

A review of corporate goals of No Net Loss and Net Positive Impact on biodiversity

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Abstract Increased recognition of the business case for managing corporate impacts on the environment has helped drive increasingly detailed and quantified corporate environmental goals. Foremost among these are goals of no net loss (NNL) and net positive impact (NPI). We assess the scale and growth of such corporate goals. Since the first public, company-wide NNL/NPI goal in 2001, 32 companies have set similar goals, of which 18 specifically include biodiversity. Mining companies have set the most NNL/NPI goals, and the majority of those that include biodiversity, despite the generally lower total global impact of the mining industry on biodiversity compared to the agriculture or forestry industries. This could be linked to the mining industry's greater participation in best practice bodies, high-profile impacts, and higher profit margins per area of impact. The detail and quality of present goals vary widely. We examined specific NNL/NPI goals and assessed the extent to which their key components were likely to increase the effectiveness of these goals in benefiting biodiversity and managing business risk. Nonetheless, outcomes are more important than goals, and we urge conservationists to work with companies to both support and monitor their efforts to achieve increasingly ambitious environmental goals.

Keywords Biodiversity, corporate social responsibility, mitigation hierarchy, net positive impact, no net loss

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Introduction

Effective management of corporate biodiversity impacts is increasingly being recognized as central to solving environmental crises (e.g. TEEB, 2010). Following a proliferation of vague 'environmentally friendly' labels (Lavallée & Plouffe, 2004), specific and quantified corporate environmental goals are increasingly common: for example,

the rise in corporate signatories to the United Nations Global Compact (2012) from its initiation in 2000 to > 7,000 companies in 2012. Pre-eminent among such goals are those of no net loss (NNL) or net positive impact (NPI) on biodiversity, or similar wording (hereafter collectively referred to as NNL/NPI). BBOP (2012a) describes these terms as follows: 'No net loss is a target for a development project in which the impacts on biodiversity caused by the project are balanced or outweighed by measures taken to avoid and minimize the project's impacts, to undertake on-site rehabilitation/restoration, and finally to offset the residual impacts, so that no overall biodiversity loss results. Where the gain exceeds the loss, the term "net gain" [or net positive impact] may be used instead of no net loss'. Where offsets are required, these approaches are also sometimes referred to as 'compensatory mitigation'.

We review the growth and scale of corporate NNL/NPI goals, identify weaknesses, and outline key components of such goals. By identifying such components that are likely to have a demonstrable and measurable impact on biodiversity, we seek to encourage companies to set such goals and to increase the effectiveness of these goals.

The 1992 Earth Summit in Rio de Janeiro stimulated major interest in the concept of sustainable development, and the Convention on Biological Diversity has subsequently played a key role in framing standards for corporate environmental accountability (Morgera, 2012). A free market reacts most swiftly, however, to clear financial incentives. Landmark studies by Costanza et al. (1997), Stern (2006) and TEEB (2010) made major advances in estimating financial values of ecosystem services and costs of environmental crises. Companies increasingly see a business case for improved corporate social responsibility, including management of environmental impacts (Robinson, 2012), although not all shareholders have the same view (Fisher-Vanden & Thorburn, 2011). PWC (2010) and Hanson et al. (2012) identified drivers of risks to business from ineffective environmental management, and of opportunities from effective management (Table 1). Each of these risks and opportunities has financial consequences, and these can provide the financial incentives to set environmental goals.

Regulatory and financial drivers that incentivize companies to define NNL/NPI goals have increased noticeably in frequency and prominence. The concept of no net loss to biodiversity first rose to prominence with its adoption as a

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TABLE 1 Major drivers of environmental opportunity and risk for companies (PWC, 2010; Hanson et al., 2012).

Category (from Hanson et al., 2012)	Opportunity	Risk
Operational	Ecosystem services to support operations	Reduced productivity; scarcity & increased cost of resources; operational & supply chain disruption
Regulatory & legal	Leadership with governments to help shape policies & regulations	Fines & project delays; liability for biodiversity impacts
Reputational	Preferred operator status; improved quotas; staff loyalty	Loss of 'social licence to operate': restricted access to land & resources
Market & product	Brand differentiation; increased profit margins; compliance with purchaser policies	Damage to brand; boycotts
Financing	Access to finance	Reduced finance opportunities; reduced credit quality

project-level policy goal in the United States Clean Water Act (1977). Madsen et al. (2011) identified 45 existing compensatory mitigation programmes around the world, many underpinned by government policies or regulations. Such compensatory mitigation, or biodiversity offsetting, is a key element of achieving NNL/NPI (IAIA, 2005).

Corporate environmental goals have been encouraged by the International Finance Corporation Performance Standard 6 (IFC, 2012), which is one of the most influential environmental safeguards in finance (Morgera, 2012). The latest Standard requires private sector projects that receive investment to achieve no net loss of biodiversity in areas of natural habitat, where feasible, and net gains of biodiversity for which 'critical habitat' is designated (IFC, 2012). These high standards of environmental management outlined in Performance Standard 6 are being followed, for project finance of \geq USD 10 million, by over 75 major financial institutions through their adoption of the Equator Principles (2012). Environmental management is thus no longer seen as a peripheral part of corporate social responsibility but as an integral part of the 'credit risk management framework for determining, assessing and managing environmental and social risk in project finance transactions' (Equator Principles, 2012).

Methods

Although we use the phrase NNL/NPI goals for convenience, terminology used to describe equivalent goals varies widely (BBOP, 2012b). We identified corporate NNL/NPI goals by searching Google (2012) for a variety of key terms, broad enough to ensure retrieval of as many NNL/NPI goals as possible. These terms were selected based on phrases in key multi-stakeholder initiatives, international standards and other sources (e.g. ICM, 2006; BBOP, 2012b; IFC, 2012). Key terms, in English only, were combined to generate phrases for search queries (Supplementary Table S1). Searches were carried out during March–June 2012. Goals made after 31 December 2011 were excluded in order to include only whole years and to allow

adequate time for decisions to be publicized on websites and indexed by search engines. We found only two companies with NNL/NPI goals published later, although more may exist: Kingfisher plc from 2012, and BG Group plc from 2013.

Although many goals exist at project-, product- or brand-level, we aimed to assess high-level corporate goals. We thus excluded goals of entities that are joint ventures (e.g. Nokia Siemens Networks B.V. and Midland Quarry Products Limited), or divisions or subsidiaries of parent companies (e.g. CEMEX UK Operations Limited, Huber Engineered Materials and Winstone Aggregates) or combinations of the above, some of which may be pilot sites.

To increase retrieval of NNL/NPI goals, searches continued until five consecutive web pages (with 10 results per page) returned no positive results. This was a threshold beyond which we believe the chance of further positive results was minimal but was ultimately an arbitrary threshold. Search results have inherent bias towards larger companies, with websites that usually score higher in Google (2012) searches, and away from companies without English-language websites. We believe, however, that the search was thorough enough to have identified all or most major corporate NNL/NPI goals. The search was comprehensive enough to identify our key target: trends in declaration of such goals.

To identify growth in NNL/NPI goals over time we identified their publication dates based on the following hierarchy: (1) dates available online, (2) if dates were unavailable or unclear online, through direct contact with companies, or (3) if this did not provide confirmation, we estimated dates from when documents were written or when documents were posted.

We also qualitatively assessed which of the goals may actually lead to measurable positive outcomes for biodiversity. We first identified such goals as those having explicit inclusion of biodiversity (including habitats and species), rather than general references such as those to the environment, greenhouse gas emissions or water use. Furthermore, through our experience of supporting corporate biodiversity

management and from relevant literature, we identified key components of NNL/NPI goals that are most likely to ensure the effectiveness of these goals in both benefiting biodiversity and managing business risk. This assessment was necessarily qualitative, given a lack of comparable data on implementation of corporate NNL/NPI goals.

Results

We identified 32 companies that have set public, company-wide, environmental NNL/NPI goals (Table 2). The earliest goal we identified was by Solid Energy, a coal-focused energy company, in 2001: 'achieving a positive net effect on the New Zealand environment across all our businesses' (Solid Energy, 2004). Since then, there has been a marked rise in the number of companies making NNL/NPI goals, including eight additional companies in 2010 alone (Fig. 1).

Mining companies (including aggregates, minerals, metals and coal mining) have set the most NNL/NPI goals: 13 of 32 (41%; Fig. 1, Table 2). Energy and manufacturing companies are the next largest contributors, with five and four companies each, respectively (16 and 13%; Table 2). The nine other companies with NNL/NPI goals occupy sectors as diverse as entertainment, retail and pearl farming (Table 2). The proportion of companies with NNL/NPI goals that are mining companies has also increased over time, from 25% in 2006 (three companies) to 42% in 2011 (13 companies; Fig. 1). Despite the prevalence of NNL/NPI goals set by mining companies, none were found to be set by oil and gas companies, the other major extractive industry, up to 2011. Since then, however, BG Group plc has set a public NNL/NPI biodiversity goal.

Of the 32 companies with NNL/NPI goals, 18 have explicitly included biodiversity, of which 12 were from the mining sector (Table 2). Integration of certain key components within these biodiversity-focused NNL/NPI goals is most likely to ensure their effectiveness in both benefiting biodiversity and managing business risk (Table 3). No company goal contained all seven of the key components described in Table 3. Mining company goals contained proportionately more key components than did those of other companies: they made up 63% of the companies that had the majority (4–6) of the key components but only 29% of the companies with a small number (1–3) of components.

Discussion

Management of negative corporate impacts has immense potential for biodiversity conservation, owing to the key role corporate activity plays in biodiversity loss, the large spatial and long temporal scales at which companies operate, their political weight, extensive landholdings and resources (Robinson, 2011; Houdet et al., 2012). This potential has, however, been far from realized to date (Robinson, 2012).

Overall, the number of companies explicitly aiming to achieve NNL/NPI remains small but is growing rapidly and includes six of the world's largest 500 companies by revenue (Fortune, 2012).

The actual nature of corporate NNL/NPI goals at present varies greatly. Some are just vague environmental statements that appear to be pure public relations exercises (Slack, 2012). Others are carefully worded goals that incorporate many of the components identified in Table 3. These components, from our experience and the judgement of other authors, increase the effectiveness of these goals for benefiting biodiversity and managing business risk (e.g. Solid Energy, 2004; Rio Tinto, 2008). These components can ensure that goals are measurable and verifiable. Biodiversity goals are conventionally seen to involve trade-offs between benefits to biodiversity and managing business risk. However, this is changing because stakeholders are increasingly imposing costs (e.g. fines, project delays, lawsuits) on companies for biodiversity impacts; i.e. incorporating environmental externalities as real costs. The business case has therefore become stronger. There is much potential for improvement of current and future goals to ensure they include all of the key components described in Table 3.

The NNL/NPI concept has gained more traction in some industries than others. The current preponderance of mining companies with NNL/NPI goals is not reflective of a greater overall impact of the mining industry on biodiversity. Agriculture and logging, for example, both present much greater threats to both threatened and non-threatened species than extractive industry: data from the IUCN Red List show that agriculture and logging threaten 11,505 and 10,419 species, respectively, including > 5,000 threatened species each, whereas extractive industry threatens 2,698 species, of which 1,293 are already categorized as threatened (IUCN, 2012). Agriculture and logging therefore threaten more than three times as many species as mining.

Management of biodiversity in the agriculture and logging industries has been driven by certification programmes rather than NNL/NPI goals (Laurance et al., 2010; Edwards & Laurance, 2012). Some of these programmes are well developed but those without NNL/NPI elements fail to reach their full potential to safeguard biodiversity (UNEP–WCMC, 2011). Our experience suggests that the dominance of mining companies among those with NNL/NPI goals can be explained by three main factors. Firstly, mining companies have actively participated in best practice bodies; e.g. the Business and Biodiversity Offsets Programme and International Council on Mining and Minerals, which foster peer group development of practices that improve corporate reputation and marketing. Secondly, mining companies have impacts with a high global profile (oil and gas companies, by contrast, have risks with a high global profile, which they traditionally manage differently to impacts). Thirdly, mining companies have relatively high net

TABLE 2 Companies with public, company-wide NNL/NPI goals, as identified using search terms, up to 31 December 2011.

Company	Date	Industry type	Multi-stakeholder initiative membership*	Specific biodiversity goal	NNL/NPI goal phrase
Solid Energy New Zealand Ltd	2001	Mining	BBOP	Yes	Positive net effect on ecosystems
Wood Joiners	2003	Construction		No	Positive impact on our environment
Rio Tinto Group	2004	Mining	ICMM	Yes	Net positive impact on biodiversity
British Columbia Hydro & Power Authority	2004	Energy		No	No net incremental environmental impact
Comet Skateboards	2004	Manufacturing		No	Net positive impact on the environment
Hayleys Group	2004	Trading		No	Environmental neutrality
Advanced Glazings Ltd	2005	Manufacturing		No	Net positive impact on the environment
Lonmin Plc	2005	Mining	ICMM	Yes	Zero harm to the environment
Wal-Mart Stores, Inc.	2005	Retail		Yes	Acre for acre
Interface, Inc.	2006	Manufacturing		No	No negative impacts on the environment
Just Drinking Water Ltd	2006	Food		No	Net positive impact on our planet
Willie Creek Pearls Group	2006	Pearls		No	No negative impact on the natural environment
Xstrata plc	2007	Mining	ICMM	Yes	Avoid net losses...of natural habitats, biodiversity
Energias de Portugal Group	2007	Energy		Yes	Overall positive balance [on biodiversity]
Greenko Group	2008	Energy		No	Positive net effect on environmental well-being
Walt Disney Company	2008	Entertainment		Yes	Net positive impact on ecosystems
Inmet Mining Corporation	2008	Mining	BBOP & ICMM	Yes	No net loss...of biodiversity
Becker Underwood	2008	Chemicals		No	Overall positive impact on the environment
Orlen Group	2008	Energy		No	Maximum ecological neutrality
Barrick Gold Corporation	2009	Mining	ICMM	Yes	No net loss to biodiversity
Enbridge Inc.	2009	Energy		Yes	Neutral [environmental] footprint
Balfour Beatty plc	2009	Aggregates		Yes	Net ecological gain
GSky Plant Systems Inc.	2010	Construction		No	Net positive impact on the environment
Sony Corporation	2010	Manufacturing		Yes	Zero environmental footprint
Kalindee Rail Nirman (Engineers) Ltd	2010	Engineering		No	Net positive impact on the environment
De Beers Group	2010	Mining		Yes	No net loss of biodiversity
Teck Resources Limited	2010	Mining	ICMM	Yes	Net positive impact on biodiversity
Tom Farms LLC	2010	Chemicals		Yes	Net benefit for...the environment
Lundin Mining Corporation	2010	Mining		Yes	Avoid net losses...of natural habitat
Eco Oro Ltd	2010	Mining		Yes	No net loss of biodiversity
General Moly, Inc.	2010	Mining		No	Positive impact on the environment
Norsk Hydro ASA	2011	Mining	ICMM	Yes	No net loss to biodiversity

*BBOP, Business and Biodiversity Offsets Programme; ICMM, International Council on Mining and Minerals

TABLE 3 Components of NNL/NPI goals that are likely to increase their effectiveness in benefiting biodiversity and managing business risk, based on our experience and relevant literature.

Components	Justification
Defined biodiversity scope	Specification of which biodiversity is included, rather than a general mention of 'biodiversity' or 'environment' will focus efforts, increase transparency & improve achievability & measurability (Robinson, 1993; BBOP, 2012b). Included biodiversity should encompass both global & local conservation priorities (IFC, 2012).
Defined impact scope	Specification of which impacts are included will also focus efforts, increase transparency & improve achievability & measurability. As such, goals should ideally address direct, indirect & cumulative impacts. Goals may only include certain types of project or finance; e.g. project finance of USD 10 million or more (Equator Principles, 2012). Goals may retrospectively include existing projects or apply solely to future projects.
Measurable goal	By definition, goals must be measurable in order that the progress towards NNL/NPI can be tracked (BBOP, 2012b; Gardner et al., 2013).
Mitigation hierarchy	Following the mitigation hierarchy (avoidance & minimization of impacts, followed by restoration/rehabilitation, & finally offsets) will optimize reduction of biodiversity impacts & minimize costs (McKenney & Kiesecker, 2010; Quintero & Mathur, 2011; BBOP, 2012b). Each section of the mitigation hierarchy should be addressed.
Upper limits to impacts	NNL/NPI cannot always be achieved: some impacts cannot be offset (BBOP, 2012b; Pilgrim et al., 2013). Goals should acknowledge these upper limits by explicitly outlining impacts that will be wholly avoided; e.g. goals not to develop mines in World Heritage sites (Athanas, 2005).
Appropriate timeframe	An explicit timeframe for achievement of goals will help management of stakeholder & biodiversity risks (McKenney & Kiesecker, 2010; IFC, 2012; Pilgrim et al., 2013). Earlier action will reduce the risk & costs (Martin et al., 2012). Such a timeframe will have to be determined on a case-by-case basis linked to the ecology of individual species (IFC, 2012); e.g. within a generation or migration cycle; within 5 years.
Transparency	Clear, public disclosure of goals, & progress towards them, optimizes building of stakeholder trust & avoids accusations of 'green-wash' (ICMM, 2010; TEEB, 2010; UNEP-WCMC, 2011; Robinson, 2012). Ideally, disclosed information would be verified by independent third-parties (TEEB, 2010). Reporting could include making data available on target species or habitats.

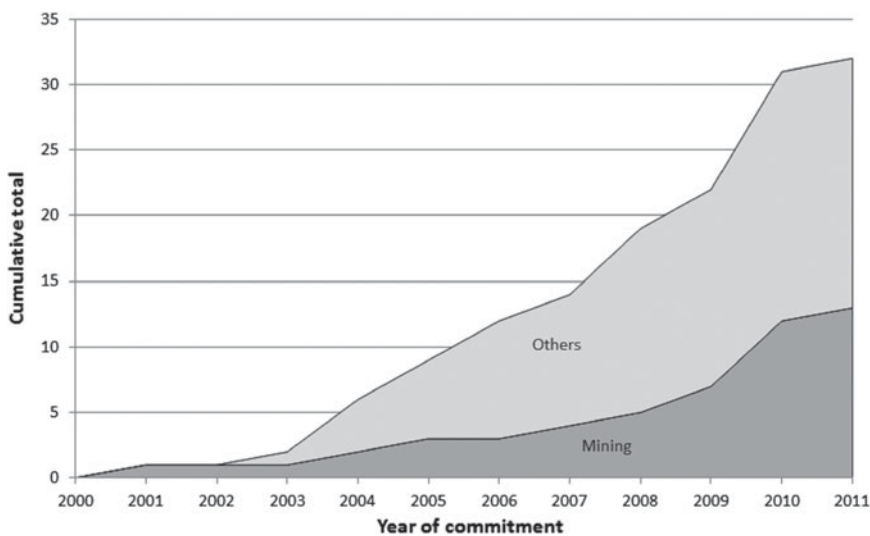


FIG. 1 Growth in number of company-wide, public NNL/NPI goals over time. The mining sector has set the greatest number of NNL/NPI goals.

economic profits per area of impact (compared, for example, to agriculture, which has a small profit margin per area of impact), allowing them to aim for positive impacts rather than just reducing negative impacts.

Environmental regulations in developed countries have increasingly incorporated NNL/NPI concepts (McKenney & Kiesecker, 2010; Madsen et al., 2011), although they may not yet be delivering NNL/NPI (McKenney & Kiesecker,

2010; Maron et al., 2012). Many non-OECD countries do not currently have such well-developed regulations, and existing social and environmental impact assessment regulations are often not effective in mitigating impacts on biodiversity (Hill & Arnold, 2012). Unless Equator Principle (2012) or multilateral bank financing is involved, voluntary best practice will therefore be necessary to manage corporate biodiversity impacts in these countries, as well as in

unconventional environments and where regulations have not kept pace with novel industrial practices (Schindler & Lee, 2010; Ramirez-Llodra et al., 2011).

At present, most corporate NNL/NPI goals have advanced little beyond definition. If they are also implemented, they can be used as a voluntary drive for organizational change in a positive way, much as 'zero harm' targets have improved corporate health and safety policy and implementation (Gunningham, 2007). NNL/NPI goals aim to benefit biodiversity and manage stakeholder risk and therefore improve financial performance. To do so, they require effective definition (Table 3) and implementation, tasks in which the scientific and conservation communities can play a key role through engagement with companies (Gardner et al., 2013; Pedroni et al., 2013). Committed regulators, whether governments or financial institutions, are also essential to ensuring effective implementation (Bull et al., 2013; Gardner et al., 2013). Intransigent problems mean that no net loss and net positive impact may ultimately be unachievable goals (Walker et al., 2009), and engagement with companies is not the sole answer to biodiversity conservation (Robinson, 2012). Nonetheless, effective implementation of well-defined NNL/NPI goals could do much to shift the current business paradigm of 'reducing harm' towards that of 'positive impact' on biodiversity (Warhurst, 2001).

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