

# Pricing the Priceless

## The business case for action on biodiversity



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# Aldersgate Group

The Aldersgate Group (AG) is an alliance of leaders from business, politics and society that drives action for a sustainable economy.

## Our Members



While members support this publication and provided extensive input, individual recommendations cannot be attributed to any single member and the Aldersgate Group takes full responsibility for the views expressed.

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# Foreword

The UK Government's Natural Environment White Paper brings forward current ideas on the value of environment into policy making.



*You can burn peat in your stove and build your sheds of stone. Well I grant you can cut down forests out of need, but why destroy them? One has to be a mindless barbarian to burn such beauty in a stove, to destroy what we cannot create. Man is endowed with reason and creative power in order to increase what he is given.*

**Anton Chekhov, Uncle Vanya – Scenes from Country Life in Four Acts, 1897**

Society, as Chekhov shows, has always known the value of nature. What has changed recently is that we have better information about how nature affects our lives. The Millennium Ecosystem Assessment showed that the state of global ecosystems is in critical decline. To reverse this, we must bring natural values into economic decision-making more effectively.

The global importance of understanding, measuring and capturing the value of nature is shown by the United Nations through TEEB<sup>1</sup> which helped to identify the economic value of nature. In particular it focuses on how nature's functions serve people and affect their welfare. This doesn't automatically solve problems, but can help put information about impacts on biodiversity and ecosystems in front of decision makers. That information can be applied by communities, governments and private business, for whom biodiversity risks are a horizon issue with the potential severity, but far greater complexity, than those posed by climate change. It is illogical to think of climate change policy as separate from ecosystems and biodiversity.

There are both hard economic and clear moral reasons for the importance of this agenda. Not least is that without careful management of the carbon stocks maintained by natural processes in soils and forests, humanity's response to climate change will face higher costs and greater risks.

In developing this publication the Aldersgate Group (AG) aims to highlight how its core message, that sound environmental management can enhance economic performance, human welfare and the condition of the environment, applies to biodiversity and ecosystem services (BES)<sup>2</sup>. This builds on our 'Beyond Carbon' publication<sup>3</sup>, extending arguments on resource efficiency and economic performance to biological resources.

The AG convened a series of discussions on BES, involving a cross-section of our members from the private and third sectors. This enabled scoping of the key BES issues to the economy. It shaped the aims and contents of this publication, revealing the importance to business of clear language and the need to raise the profile of BES within the carbon and environmental policy agendas. It was agreed that a key objective of this work should be to turn theory into practice – raising the profile of BES as a boardroom issue and seeking to integrate it into management structures.



**1 »** The Economics of Ecosystems and Biodiversity (TEEB) study is a major international initiative to draw attention to the global economic benefits of biodiversity, to highlight the growing costs of biodiversity loss and ecosystem degradation and to draw together expertise from the fields of science, economics and policy to enable practical actions moving forward. [www.teebweb.org](http://www.teebweb.org)

**2 »** For a definition of biodiversity and ecosystem services (BES), see page 7.

**3 »** Aldersgate Group (2010) *Beyond Carbon: Towards a Resource Efficient Future*.

# Foreword

It was immediately evident from our discussions that the relationship between the economy and the underpinning ecosystems is something that society, government and regulators are going to get more and more exercised about over the next generation. While businesses often struggle to relate biodiversity to the bottom line and experience with reporting biodiversity impacts has been mixed, it is now an issue that forward looking companies are beginning to address to be the leaders in the market.

The key role that natural environment resources play in the global economy can also be seen in the origins of the present global economic downturn. It is often forgotten that the financial crisis was preceded by a credit crunch, which in turn was triggered by a 'resource crunch' in which prices of materials derived from nature (in particular food) spiked, destabilising markets. Mismanagement of our natural environment makes such problems more likely in the future, but these risks can be reduced through commercial practices and government policies that aim to sustain the broad range of values we gain from BES.

The value of BES also relates to our spiritual wellbeing. As Harvard professor Edward Wilson puts it in his Biophilia hypothesis<sup>4</sup>, humans need living nature – there is an instinctive bond between human beings and other living systems – “the connections that human beings subconsciously seek with the rest of life.” Biophilia is not just a pretty theory, it is vital to major economic issues like mental health and tourism markets.

Humans are biophiles and our economic system relies on ecosystem services. Biodiversity is an indicator of the state of the resources that support our quality of life in these ways. Instead of measuring the destruction of nature as an economic gain, we need to address its stewardship as an economic opportunity.

That's why the AG welcomes the UK's move to include natural capital in our national accounts. We need to correct the false accounting whereby we count as a gain the destruction of natural assets that can potentially yield perpetual benefits. Counting costs as assets was what Enron<sup>5</sup> did – it isn't good for the economy.

## Ian Dickie

AG Director leading on BES,  
Director of Business Development,  
economics for the environment  
consultancy (eftec).

<sup>4</sup> » The biophilia hypothesis suggests that there is an instinctive bond between human beings and other living systems. Edward O. Wilson introduced and popularised the hypothesis in his book entitled *Biophilia*. He describes “the connections that human beings subconsciously seek with the rest of life.” Unlike phobias, which are the aversions and fears that people have of things in the natural world, phillas are the attractions and positive feelings that people have toward certain habitats, activities and objects in their natural surroundings.

<sup>5</sup> » In 2001, false accounting practices at Enron resulted in it becoming the largest corporate bankruptcy in the world.

# Executive Summary

The protection of biodiversity and ecosystem services (BES), while complex to value and quantify accurately, is essential for future well-being and economic development.

The loss of biodiversity causes ecosystems to stress, degrade or even collapse altogether. This reduces the ability of the environment to provide the goods and services that nature provides for free, such as clean air, water and soils, as well as the raw materials that industry depends upon.

Policy will inevitably have to rise to this challenge and businesses must look ahead to what this might mean for them and how they should act responsibly. This report marks the start of a new initiative by the Aldersgate Group (AG) to enable companies to share learning, good practice and understanding of the issues, and to use that learning to influence the developing policy debate.

Five key points that have emerged with consultation from our members and stakeholders are:

**1 The economics of nature.**  
Our economic success depends on a healthy environment and the sustainable use of natural resources. The AG believes that this applies equally to BES as to other natural resources.

**2 Pricing the priceless.**  
The value of BES must be reflected in prices and policy appraisal. Even though BES is complex to measure, tools are available to help reflect the value of BES in company decisions and in national accounts.

**3 Don't exceed the limits.**  
There are certain thresholds that cannot be passed without causing irreversible damage. As well as critical limits, there are also critical trends. A more resource efficient economic model will reduce costs and increase resilience.

**4 Regulation can drive growth.**  
Regulation can create new business opportunities and new markets that the UK should seek to exploit. Also, business and Government must work together to engage the consumer, building trust and changing behaviour.

**5 Business taking the lead.**  
The loss of BES poses significant risks and opportunities for all businesses, although to varying degrees. An effective BES strategy – including effective measurement and management – will ensure that forward-looking businesses are leading the way as this issue rises up the political and consumer agenda.

Our key recommendations are as follows:

» Government must clarify the process by which natural capital is included in the national accounts and ensure proper scrutiny by an independent body.

» By the end of this Parliament, the Chancellor should present a draft natural capital budget alongside the fiscal budget.

» In light of the Natural Environment White Paper, there should be cross-departmental responsibilities to ensure the objective of zero net biodiversity loss becomes a reality.

» Businesses should take the lead by assessing their impacts and dependency on BES and integrating measures to ensure the sustainable use of natural resources.

» The Department of Environment, Food and Rural Affairs (Defra) should engage with businesses on the development of a reporting framework and associated guidance and work with the Natural Capital Committee to ensure that this helps the Natural Capital Budget define the importance of BES to the UK economy and highlight material risks and opportunities to specific business sectors.

BES cuts across a wide range of business and political functions and it is no longer a sound economic or business strategy to discount them. In the next stage of this work programme, the AG will engage key actors in the economy to demonstrate how addressing BES is relevant to their core functions.



# Introduction

Human societies are depleting the physical and biological resources of the earth at an alarming rate, a problem which is deepening with rising population and per capita consumption.

*The protection of biodiversity and ecosystems must be a priority in our quest to build a stronger, fairer and cleaner world economy.<sup>6</sup>*

**Angel Gurría**  
Secretary General, OECD

The loss of biodiversity causes ecosystems to stress, degrade or even collapse altogether. This reduces the ability of the environment to provide the goods and services that nature provides for free, such as clean air, water, soils and waste disposal, as well as the raw materials that industry depends upon. As a result, it is evident that the protection of BES, while complex to value and quantify accurately, is essential for future well-being and economic development.

This is why the recent host of initiatives that provides a robust basis for business and political action, at both national and international level, is so timely. These include the commitments by member states during the United Nations International Year of Biodiversity in 2010, the development of the valuation of ecosystem services through the TEEB initiative and the pledges made by the UK Government in the Natural Environment White Paper, such as including natural capital in the national accounts. At the same time, a drive to reduce costs across the economy is threatening to accelerate the deterioration of the natural environment and strengthens the case for a more integrated and holistic approach.

This report marks the first phase of a new initiative by the AG on how firms and economies can better understand and manage their reliance and impact on BES. This is without doubt a coming issue. How should a company place a valuation on its BES impacts, or report on them qualitatively? What is it looking for? What can it expect to happen in future public policy? How will national economies respond to the undisputed need to begin to measure and control their own BES impact and what will this mean for pricing of resources or the impacts of economic activity?

## Introduction to terminology

*Biodiversity* is the variety amongst living things on earth. Biologists define it at different scales, including habitats, species and genetics.

*Ecosystem services* are defined as services provided by the natural environment that benefit people<sup>7</sup>. This includes physical processes (like pollination by birds and insects) and chemical processes (like carbon dioxide being absorbed into vegetation).

Biodiversity is an integral part of these services and the environments that provide them, so the two are often referred to collectively as Biodiversity and Ecosystem Services (BES).

For the economy, BES can be thought of as a resource supporting productive activity. Hence BES assets are also described as *natural capital* – the ecosystems, biodiversity and natural resources that underpin economies', societies' and individual well-being. Natural capital's many benefits are often overlooked, poorly understood and rarely taken fully into account through economic signals in markets or day to day decisions taken by business and citizens and are not reflected adequately in the accounts of society.



6 » WWF (October 2010)  
*Living Planet Report 2010: Biodiversity, biocapacity and development.*

7 » [www.tinyurl.com/ceggf9e](http://www.tinyurl.com/ceggf9e)



# Introduction



*Biodiversity loss (is) the most critical global environmental threat alongside climate change.<sup>8</sup>*

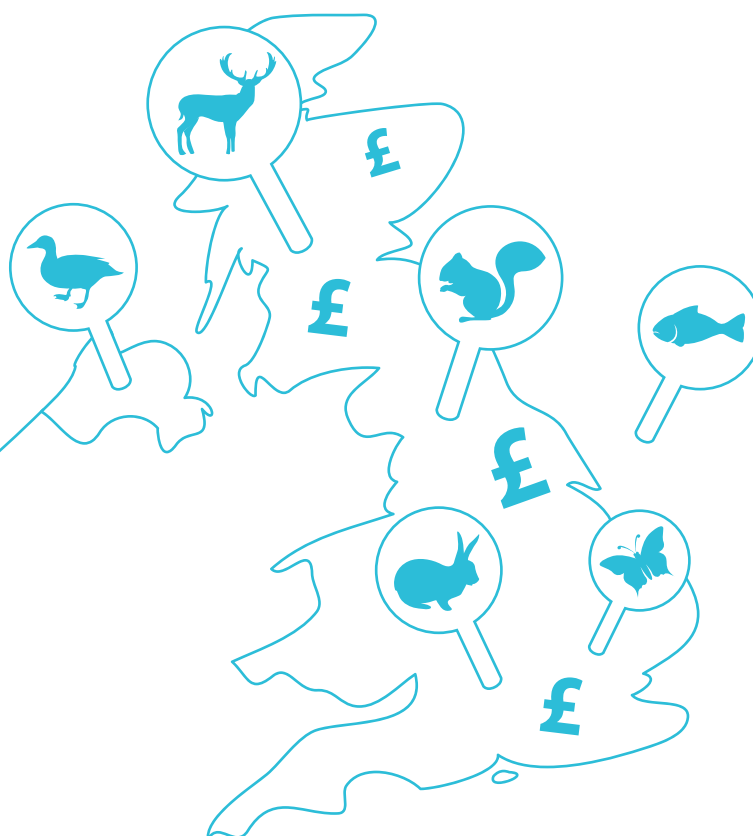
**European Commission**

Addressing these questions will help business and government minimise the risks and maximise the benefits of the transition to a sustainable economy, emerging in a stronger position for a world in which resource prices and availability would render current patterns of production obsolete. Strategies that address our interaction with the natural resource base on which we all depend will be essential to lay the foundations for our economic success in the future.

## Biodiversity loss in the UK

In the UK, about 30% of ecosystems have been assessed as currently declining, while many others are in a reduced or degraded state, including marine fisheries, wild species diversity and some of the services provided by soils<sup>9</sup>.

# 30%



**8 »** European Commission (May 2011) *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*.

**9 »** UK National Ecosystem Assessment (June 2011) *Understanding nature's value to society: Synthesis of the Key Findings*.



# 1. The economics of nature

Our economic success depends on a healthy environment and the sustainable use of natural resources.

Ecosystems, from forests and freshwater to coral reefs and soils, deliver essential services to humankind estimated to be worth over US \$72 trillion a year – comparable to World Gross National Income. Yet in 2010, nearly two-thirds of the globe's ecosystems are considered degraded.<sup>10</sup>

**Achim Steiner, UN Under-Secretary General**

Our economy depends on the availability of natural resources to provide the basic inputs to create goods and services and functioning ecosystems that regulate the climate, absorb pollution or reduce flooding. But we can't take these things for granted. Rapid economic growth over the past half century has brought the world's economy up against global ecological constraints, such as energy shortages, climate impacts and threats to biodiversity.

Carbon is often regarded by businesses and political leaders as the most immediate resource issue (although it is commonly directly related to others). One of the reasons for this is that the costs and benefits of action on climate change, informed by considerable scientific research, have been quantified with a reasonable degree of certainty. In comparison, the economic case for maintaining BES is less defined, as externalities are complex to calculate and interactions within or between ecosystems are not fully understood. However, the two agendas are strongly linked – long-term climate targets will not be met unless a wide range of natural resources, like water and soils, are managed sustainably.



<sup>10</sup> » Nelleman, C., Corcoran, E (eds) (2010) *Dead Planet, Living Planet – Biodiversity and Ecosystem Restoration for Sustainable Development. A Rapid Response Assessment.* United Nations Environment Programme, GRID-Arendal. [www.grida.no](http://www.grida.no)

## TEEB: Risks for business

“Business has much to gain from following the approach promoted by TEEB. If anyone doubted that, events in the Gulf of Mexico in April 2010 should have set off alarm bells in boardrooms all over the world. Here was an industry with relatively little direct dependence on ecosystem services (compared with agri-business, forestry or fisheries, for example), which nevertheless faced a major threat to its market value and bottom line as a direct result of the environmental impacts of offshore oil drilling. In this case, a major energy company was suddenly faced with society's valuations of marine and coastal ecosystems, and forced to internalize the costs of environmental damage resulting from a large oil spill.”<sup>11</sup>

**TEEB for Business**

<sup>11</sup> » TEEB (July 2010) *TEEB For Business: Executive Summary.*

# 1. The economics of nature

## Changes to the nitrogen cycle

Cost–benefit analysis highlights how the overall environmental costs associated with humans converting nitrogen for use in industry in Europe (estimated at €70–€320 billion per year at current rates, or £650 for every person in Europe), far outweigh the direct economic benefits (such as increased crop yields through fertilisers). The highest societal costs are associated with loss of air quality and water quality, linked to impacts on ecosystems and especially on human health.<sup>12</sup>

Nitrogen impacts can be managed by more careful control of nutrient cycles on farms, including targeted applications of fertiliser and by restoring natural processes.

The TEEB research effort was set up to address this discrepancy by applying economic thinking to the use of BES. It has assembled evidence that demonstrates the significant but invisible value the economy derives from nature's flows and the costs associated with biodiversity loss. It shows these costs will accelerate if we continue on a 'business as usual' path and that natural assets can yield returns many times higher than the cost of their protection. TEEB conservatively estimates that policy inaction on BES will lead to cumulative losses that will be equivalent to around 7% of global consumption by 2050<sup>13</sup>.

This has helped to strengthen the adoption of targets by a number of international organisations to halt the loss of biodiversity. For example, the EU's 2020 Biodiversity Strategy recognises that while action to halt biodiversity loss entails costs, biodiversity loss itself is costly for society as a whole, particularly for economic actors in sectors that depend directly on ecosystem

services. Hence it calls for "halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss"<sup>14</sup>. This will ensure that the EU reduces its dependence on unsustainable use of natural resources outside Europe, helps deliver a more climate-resilient, low carbon economy, becomes a leader in research and innovation (particularly in medical and cosmetic industries) and drives new skills and employment opportunities.

While it is clear that BES are crucially important to human wellbeing and economic prosperity, this has not been translated into robust policies that seek to change behaviour and halt biodiversity loss at scale. The AG has consistently argued for better resource use and what we need is a range of well-designed environmental measures to smooth the path towards a more sustainable economy – the 'green foundations' needed to underpin future growth and jobs.



<sup>12</sup> » Mark A. Sutton and Hans van Grinsven (April 2011) *European Nitrogen Assessment: Summary for Policy Makers*.

<sup>13</sup> » TEEB (May 2008) *The Cost of Policy Inaction: The case of not meeting the 2010 biodiversity target*

<sup>14</sup> » European Commission (May 2011) *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*.

## 2. Pricing the priceless

The value of biodiversity must be reflected in prices and policy appraisal.

*Valuing them [natural resources] properly will enable better decision making, more certain investment, new avenues to wealth creation and jobs, and greater human well-being in changing times ahead.<sup>15</sup>*

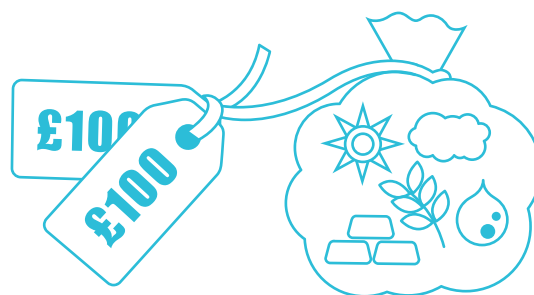
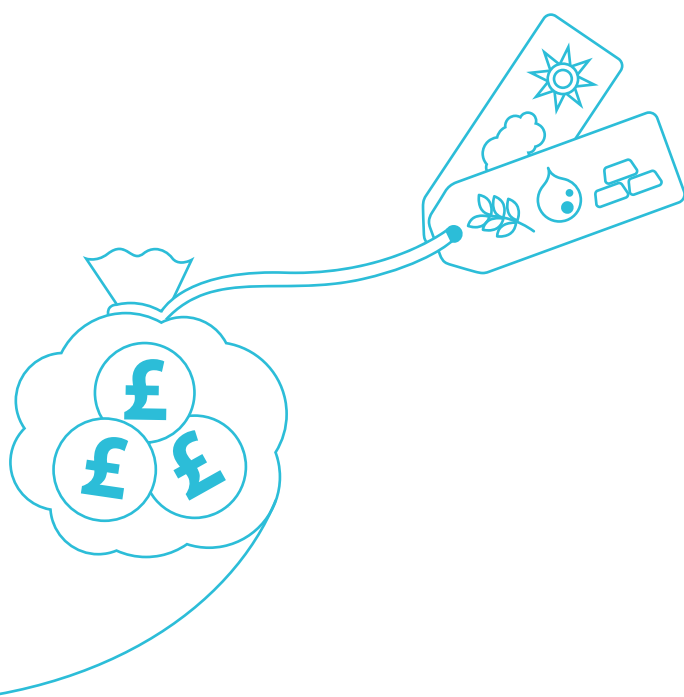
**Lord Selborne**  
Former Chairman,  
Select Committee on Science  
and Technology

The full value of BES is rarely incorporated into economic and political decision making, resulting in less efficient resource allocation. A more accurate reflection of the true value of BES will enable policymakers and businesses to make better informed decisions and ensure that the comprehensive benefits we derive from ecosystem services are taken into account.

TEEB makes a distinction between ecosystem services which are directly consumed by people (such as crops, livestock, fish and water) and non-consumptive goods and services (such as the value derived from landscapes or the existence of species). In particular, the latter are rarely valued in monetary terms. Ignoring or undervaluing natural capital in economic forecasting, modelling and assessment can lead to public policy and government investment decisions that exacerbate the degradation of soils, air, water and biological resources and thereby negatively impact a range of economic and social objectives<sup>16</sup>. TEEB presents an approach that can help decision makers capture the full values of BES.

Tom Albanese, CEO Rio Tinto

“Rio Tinto has long recognised the critical importance of biodiversity and ecosystem services to human well being. We also recognise the risks that biodiversity loss and ecosystem service degradation present to our business. In response, we have developed our biodiversity strategy and Net Positive Impact (NPI) commitment as Rio Tinto’s way of balancing global demand for mineral resources with the need for greater biodiversity conservation. While these can be conflicting in nature, we believe that our NPI model provides one way of balancing these conflicts. We are making progress on our commitments, but understand we still have a long journey ahead and one which must be made through engagement with others.”<sup>17</sup>



<sup>15</sup> » UK National Ecosystem Assessment (June 2011) *Understanding nature's value to society: Synthesis of the Key Findings*.

<sup>16</sup> » TEEB (October 2010) *Mainstreaming the Economics of Nature: A synthesis of the approach, conclusions and recommendations of TEEB*.

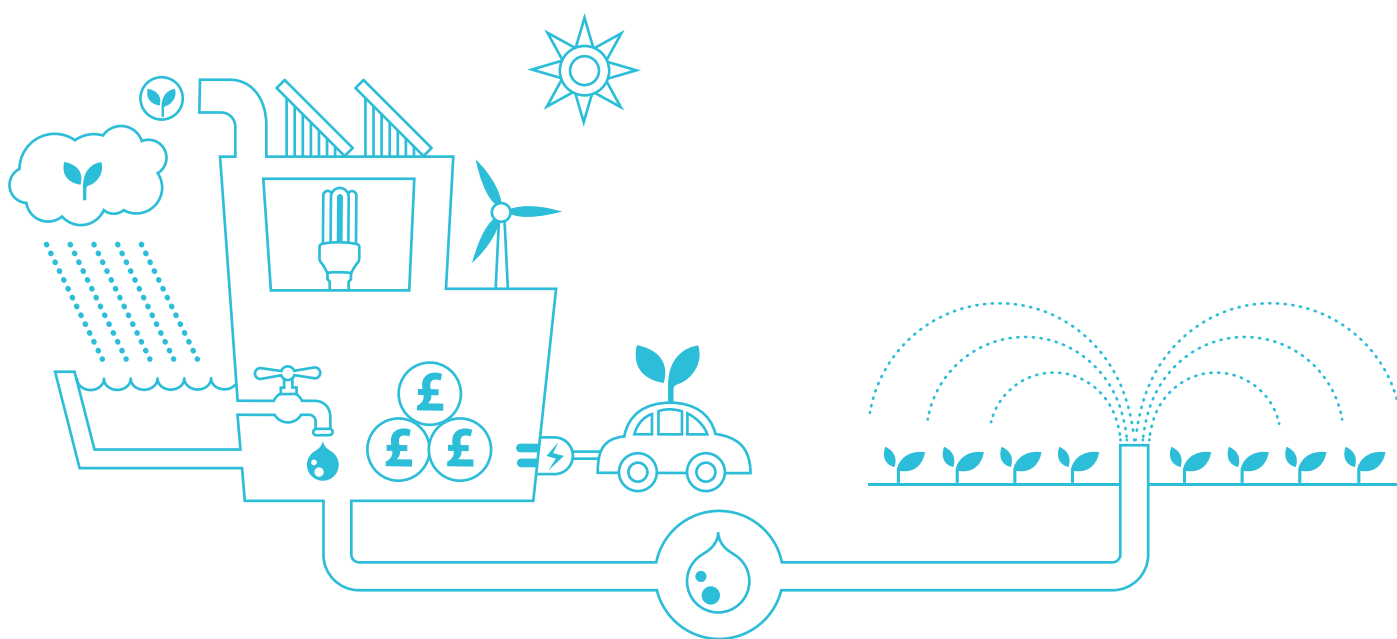
<sup>17</sup> » [www.cbd.int/business](http://www.cbd.int/business)

## 2. Pricing the priceless

This evidence base has been further strengthened with the publication of the UK National Ecosystem Assessment in June 2011, a collaboration of over 500 experts from around the world, to develop a tool by which economists can more accurately assess the value of the natural world. It estimates the current annual value of a number of ecosystem goods and services and explores the consequences of changing land use under a suite of different plausible scenarios to 2060.

It is particularly effective at drawing out the trade-offs between ecosystem services that generate market goods (such as food and timber) and other services including supporting (eg nutrient cycling), regulating (eg soil and water quality), and cultural (eg number of farmland birds and landscape integrity)<sup>18</sup>, that also support human wellbeing.

Better valuation will have a limited impact unless it is incorporated into mainstream decisions. It is therefore welcome that the UK's Natural Environment White Paper, the first for twenty years, makes a commitment to put natural capital at the heart of government accounting. This will ensure the Office for National Statistics includes natural capital fully in the UK Environmental Accounts and that valuing the natural environment is part of the policy appraisals guidance that is published as HM Treasury's Green Book for use by all government departments<sup>19</sup>. It is essential that valuing BES becomes standard practice within the economic and trade ministries rather than confined to the environment department. By the end of this Parliament, the Chancellor should be presenting a draft natural capital budget alongside the fiscal budget.



<sup>18</sup> » UK National Ecosystem Assessment (June 2011) *Understanding nature's value to society: Synthesis of the Key Findings*.

<sup>19</sup> » Defra (June 2010) *The Natural Choice: Securing the value of nature*.

### 3. Don't exceed the limits

There are certain thresholds that cannot be passed without causing irreversible damage.



*Maintaining and restoring our natural infrastructure can provide economic gains worth trillions of dollars each year. Allowing it to decline is like throwing money out of the window.<sup>20</sup>*

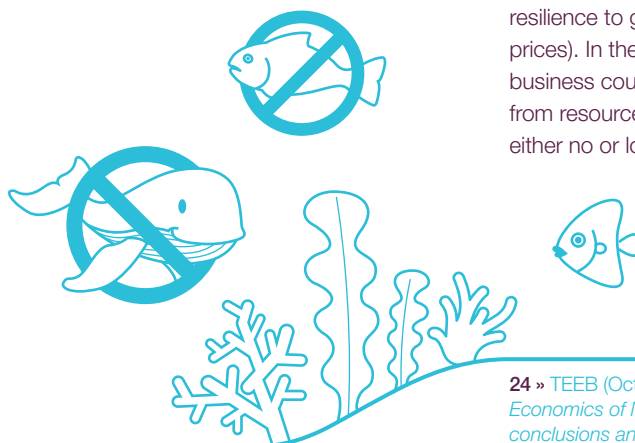
**Ban Ki-Moon**  
Secretary General United Nations.

The endeavour to reflect environmental values in prices is an essential one, but for complex challenges such as biodiversity loss, some tipping points exist beyond which damage to human welfare is irreversible. Just as there is a limit to the greenhouse gases emissions that can occur without destabilising the climate, so there are limits to the extent of biodiversity loss before ecosystems lose resilience<sup>21</sup>. For example, overfishing can cause the ecological collapse of fish stocks, but more careful stewardship of EU fisheries could increase UK landings by £172.3m<sup>22</sup>.

A policy approach that relies simply on factoring external costs – to the extent they can currently be measured – into prices risks failing to avoid serious impacts on human welfare. That is why valuation should not be seen as a panacea but a useful tool to ensure that environmental costs and benefits have greater visibility in decision making. It is essential that limits are acknowledged with risks and complexities addressed effectively. Good resource management requires a combination of price, regulation and information to achieve the desired behavioural change and caution is required where there is uncertainty about nature's thresholds.

An effective response to BES challenges will require the implementation of a mix of policy instruments and collaboration with a broad range of actors, including business and civil society. Many aspects of biodiversity management require innovative investments and new business relationships (eg between water companies and land managers). Policy makers will need to take an integrated and holistic approach, cutting across narrow sectoral boundaries and individual resource issues. Where tipping points are complex to capture effectively, physical impacts should be presented alongside monetary values, with the adoption of minimum standards or resource budgets.

As with carbon budgets, there will need to be some form of physical accounting for the use of key resources on an economy-wide basis and economic decisions will have to balance measures of these resources alongside more familiar monetary measures. This is a key recommendation from the AG's Beyond Carbon report which proposes that the resource measures which appear on the nation's economic dashboard would have to be carefully chosen and warns that the single-minded pursuit of efficiency for one resource will often work to the detriment of another<sup>23</sup>.



20 » [www.tinyurl.com/2cg483c](http://www.tinyurl.com/2cg483c)

21 » Worm B, et al (2006), "Impacts of Biodiversity Loss on Ocean Ecosystem Services", Science 314: 787–790.

22 » eftec (2008), *Costs of Illegal, Unreported and Unregulated (IUU) Fishing in EU Fisheries. Report to the Pew Environment Group.*

23 » Aldersgate Group (February 2010) *Beyond Carbon: Towards a resource efficient future.*

#### Don't exceed the limits

A number of studies warn of serious consequences for human societies as ecosystems become incapable of providing the goods and services upon which hundreds of millions of people depend. Such thresholds have already been passed in certain coastal areas where 'dead zones' now exist, for a range of coral reefs and lakes that are no longer able to sustain aquatic species and for some dryland areas that have been effectively transformed into deserts. Similarly thresholds have been passed for some fish stocks<sup>24</sup>.

As well as critical limits, there are also critical trends. A core belief of the AG is that resource efficiency will be one of the key determinants of economic success and human well-being in the 21<sup>st</sup> century. A prudent economic policy would promote low resource consumption not only to halt the depletion of natural and biological resources (and protect natural capital), but as a vital part of securing future competitive advantage in advance of the market (such as greater resilience to global spikes in commodity prices). In the UK, it is estimated that business could save around £23bn per year from resource efficiency measures that are either no or low cost<sup>25</sup>.

24 » TEEB (October 2010) *Mainstreaming the Economics of Nature: A synthesis of the approach, conclusions and recommendations of TEEB.*

25 » Defra (March 2011) *The Further Benefits of Business Resource Efficiency.*

## 4. Regulation can drive growth

Regulation can create new business opportunities and new markets.



*The UN's TEEB report is a critical contribution to the debate on how capital markets can play a role in addressing the alarming rate of loss of biodiversity. At Bank of America Merrill Lynch, we believe that Rainforest Bonds underpinned by the emerging markets for ecosystem services could be one innovative solution to this challenge.<sup>26</sup>*

**Abdy Karmali, Managing Director**  
**Bank of America Merrill Lynch**

The AG has consistently made the case that effective environmental regulation stimulates innovation and presents new business opportunities, not just in the high-growth environment sector, but other sectors too. In many cases, the creation of these new jobs and markets is driven entirely by the policy framework set by Government.

There are a number of business opportunities associated with addressing the loss of BES, just as tackling climate change is leading us into the low carbon industrial revolution. However, a clear agenda for action by Government, business and the third sector is required to drive large-scale change.

Biodiversity resources are *potentially* renewable, but that potential depends on responsible long-term management. Unlike mineral resources, where extraction approaches are a zero-sum game, sustainable management of BES can be a win-win for businesses reducing current risks to the environment and securing long term resource availability. The resource efficiency initiatives that the AG has advocated for physical resources<sup>27</sup> should apply to biodiversity and ecosystem services.

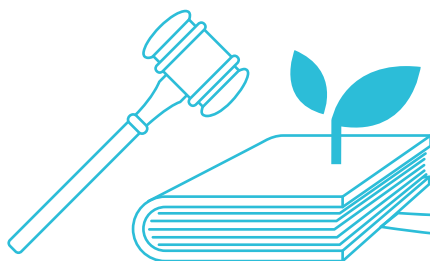
The specific opportunities include new technologies and products that reduce environmental impacts, new markets that trade in natural goods and services and new revenue streams from maximising the value of BES. According to WBCSD's Vision 2050 project, sustainability-related global business opportunities in natural resources may be in the order of US\$ 2–6 trillion per annum by 2050<sup>28,29</sup>.

TEEB finds that BES can offer potential business opportunities by ensuring the sustainability of supply chains, penetrating new markets and attracting new customers. Critical market-based tools that are available or under development include the use of biodiversity offsets, biodiversity performance standards for investors, biodiversity-related certification, assessment and reporting schemes and voluntary incentive measures.

### New business opportunities

Some of the most pertinent examples include:

- Ecologically-branded products, such as
  - » An increase in organic food and drink by over US \$5 billion a year, reaching US \$46 billion in 2007;
  - » Forest Stewardship Council timber; and
  - » The growth in the global market for eco-labelled fish products by over 50% between 2008 and 2009<sup>30</sup>;
- Biodiversity offsets markets;
- Payments for provision of ecosystem services; and
- Eco-tourism is the fastest growing area of the tourism industry with an estimated increase in global spending of 20% annually<sup>31</sup>.



<sup>27</sup> » WBCSD (February 2011) *Vision 2050: The new agenda for business*.

<sup>28</sup> » Aldersgate Group (February 2010) *Beyond Carbon: Towards a resource efficient future*.

<sup>29</sup> » In comparison, HSBC estimates that the low carbon energy market will be US\$ 2.2 trillion by 2020 [HSBC (September 2010) *Sizing the Climate Opportunity*].

<sup>30</sup> » TEEB (July 2010) *TEEB For Business: Executive Summary*.

<sup>31</sup> » Ibid.

<sup>26</sup> » [www.tinyurl.com/coynfto](http://www.tinyurl.com/coynfto)



## 4. Regulation can drive growth



*Biological diversity is fundamental to agriculture, food production and sustainable development... A very powerful approach to ecosystem management involves creating new rights or liabilities for the use of natural resources, and then allowing these to be traded. But we need to get it right<sup>32</sup>*

**Martin Taylor**  
Chairman, Sygenta

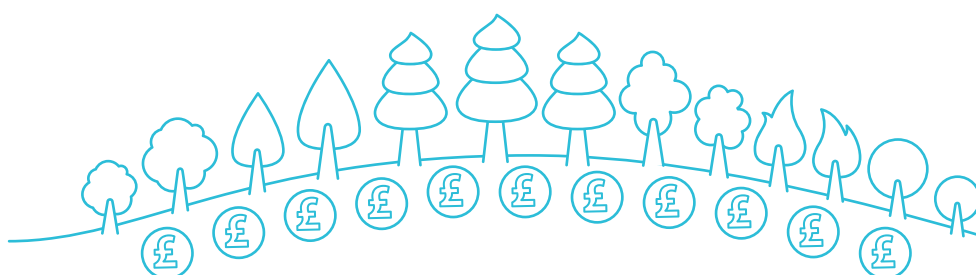
It is vital that the UK is an early mover in areas where it has competitive advantages to maximise economic opportunities. To identify how UK businesses can take the lead, the AG contributes to the Ecosystem Markets Task Force, set up by Defra in Autumn 2011 and chaired by Ian Cheshire, chief executive of Kingfisher. This provides an overall assessment of the economic opportunities in the UK and prioritises actions to secure greater market share.

One potential growth market will be biodiversity offsets, a commitment in the Natural Environment White Paper. Habitat banking is one method of delivering biodiversity offsets; turning credits into assets that can be traded, effectively creating a market system for compensation liabilities<sup>33</sup>.

The proposed system of offsets can increase the value of land use in the UK in two ways. Firstly by ensuring the biodiversity costs of land use are taken into account it can encourage more efficient use of land and avoid damage to more precious natural environmental features; and secondly, through offsets that increase the biodiversity value of the land used to compensate for the residual damage. The end result will be higher-value uses of land (per ha) for development, and higher value to society from remaining areas of natural habitats.

### Biodiversity offsets

There are targets globally (Convention on Biological Diversity, CBD) and regionally (EU biodiversity target) to halt the loss of biodiversity – to achieve No Net Loss. This can partly be done through changes to more sustainable production practices (eg in oil palm, forestry, fisheries). However, continuing economic development means that ending damage to biodiversity altogether is unlikely, so achieving no net loss requires using biodiversity offsets – actions to compensate for residual adverse biodiversity impacts arising from project development. Residual means they apply only to damage that remains after appropriate prevention and mitigation measures have been taken<sup>34</sup>. Offsets have developed into markets worth \$2bn plus globally<sup>35</sup> and a voluntary system is under development in England<sup>36</sup>.



<sup>32</sup> » [www.tinyurl.com/bo8d3u7](http://www.tinyurl.com/bo8d3u7)

<sup>33</sup> » Climate Change Capital and ettec (February 2011) *Habitat banking: scaling up private investment in the protection and restoration of our natural world*.

<sup>34</sup> » [www.tinyurl.com/bo2tmx8](http://www.tinyurl.com/bo2tmx8)

<sup>35</sup> » [www.tinyurl.com/ctdoye3](http://www.tinyurl.com/ctdoye3)

<sup>36</sup> » [www.tinyurl.com/cmvdqny](http://www.tinyurl.com/cmvdqny)



## 4. Regulation can drive growth

Regulation is a key driver to support new markets which would otherwise not exist or develop too slowly. It is also vital that Government and business work together to engage the consumer, harnessing green buying power to help halt the loss of BES. Consumer information, choice and product labelling will be essential to raise awareness, build trust and change consumer behaviour.

### Pension funds investing in new ecosystem markets

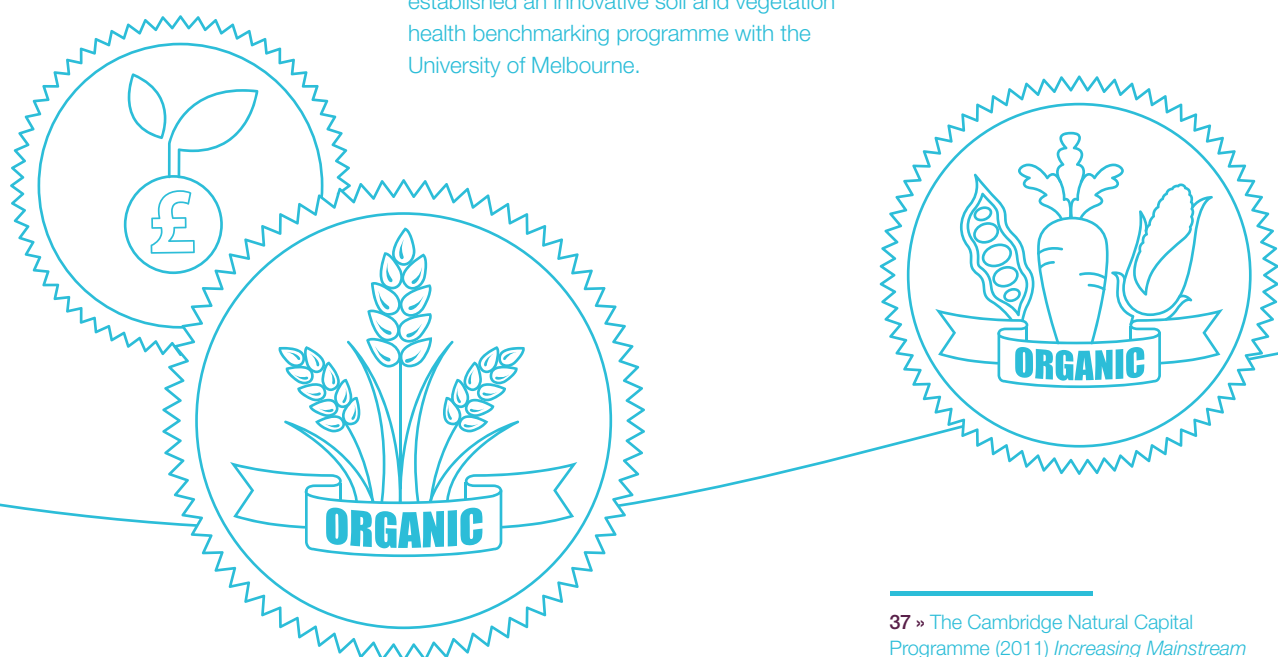
VicSuper, a leading pension fund in Australia with more than \$8 billion in funds under management, has been investing in landscape change in Victoria since 2006.

Its 'Future Farming Landscapes' (FFL) project is helping to accelerate the shift towards more sustainable agriculture and to develop new markets in ecosystem services. FFL is in the early stages of a 25 year project to reconfigure land to its most suitable and sustainable purpose.

An example of these sustainable agriculture activities is the preparation for a drier future climate, being undertaken by reconfiguring existing dairy operations to use significantly less water. Other initiatives include low rainfall forestry trials and improving understanding of new irrigation technologies and high value industries.

FFL includes extensive monitoring and evaluation and, over the last year, has established an innovative soil and vegetation health benchmarking programme with the University of Melbourne.

Cambridge University's 'Natural Capital Programme', illustrates the major barriers to integrating natural capital into investment decision making at all levels in the economic and social system. It finds that clear policy and mandatory regulation is required to create scalable and widespread change in natural capital management. Policy measures must redirect the market (short-term investors) in a more positive and sustainable direction whilst continuing to encourage financial prosperity. In the absence of mandatory regulation, a voluntary stewardship code coupled with increased fiduciary duty could promote the development of new natural capital markets<sup>37</sup>.



<sup>37</sup> » The Cambridge Natural Capital Programme (2011) *Increasing Mainstream Investor Understanding of Natural Capital*.

## 5. Business taking the lead

An effective corporate BES strategy can lead to tangible economic benefits and competitive advantage.



*The business implications of failing to address nature in decision making is clear – since ecosystem services are vital to the performance of most companies, integrating the true cost for these services in the future could have significant impacts on corporate bottom lines.<sup>38</sup>*

**Jochen Zeitz, Chief Executive, Puma**

Many businesses are assessing their dependency on BES and integrating measures for the sustainable use of natural resource into their corporate strategies. This is vital as all businesses, directly or indirectly, depend upon BES for their ongoing commercial success and should therefore address the significant risks and opportunities relating to their impact on nature.

In the first instance, an organisation needs an efficient method for determining the materiality of BES to its operations and stakeholders. While a number of reports claim that there is an increased awareness from communities, NGOs, customers, consumers and shareholders on biodiversity issues<sup>39</sup>, the evidence is mixed.

A survey by McKinsey shows that biodiversity ranked tenth out of a list of the twelve most important environmental issues<sup>40</sup>, while a review by PwC of the annual reports of the 100 largest companies in the world finds that

only six companies reported actions to reduce impacts on biodiversity and just two companies identified biodiversity as a key strategic issue<sup>41</sup>. Furthermore, the public is more familiar with concepts of nature, place and landscape rather than the more technical terminology of biodiversity and ecosystem services<sup>42</sup>.

Given that biodiversity is not generally viewed by stakeholders as a major strategic issue, how can a strong case be made for the implementation of comprehensive corporate BES strategy?

This must be justified on the grounds that the loss of BES poses significant (and growing) risks and opportunities for all businesses, although to varying degrees.



<sup>38</sup> » Richard Anderson (16<sup>th</sup> May 2011) *BBC News: Puma first to publish environmental impact costs.*

<sup>39</sup> » For example, see WBCSD (April 2011) *Guide to Corporate Ecosystem Valuation.*

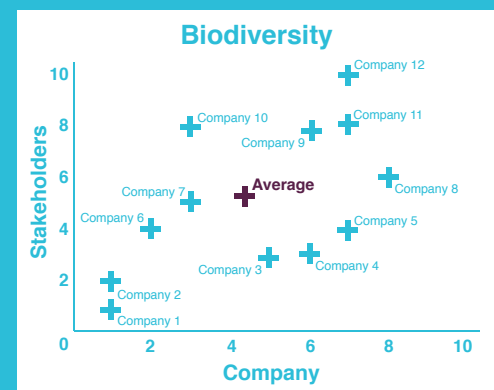
<sup>40</sup> » McKinsey & Company (July 2010) *The next environmental issue for business.*

<sup>41</sup> » However, new initiatives such as the Business and Ecosystems Training (BET) course currently under development by the WBCSD with help from KPMG and a number of multinational member companies, academic and UN institutions, show that there is an appetite for increasing the awareness of biodiversity related issues.

<sup>42</sup> » UK National Ecosystem Assessment (June 2011) *Understanding nature's value to society: Synthesis of the Key Findings.*

### Determining the materiality of biodiversity

Independent research by AG Director Chris Tuppen<sup>43</sup> on materiality determination shows that of the fifty most referenced issues in 31 leading company reports, the impact of the recession showed the highest level of coherence while biodiversity was the lowest (i.e. biodiversity led to the widest disparity of views in terms of whether it was a material issue). The graph below shows how companies have estimated the materiality of biodiversity (with the most material issues appearing at the top right hand corner). The company axis represents the corporate view and the stakeholder axis represents the degree to which the wider stakeholder community deems it to be an important issue. The chart demonstrates that biodiversity is a complex issue which stimulates a wide spread of opinions. Only 12 companies are shown because the remainder did not even include biodiversity in their materiality matrix.



<sup>43</sup> » Fronesys (October 2011) *Materiality Determination: Analysing who, what and how.*

## 5. Business taking the lead



*The loss of natural capital (including ecosystems, biodiversity and natural resources) has direct and widespread negative effects on financial performance... The financial markets do not yet understand that many companies face specific risks from disruptions of vital ecosystems through their supply chains and that they need to plan for the impact of new regulation.<sup>44</sup>*

**Colin Melvin, CEO, Hermes Equity Ownership Services Ltda**

The risks include higher input costs, new government regulations, reputational damage, changing consumer preferences and investors tightening lending policies, while the potential opportunities include demand for new products, services and technology, better access to capital, quicker project approval and new revenue streams from managing and selling natural assets<sup>45</sup>. As addressing BES is undoubtedly a horizon issue, businesses that take the lead will have a competitive advantage as pressures on the natural environment increase.

To do this effectively, businesses require suitable tools to identify and measure their material interactions with BES and integrate them into decision making. Furthermore, suitable frameworks for reporting and disclosure are needed. A number of different



<sup>44</sup> » UNEP Finance Initiative (October 2010) *Demystifying Materiality: Hardwiring biodiversity and ecosystem services into finance.*

<sup>45</sup> » WBCSD (October 2010) *The Interdependence Story: Business, biodiversity and ecosystem services.*

frameworks exist to incorporate BES into decision making, such as WBCSD's Corporate Ecosystem Services Review (CESR) and Corporate Ecosystem Valuation (CEV). These can be applied to any aspect relating to a business, such as a product, a service, a project, an asset or an incident and help enhance sustainable development strategies and outcomes. The underlying business case is that they enable companies to improve decision making and thereby increase revenue, save costs and boost the value of their assets and potentially share prices. It also helps to inform mindsets, behaviour and actions among stakeholders and employees, such as accounting for ecosystem values to justify price premiums on products. Crucially, ecosystem valuation should be "fit for purpose" – it does not need to be meticulously accurate or expensive to undertake<sup>46</sup>.

Despite improvements, the measurement of BES remains challenging and identifying the implications for decision making can be complex. This is perhaps why BES is often treated superficially in company reports and very few FTSE companies have a "good" biodiversity policy assessment, according to EIRIS<sup>47</sup>. Indirect biodiversity impacts are particularly difficult to address, moving beyond primary impacts, such as site level activities that are more straightforward to mitigate directly. Such issues need to be addressed when the Government publishes new guidance for businesses by 2012 on how to measure and report their corporate environmental impacts<sup>48</sup>.

<sup>46</sup> » WBCSD (April 2011) *Guide to Corporate Ecosystem Valuation.*

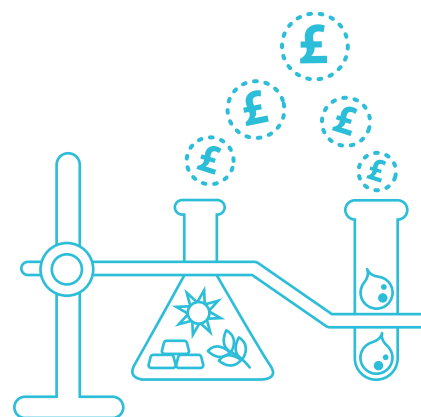
<sup>47</sup> » EIRIS (2011) *'COP' Out? Biodiversity loss and the risk to investors.*

<sup>48</sup> » Defra (June 2010) *The Natural Choice: Securing the value of nature.*

### Puma's Environmental Profit and Loss Account

Puma, a sport and lifestyle company, has worked with a consultancy firm (PwC) and environmental research group (Trucost) to calculate the impact of its business on nature. This has been published as the first results of Puma's 'environmental profit and loss account', which shows the monetary value of Puma's impact on the environment in terms of greenhouse gas emissions and water consumption along the entire supply chain. Puma calculates that in 2010 the combined environmental cost of the carbon emitted and the water used – from raw materials production to the shop floor – was £80.9m. The company has a target to reduce its carbon emissions, energy and water use by 25% by 2015. The next phase of this work will examine the impacts of acid rain, waste and land use change, among others.

The company believes that calculating these impacts will help it reduce costs and develop a more sustainable and resilient business model by safeguarding the resources and ecosystems services on which it relies for long term success<sup>49</sup>.



<sup>49</sup> » Defra (June 2010) *The Natural Choice: Securing the value of nature.*

## Case Studies



### **CEMEX:** **Developing a biodiversity strategy**

CEMEX is one of the largest cement manufacturing corporations in the world, operating 70 quarries in the UK. In 2009, CEMEX UK engaged in a strategic partnership with the RSPB to provide a focus to their work in operating and restoring quarries and to realise opportunities for biodiversity enhancement.

The partnership's outputs include a Biodiversity Strategy, launched in 2010, which commits the company to creating 1,000 ha of priority biodiversity habitat (defined in the UK Biodiversity Action Plan (BAP)) by 2020. This is being delivered through a combination of restoration opportunities on active quarries and by ensuring that biodiversity is a prime driver of future restoration plans.

The Strategy also challenges the company to build biodiversity into the core of its business ethos and to adopt a net positive impact approach. Part of the business rationale is that this helps give CEMEX a 'USP' with its key customers and helps stakeholders to identify the biodiversity impact of their developments alongside other indicators of sustainability.



### **Wessex Water:** **Lowering treatment costs by protecting the environment**

Wessex Water supplies drinking water to 1.3 million people in the south west of England, mostly from groundwater sources in Wiltshire and Dorset. The company has undertaken a catchment management initiative, to push for a cheaper, more sustainable way of treating for nitrates and pesticides, delivering broader benefits for the environment and generating greater community involvement.

The initiative involves employing a small team, operating over 15 catchments, which researches and monitors the impacts of agricultural inputs on water quality, delivering advice and financing to farmers related to the adoption of less damaging practices.

The monitoring involved in these processes is extensive, involving approximately 7,000 water samples and almost 1,500 soil samples in a typical year for analysis and feedback to farmers. Farm records are also used to monitor nitrate inputs.

The initiative represents a low cost solution to dealing with the problem of nitrates and pesticides. The actual cost benefit ratio varies from site to site but on average when using catchment management, water quality problems are addressed at approximately one sixth of the cost of the treatment alternative.

## Case Studies

### **M&S:** **Addressing biodiversity to mitigate risks and support best practice**

Biodiversity is an important part of the sustainable sourcing of raw materials and overall operational thinking for M&S, who have around 21 million customers a week shopping in 670 stores across the nation.

Wherever significant impacts of raw material sourcing are identified (by undertaking a risk assessment allied to consultation with key stakeholders), the company aims to support best practice, avoid bad practice and encourage the bulk of its supply chain operations to improve their performance.

M&S has carried out a comprehensive analysis of its biodiversity impacts resulting in the introduction of Biodiversity Actions Plans (BAPs) for all major store construction programmes where ecological impacts can be influenced, as well as targets across key raw materials used in its food, clothing and home products. Standards and interventions are developed through work with a range of organisations, such as the Marine Stewardship Council and Rainforest Alliance.

The main benefit of managing the biodiversity impacts of raw materials is mitigating risk, both reputationally and in helping to secure adequate volumes of high quality raw materials that are needed for products. These sorts of issues increasingly feature in the media and customers expect a brand like M&S to be taking action on their behalf.

### **PepsiCo:** **Protecting ecosystem services to drive competitiveness**

As one of the world's largest food and beverage companies, PepsiCo relies on the earth's natural resources to run its businesses.

It is committed to minimising the impact its business has on the environment as it expands across many developed and developing markets. Its global Sustainable Agriculture Policy is grounded upon a set of principles that encourages its growers to operate in a way that protects their land and communities.

This includes an objective to preserve and improve soil fertility and nutrients, minimize soil loss through erosion and avoid soil damage due to disease and contamination. For example, PepsiCo encourages its farmers in Canada to plant oats that provide excellent soil erosion control, leading to supplies which are planted with zero tillage – a way of growing crops from year to year without disturbing the soil through excessive use of cultivation practices.

PepsiCo also seeks to optimise the applied water footprint to crops and to reduce water waste during irrigation, as well as responsibly manage runoff risks of pollution or contamination of ground or surface water with pesticides, nutrients or soil. For example, the direct seeding of rice in India saved 7 billion litres of water in 2010 and helped reduce the company's risks associated with water availability.

### **Willmott Dixon:** **Enhancing biodiversity on construction sites**

Construction projects can impact significantly on biodiversity, most notably on habitats and through the consumption of natural resources such as water and timber.

Willmott Dixon aims to ensure that it minimises ecological damage as far as possible, protecting plants and wildlife. This helps to comply with regulations (there are legal implications of not carrying out thorough ecological surveys), avoid costly programme delays (for example, failure to identify or protect endangered species such as bats) and engage clients (who score the company on biodiversity as part of a monthly client survey).

Working with clients and stakeholders to identify opportunities for biodiversity improvements can include building green roofs, cleaning up ponds and creating new wildflower meadows. Sometimes it may be as simple as protecting trees from construction activities or programming site activities to minimise disturbance to breeding birds.

The next step is to convert this on-site understanding into beneficial action, continually improving the planning and design process to enhance the biodiversity of its projects.

# Case Studies

## **InterfaceFlor: Integrating nature into product design**

InterfaceFlor has an underlying philosophy of mimicking nature in its approach to solving problems. Hence, it has consistently applied biomimicry – studying the efficiency of natural systems – in product development which has produced several successful innovations.

For example, its Entropy carpet reflects an adherence to the randomness in nature. By mimicking the colours and patterns found on the forest floor, InterfaceFlor was able to create a design ideally suited to the needs of creating a modular carpet system. The Entropy line does not try to create uniform colours across a carpet, making it very easy to change pieces of the carpet without noticing a difference – reducing waste and maintenance costs. Its TacTiles range, also inspired by nature, uses small adhesive squares to connect carpet without the need for glue.

Biomimicry is a part of InterfaceFlor's wider sustainability strategy which has saved the company an estimated \$433 billion over the last 15 years.

## **The Co-operative: Safeguarding marine biodiversity to protect economic performance**

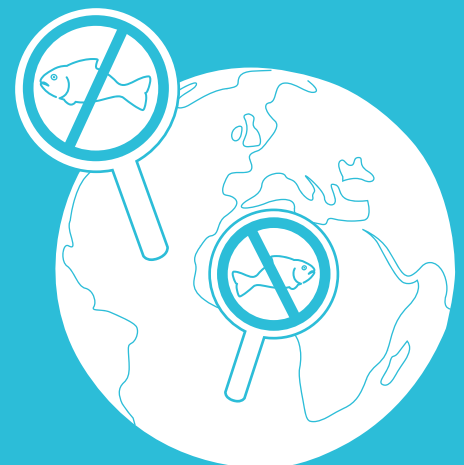
Responsible retailing has been central to The Co-operative since it was created in 1844 to provide quality produce at a fair price to all. Resourceful management of natural capital is fundamental to this vision.

Effective management of fisheries is necessary to ensure productive marine ecosystems – providing habitats in which wildlife can thrive and providing food, employment and income for human society. For this reason, in 1998, The Co-operative was one of the first organisations to support the Marine Stewardship Council (MSC).

Since this date it has worked to promote environmentally appropriate, socially beneficial and economically viable fishing practices. The Co-operative Food has avoided all species on the Marine Conservation Society's (MCS) Fish to Avoid list since 2008, and committed £200,000 to help improve the sustainability of the UK fishing sector by supporting fisheries through their MSC assessment.

Working with the MCS in 2009, The Co-operative launched the Marine Reserves Now! – a campaign calling for an ecologically coherent network of Marine Protected Areas and no-take zones. The campaign asked political parties to adopt a policy manifesto commitment for 30% of UK waters to be Highly Protected Marine Reserves by 2020 – which, following support of over 500,000 Co-operative customers, was successfully implemented in the Marine Act in late 2009.

Ultimately, by supporting effective management of fisheries, The Co-operative can protect economic performance and the societal and environmental well-being that is fundamental to its business.





# Recommendations and Next Steps

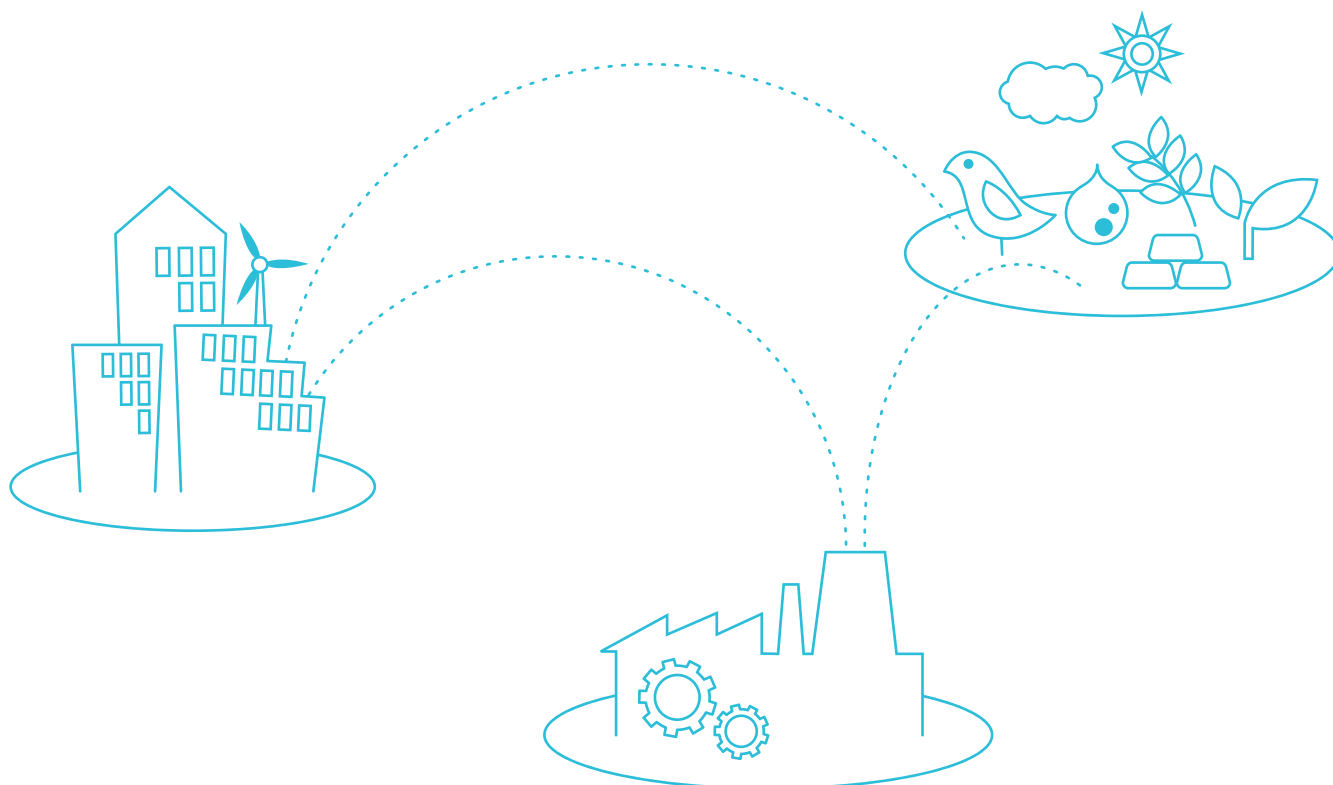
The AG's key recommendations are as follows:



*Business needs to begin to draw the dots between natural resources, their supply chain, consumer demand and the future value of their business. Like the impact of the recession, there is simply no sector that will be immune to biodiversity and ecosystem loss. The level of financial, reputational and business risk it poses is of a scale that would not be ignored in any other area of business and the economy.<sup>50</sup>*

**Malcolm Preston, Global Head of Sustainability Services, PwC**

- 1** Government must clarify the process by which natural capital is included in the national accounts and ensure proper scrutiny by an independent body.
- 2** By the end of this Parliament, the Chancellor should present a draft natural capital budget alongside the fiscal budget.
- 3** In light of the Natural Environment White Paper, there should be cross-departmental responsibilities to ensure the objective of zero net biodiversity loss becomes a reality.
- 4** Businesses should take the lead by assessing their impacts and dependency on BES and integrating measures to ensure the sustainable use of natural resources.
- 5** Defra should engage with businesses on the development of a reporting framework and associated guidance and work with the Natural Capital Committee to ensure that this helps the Natural Capital Budget define the importance of BES to the UK economy and highlight material risks and opportunities to specific business sectors.



<sup>50</sup> » [www.tinyurl.com/37hy4pc4](http://www.tinyurl.com/37hy4pc4)



# Questions for Key Decision Makers

This report provides background to key themes relating to BES and makes the business case for action.

Biodiversity cuts across a wide range of business and political functions and it is no longer a sound economic or business strategy to ignore them. The AG will develop this work programme by using the following questions as a starting point to engage key actors in the economy on biodiversity issues.



Business	Political
<p><i>Chief Executive</i> “Who is dealing with BES risks and opportunities in your business?”</p>	<p><i>Prime Minister</i> “Is the UK’s natural capital asset base being managed sustainably?”</p>
<p><i>Financial Director</i> “What are the risks and costs to your balance sheet of BES?”</p>	<p><i>Chancellor</i> “What costs (eg flood defence spending) could BES help mitigate?”</p>
<p><i>HR Director</i> “Are potential new graduate employees put off by your business’ lack of awareness on BES?”</p>	<p><i>BIS Secretary</i> “Are UK businesses making the most of BES opportunities?”</p>
<p><i>Sustainability Directors or Managers</i> “Are BES issues adequately captured in your company’s sustainability strategy?”</p>	<p><i>DECC Secretary</i> “Are BES contributing optimally to climate change adaptation and mitigation?”</p>
<p><i>Purchasing Managers</i> “What risks in your supply chains are there in relation to BES (eg unsustainable palm oil)?”</p>	<p><i>Environment Secretary</i> “Is environmental management making the most of BES opportunities (eg subsidy regimes)?”</p>
<p><i>Marketing Managers</i> “What BES risks (eg consumer boycotts) or opportunities (premiums for labelled products) are there in your product portfolio?”</p>	<p><i>Land managers</i> “Are you receiving all potential income from BES from your land?”</p>
<p><i>Small to Medium Enterprises (SMEs)</i> “Are the corporate customers you supply starting to think about BES? If they do will you be able to meet new requirements they might have?”</p>	<p><i>Local authorities</i> “Could enhancing BES values of your area make it a more attractive place for businesses and/or their employees?”</p>



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