityneutral.org/index_content.html)

**[9]** For a description of the checklist, and an example of its application, see: J.J. Hardner, Biodiversity Offset Case Study: Compañía Minera Antamin's *Polylepis* Initiative. 50 pp. (2005) Available at: [http://www.biodiversityneutral.org/index\\_content.html](http://www.biodiversityneutral.org/index_content.html)

**[10]** Sources for definitions. biodiversity: IUCN, UNEP, WWF, Caring for the Earth. A Strategy for Sustainable Living. Gland, Switzerland. 228pp. 1991. Biodiversity offsets: K. ten Kate, J. Bishop, R. Bayon. Biodiversity offsets: views, experience and the business case. Published by IUCN and Insight Investment (2004). 95 pp.

**[11]** Sources: Norske Hydro ([http://www.hydro.com/library/attachments/en/press\\_room/biodiversity\\_policy.pdf](http://www.hydro.com/library/attachments/en/press_room/biodiversity_policy.pdf)). Shell ([http://www.shell.com/home/Framework?siteId=royal-en&FC2=/royal-en/html/iwgen/environment\\_and\\_society/commitment\\_policies\\_standards/biodiversity\\_standard/zzz\\_lhn.html&FC3=/royal-en/html/iwgen/environment\\_and\\_society/commitment\\_policies\\_standards/biodiversity\\_standard/biodiversity\\_standard.html](http://www.shell.com/home/Framework?siteId=royal-en&FC2=/royal-en/html/iwgen/environment_and_society/commitment_policies_standards/biodiversity_standard/zzz_lhn.html&FC3=/royal-en/html/iwgen/environment_and_society/commitment_policies_standards/biodiversity_standard/biodiversity_standard.html)); Bristol-Myers Squib (<http://www.bms.com/static/ehs/perfor/data/landus.html>); Rio Tinto ([www.businessandbiodiversity.org/ppt/Presentation%204%20-%20Dave%20Richards%20Rio%20Tinto.ppt](http://www.businessandbiodiversity.org/ppt/Presentation%204%20-%20Dave%20Richards%20Rio%20Tinto.ppt)).

**[12]** See: [http://www.walmartfacts.com/docs/april2005\\_acres\\_for\\_america.pdf](http://www.walmartfacts.com/docs/april2005_acres_for_america.pdf); <http://www.wakeupwalmart.com/news/20050421-an.html>; [http://walmartwatch.com/press/releases/wal\\_mart\\_announces\\_acres\\_for\\_america/](http://walmartwatch.com/press/releases/wal_mart_announces_acres_for_america/)

**[13]** [http://www.minerals.org.au/\\_data/assets/pdf\\_file/10121/Charnock\\_Nigel5C2.pdf](http://www.minerals.org.au/_data/assets/pdf_file/10121/Charnock_Nigel5C2.pdf)

**[14]** For more details, see <http://www.theebi.org/>; <http://www.iucn.org/themes/business/mining/>

## FIGURES, TABLES AND TEXT BOXES

### Box One: some key definitions [10]

**Biodiversity:** the variety of life in all its forms, levels and combinations. Includes ecosystem diversity, species diversity, and genetic diversity.

**Biodiversity offset:** conservation actions intended to compensate for the residual, unavoidable harm to biodiversity caused by development projects, so as to ensure no net loss of biodiversity. Before developers contemplate offsets, they should have first sought to avoid and minimize harm to biodiversity.

### Box Two: examples of corporate biodiversity commitments [11]

“To meet the biodiversity challenges ... we will take actions to avoid or mitigate impacts on biodiversity from our operations. This will include compensatory measures to conserve biodiversity in sensitive areas.”

#### **Norsk Hydro**

“We will... seek partnerships to enable the Group to make a positive contribution towards the conservation of global biodiversity.”

#### **Shell**

“We have already met our goal of protecting land equal in area to the amount of land used by our research and development, manufacturing, and distribution centers, and we are on our way to protecting, by year-end 2005, land equal in area to our administrative offices.”

#### **Bristol-Myers Squibb**

“Rio Tinto aims to have a net positive impact on biodiversity by minimising the negative impacts of its activities and by making appropriate contributions to conservation in the regions in which it operates.”

**Box Three: Wal-Mart's *Acres for America* [12]**

*Acres for America* is a partnership between Wal-Mart and the National Fish and Wildlife Foundation designed to offset the area occupied by Wal-Mart's facilities. Wal-Mart will spend \$35 million to conserve at least one acre of priority wildlife habitat for each acre occupied by their facilities, projected to total 138,000 acres over the next ten years. The program is not designed to invest in in-kind or on-site conservation projects; rather, the focus will be on investing in conservation priorities around the country in exchange for Wal-Mart's ecological footprint on land that is usually of marginal conservation value. Already five large conservation projects have been announced, totaling some 321,000 acres.

While *Acres-for-America* will clearly produce important conservation benefits, it has serious weaknesses as biodiversity offset. Stakeholder consultation has been limited throughout. The additionality – or “added value” – of Wal-Mart's investments, has not been assessed (or at least communicated). Perhaps most importantly, Wal-Mart's initiative has not been portrayed as part of an overall credible biodiversity management strategy that would avoid unacceptable biodiversity impacts (e.g., by not developing high conservation value wetland sites), reduce acceptable biodiversity impacts to the greatest extent possible, and only seek to offset residual impacts. As such, Wal-Mart's offsets may be perceived as “greenwashing” to some.

**Box Four: Mount Owen Mine Biodiversity Offset [13]**

The Hunter Valley Coal Corporation (HVCC) – a subsidiary of Xstrata Coal, one of the world's leading producers of export thermal and coking coal – operates an open pit mine in the Upper Hunter Valley of New South Wales, Australia. As part of an expansion plan that will disturb 25 hectares of high conservation value forest and 59 hectares of open woodland on Mount Owen, the company will offset its impacts with a combination of habitat protection and restoration activities. The company will protect 415 hectares of habitat, 100 hectares of which is mature woodland. The remaining 315 hectares will be restored over the 17-year life of the mine.

HVCC's biodiversity offset has many compelling features. The details of the offset strategy were developed in close collaboration with relevant government agencies. The combination of protecting existing mature ecosystems with the restoration of degraded areas will generate benefits that closely match the company's impacts over time. Importantly, the company's past efforts in biodiversity management mean that its new commitments are credible. The company has further increased its credibility by engaging an independent advisory committee to oversee its biodiversity management, and by forming a long-term partnership with the University of Newcastle to improve habitat restoration techniques.

A potential criticism of the company is that it shouldn't be operating in the area in the first place, as it is habitat for numerous threatened species. It will be contingent upon HVCC through its ongoing biodiversity monitoring to show that its operations are not further compromising the status of species that are already threatened.

**Table One:** examples of some recent initiatives in corporate biodiversity management [14]

<b>Initiative</b>	<b>Description</b>	<b>Organizations involved</b>
Energy and Biodiversity Initiative (EBI)	Guidelines, tools and models for integrating biodiversity management into oil and gas development – e.g., site selection, environmental impact assessments and environmental management systems and monitoring.	Shell, BP, Chevron, Statoil, Conservation International, Flora and Fauna International, IUCN, Smithsonian Institution, Nature Conservancy.
IUCN-ICMM Mining Dialogue	A partnership between the World Conservation Union (IUCN) and the International Council on Mining and Minerals (ICMM) develop best practices for biodiversity management in the mining industries.	Coalition of 16 international mining companies and 23 NGOs/associations.

**Figure One:** six steps to implementing biodiversity offsets

[see tiff file for figure]