

The Future of Biodiversity: Conserving our natural capital

Executive Summary

The twenty-first century represents a century of fragility where radical measures to conserve the Earth's natural resources and biodiversity must be taken if we wish to sustain our way of life. The Cambridge Conservation Initiative's 15 September 2010 symposium *The Future of Biodiversity: Conserving Our Natural Capital* sought to identify the stumbling blocks to conservation and to strategise ways to work with the public and private sectors to generate conservation solutions.

CCI Member organisations are engaging in this work through programmes that focus on horizon scanning, capacity building, strengthening conservation evidence and working on sustainability programmes in conjunction with the corporate sector.

A key take-away from the conference is the willingness of conservation groups to engage with the business sector to identify sustainable practices and programmes to preserve the Earth's biodiversity. The growing number of businesses that organisations such as the International Union for Conservation of Nature (IUCN) and the Cambridge Programme for Sustainability Leadership work with is an indicator of the willingness of business to focus on these issues.

Most importantly for corporations is the issue of reputational risk, as consumers, employees and governments demand greater environmental awareness in business practices. Providing an evidence-based approach to conservation that develops risk assessments on matters related to biodiversity is a critical way forward in building relationships and obtaining willing compliance.

As much as the issue of conservation is one of sustainability and restraint in the use of resources, it's also a bank of opportunity for businesses willing to innovate and look for ways to capitalise on the economic opportunity presented by the biodiversity challenge. Programmes such as payment for ecosystem services, supply chain innovation, and water conservation programmes are allowing corporations to build brand identity around biodiversity, save costs and find new business models. Many of these initiatives have occurred through collaboration with conservation groups like the World Wildlife Federation, the IUCN and the Cambridge Programme for Sustainability Leadership.

Progress is being made but needs to scale quickly in order to match the rate of resource depletion. In order to do this, the conservation community must find a way to efficiently value the cost of ecosystem services and their accompanying degradation and communicate that value to stakeholders in the public and private sector.

The report that follows elaborates on the ways the Cambridge Conservation Initiative intends to confront the biodiversity challenge by engaging the business community, creating an evidence-based methodology and building institutional capacity.

The twenty-first century is *a century of fragility*, where the way of life of societies, developed and developing, are in jeopardy because of the rapid depletion of natural capital and biodiversity.

The following facts compiled from reports published by the United Nations Environmental Program illustrate the degree of loss.

- Though the exact number is impossible to determine, an unprecedented mass extinction of life on Earth is occurring. Scientists estimate that between 150 and 200 species of life become extinct every 24 hours.
- Research published in *Nature* (30 September 2010) reveals that human activities have endangered water security for 80 per cent of the world's population and threatened the biodiversity of 65 per cent of the world's rivers¹.
- There have always been periods of extinction in the planet's history, but this episode of species extinction is greater than anything the world has experienced for the past 65 million years - the greatest rate of extinction since the vanishing of the dinosaurs.
- One-fifth of all species could become extinct in the next two decades.
- More than 60 per cent of the world's population depend directly on plants for their medicines.
- According to the World Resources Institute, the biggest cause of extinction is loss of habitat.
- Natural capital accounts for 26 per cent of the wealth of low-income countries
- Up to 20 per cent of the total burden of disease in developing countries is associated with environmental risks.

At the Cambridge Conservation Initiative's Inaugural Symposium on 15 September, a gathering of policy makers, academics, public figures and business leaders came together to discuss the future of biodiversity as a "bank of opportunity" for enterprising private and public sector bodies that wish to grow their businesses and support their populations in a way that is sustainable.

This view is supported by external corporate research in addition to intergovernmental reports. A McKinsey Quarterly report in August 2010 found that biodiversity is seen as the next "big" environmental issue after climate change among the private sector. Unlike the climate change issue, however, 59 per cent of executives in the McKinsey survey saw biodiversity as an opportunity rather than a risk for their companies. Half of the more than fifteen hundred executives said their companies were taking steps to address the biodiversity challenge, most frequently communicating about natural resource use and finding ways to reduce waste from operations.

Despite the awareness of the business sector, biodiversity remains misunderstood and ranks low in terms of overall concerns, especially when compared to other environmental issues like climate change. Two-thirds of those surveyed in the McKinsey study didn't see

¹ <http://www.scidev.net/En/news/countries-must-link-water-security-and-biodiversity-.html>

biodiversity as very important to their business and ranked it lower (12th on a list) than pollution and human rights. Conservation practitioners at the CCI event echoed this view, saying that the lack of understanding of what biodiversity is prevented companies and governments from taking urgent action on the matter.

The purpose of the gathering on 15 September was to strategise the best ways in which the conservation community could overcome this communication hurdle. The report that follows will seek to define biodiversity in simple terms, explain the difficulties that are inherent in placing economic values on it, and providing best practices and examples of how to successfully partner with businesses and governments to address this imminent threat.

What are Biodiversity and Natural Capital?

Biodiversity refers to the variety of life on Earth. According to a definition provided by the United Nations Environmental Program:

“Biodiversity encompasses more than just variation in appearance and composition. It includes diversity in abundance (such as the number of genes, individuals, populations or habitats in a particular location), distribution (across locations and through time) and in behaviour, including interactions among the components of biodiversity, such as between pollinator species and plants, or between predators and prey.”

Biodiversity is quite simply fundamental to the air we breathe, the water we drink and the food we eat. That diversity is now threatened, and the natural resources that are supported by it and that were used to fuel growth in the past century are rapidly depleting.

As human civilisation grew over the twentieth century, our growth was matched by increasing consumption patterns. According to the United Nations Program for Sustainable Development there was a fourfold growth in population accompanied by a 40-fold growth in economic output. That output was sustained through mass consumption of resources including:

- 16 times increase in fossil fuels
- 35 times increase in fishing catches
- 9 times increase in water use
- 17 times increase in carbon emissions

The growth in the 20th century and the accompanying depletion of natural resources has made it impossible to maintain current rates of production and consumption. Indeed it would require one-and-a-half times the natural resources available on Earth to continue current consumption rates, according to the United Nations Program for Sustainable Development. This lack of sustainability has led economists to re-evaluate how one considers ecosystems and biodiversity and its value and worth to business and society.

“There is increasing recognition that concerning biodiversity is not just about protecting species and habitats for their own sake. It’s also about maintaining nature’s capacity to deliver goods and services that we will need and whose loss comes at a very, very high price,” said Janez Potočnik, European Environment Commissioner at CCI’s symposium.

The importance of biodiversity and natural capital to economic viability has led economists to re-categorise ecosystems from their previous view. The prior outlook saw ecosystems as valuable solely for the raw materials they could provide for consumption. Now economists are valuing ecosystems as economically productive systems with assets that produce a flow of beneficial goods and services over time. Natural capital refers to the assets within that system (e.g. fish stock, water) that are depleted and degraded and/or are replenished.

The value of these systems remains difficult to categorise and are often not reflected in markets. In turn, this negatively affects policy decisions around land use and resource management. As governing bodies such as the European Union set targets for biodiversity conservation at the global convention on Biological Diversity in Nagoya, Japan, this October and within their own governments, these estimations are expected to change and will in turn affect businesses dependent on these resources as policies and regulations are developed.

The Difficulty in communicating value

Given a choice between a handful of water and a handful of diamonds an average individual would most probably choose the diamonds over the water. Make that same offer to someone in a desert who's parched with thirst and the choice would likely reverse.

The diamond/water value paradox illustrates the fundamental problem conservationists face when attempting to communicate the importance of natural capital and its value versus its worth. For example, the market does not value water provisioning as a lucrative economic activity, a consequence of the idea that humans often do not accurately value what they use the most, a fact first pointed out by Adam Smith.

“The things that have the greatest value in use frequently have little or no value in exchange,” Smith famously wrote. “On the contrary those which have the greatest value in exchange have little or no value in use.”

Subjective measurement takes valuing biodiversity into the realm of political economy according to Dr Bhaskar Vira of the Department of Geography at the University of Cambridge.

“When we do put values or prices on nature and biodiversity we are not capturing what we really mean by value and biodiversity,” Dr Vira told the audience at the CCI Symposium. “We’re making choices and that’s a question of politics as much as it is one of technical considerations.”

An example of the uncertainty in valuing and then communicating value is seen in economic forecasts of the potential costs that doing nothing about biodiversity may bring about. The loss of natural capital may be worth anywhere between one and three trillion euros depending on the discount factor (the rate at which one believes the asset will depreciate in value). The higher the discount factor applied, the lower the value of the natural capital in the future; the lower the rate applied, the higher the future value of natural capital.

Once again, applying that paradox to water and diamonds, what's of greater worth ten to fifteen to fifty years in the future? It depends on the individual and his or her subjective beliefs in how valuable these assets are now and later.

The conflict this can create with the business community lies in the trade-offs that exist as assets are valued, according to Dr Vira. It may be universally agreed that saving forests is valuable, but a forest cannot be used for both timber and carbon conservation. The preference of political stakeholders will weigh as much in the decision as scientific facts.

An added layer of consideration is the high correlation between areas of high poverty and high biodiversity. In questions of farming, water conservation, timber, and wildlife preservation, whose concerns should come first?

Dr Leon Bennun, Director of Science, Policy and Information at BirdLife International, pointed to a current example in Kenya where the Kenyan government and corporate partners would like to grow biofuels and other crops on the Tana River Delta, a rich and varied wetland on Kenya's north coast. In 2008, the Kenyan government wanted to lease 40,000 hectares to Qatar to grow and sell crops. In exchange Qatar would construct an international port in Lamu, which some in Kenya say would create more than 40,000 jobs. In June 2010, the Kenyan government approved using the land for growing sugar cane to develop biofuels.

The debate on the use of the Tana River Delta has split Kenya's own population, showing that the costs of conservation and the distribution of benefits results in a constant trade-off between competing parties. Often the flow of benefits is outward from developing areas to developed ones, though the cost of conservation is often borne by those in the developing countries.

The question then remains: Can these different values of natural capital co-exist as countries and corporations seek to both secure their economic future in the short-term and their environmental future in the long term?

The importance of integration: Connecting biodiversity with other global issues

One reason for viewing conservation as choices that are trade-offs rather than mutually shared benefits is because global issues like biodiversity, climate change, water security, energy and poverty are treated as if they exist in individual silos. Separate conventions result in separate conversations, making it far more difficult to help policy makers and governments see biodiversity as something that is linked to many other critical issues.

For example, the advocacy communities focused on climate change are not engaged with the communities focused on biodiversity. Another example is poverty eradication. A recent conference on chronic poverty at the University of Manchester had only one panel attended by five people on the importance of biodiversity to that issue. The discussion of the Millennium Development Goals at the recent United Nations General Assembly lacked dialogues that linked the issues of poverty eradication and biodiversity depletion. One way to ensure that benefit sharing is equitable around biodiversity policies is to integrate the policy conversations around topics such as climate change, poverty, etc.

Another critical reason for this is financing and "the money is fundamental" according to Dr Bennun. "It's the elephant in the room at most of these discussions. We know it's really important but no one ever discusses it or deals with it."

One billion dollars is invested annually to protect endangered lands. In order to properly maintain them, Dr Bennun estimates ten times that amount is needed. Expanding the amount of land under protection would require twenty times that amount.

The view on whether twenty billion dollars annually is large or small falls once again into the area of view, values and choices. To ensure food and water supplies over the next century, it's a tiny price to pay. However, to struggling governments overburdened with citizens asking for immediate solutions to socio-economic problems or corporations looking to make short-term profit it may be significant. Once again, communicating the value of the conservation investment is critical to obtaining a sizeable investment.

Friend or foe: Engaging the business community

Business remains a protean stakeholder in the conservation debate. For some conservationists, business engagement is the most important factor for success. For others, the push to economically value natural capital is a slippery slope, making them vulnerable to purchase or exploitation by corporations. Many in the CCI community on the 15th argued for the prioritisation of values rather than valuation. Their argument: the reasons for conservation are greater than any one economic value.

Individuals who engage with large corporations on these issues, however, say that the values argument has merit but without business engagement the funds for conservation will not come.

“Without these financial models and financial vehicles we aren't going to see the investment flows into the natural world,” said Polly Courtice, Director of the Cambridge Program for Sustainability Leadership (CPSL). “We need significant flows of capital and investor confidence in these markets to see natural capital as a legitimate asset class.”

Also significant according to Courtice is the willingness of corporations to engage with conservationists.

“Companies are saying broadly I get it, I may not get it enough detail, I may not know the science behind it, but we need to act, we need clear action parts, we need things to do that will address this and keep us in business,” said Courtice.

The door is open for collaboration, and organisations such as CPSL are creating “collaboratories” bringing together policy makers and corporations around issues of supply chain, resource scarcity, etc.

One critical reason to engage business is that once the biodiversity threat looms large those with the largest set of resources to throw at the problem will set the agenda for how to extract and conserve biodiversity, according to Jim Leape, the Director General of WWF International. Leape told the audience that if conservationists want to see trade-offs made that are acceptable to them, it is necessary to engage business sooner rather than later.

Good citizenship on the part of corporations is fuelled by incentive according to the conservation practitioners at the CCI symposium. If there's a business need, businesses will

act in their own best interests. For some, the best way to create that need is global governance and stricter regulations around biodiversity.

“There’s a huge business opportunity because as the economists say there are a lot of externalities,” said David Cleavelly, Director of the Centre for Science and Policy (CSaP) at Cambridge. “Business does not bear the full cost of what it’s doing. If you could put in place the proper regulation and the proper markets whereby business would recognise the full cost, businesses are great innovators. They would see opportunities and they would then use that in order to create new kinds of business to lower those costs and open new markets.”

Most importantly for corporations is the issue of reputational risk as consumers, employees and governments demand greater environmental awareness in business practices. Providing an evidence-based approach to conservation that develops risk assessments on matters related to biodiversity is a critical way forward in building relationships and obtaining willing compliance.

The belief in corporate ingenuity around biodiversity is widespread. The McKinsey study of corporate leaders quoted previously mirrors the sentiment expressed by CCI partners on the day of the conference: the business community sees opportunity in the biodiversity crisis. Appealing to this motivation by stressing competitive advantage and first mover status may be the way conservation groups can open a dialogue with businesses regarding biodiversity.

Getting it right: Examples of success in biodiversity partnerships

In spite of a lack of understanding on the importance of biodiversity and its worth to the human population, civil society organisations focused on conservation have successfully engaged with business and communities to prioritise biodiversity preservation.

The increased focus is driven by both reputational risk and consumer demand for environmentally friendly products and practices as well as a longer term eye to potential government regulation.

There are numerous examples of successes ranging from small rural initiatives to work with major corporations. Below are a few cited at the Symposium:

Rural Mobilisation: In Loma Alta Ecuador the value of water lost due to water conversion was estimated at almost half of a family’s annual income. The community mobilised on learning this to support forest protection.

Wildlife Conservation: Protecting the osprey habitat in Scotland has brought an additional 1.5 to 1.9 million pounds into the local economy.

Supply Chain: Numerous organisations from the Tropical Biology Association to the CPSL have cited success in helping corporations review their supply chains to reduce waste and maximise efficiency. For example, IUCN has worked with the cement company, Holson, from the digging of their quarries to restoring the land when they’re finished with it.

Corporate Citizenship: Coca-Cola is working with conservationists to be a leader on water sustainability. It currently takes 200 litres of water to grow the sugar needed for one bottle of coke. Unilever has made a commitment to reducing its overall carbon footprint by finding ways to source palm oil sustainably. Palm oil is part of half of Unilever's consumer goods products and the largest driver of rain forest destruction in Asia.

Payment for Ecosystem Services: Innovative business ideas that have conservation at their core will be a focus in future advocacy conversations. In one example, cities pay people to take care of a forest where rainwater is collected. The water coming into the city is cleaner, and the money goes to local inhabitants rather than being spent on chemicals to clean the water.

Conservation leaders agree that growing numbers of consumer facing companies have expressed an interest in being leaders in the area of sustainability. Resource security, food security, water and land use, sustainable cities and engaging with social changes are points of interest and concern rising through the corporate sector and within major multinational corporations. What businesses haven't done is speak out on the issues in the way they are beginning to do with climate change. Publicising these positive collaborations may be the first step in getting the private sector to discuss the importance of biodiversity in a public forum.

Solutions not problems: Programmes to ignite change

There's often a lot of talk about biodiversity but not enough of a focus on what can be done. CCI is action-oriented and will focus on the following programmes to address the challenges around biodiversity mentioned so far.

Shared Challenges: Through a programme of collaborative discussions CCI has been able to influence policy and scientific research. CCI has provided targeted advice to decision makers on bioenergy and policy focused research on post-2010 targets. An article in the *Journal of Applied Ecology* identifying priority policy options for UK nature conservation would not have been possible without the convening power and shared approach of CCI and Shared Challenges.

Horizon Scanning: The recent catastrophe of the Gulf of Mexico deep sea oil rig, unpredicted impacts of biofuels and the push towards large scale utilisation of biochar, illustrate a current lack of capacity to analyse potential consequences of emerging issues. CCI has developed a programme to create a shared agenda to identify and then address upcoming issues in order to help the conservation community be proactive rather than reactive.

Capacity Building: CCI partner organisations have focused on equipping key stakeholders with the knowledge and skills to understand, value and manage biodiversity. Civil servants, young scientists and corporate leaders have undergone training programmes through organisations such as the Tropical Biology Association and the Cambridge Programme for Sustainability Leadership. As a result, an interconnected global network of alumni focused on conservation leadership exists in both the public and private sector. In addition, a new masters programme in conservation leadership is also starting at the University of Cambridge this year that will equip a young cadre of students to become leaders in the conservation

arena. The programme will include teaching in management from Cambridge Judge Business School.

CCI Collaborative Fund for Conservation: This innovative fund has one million dollars to be spent over three years and has already funded nine projects that involve 13 CCI partners. The fund supports interdisciplinary research and education projects targeted at specific policy and practice questions and solutions, providing much needed seed funding to novel projects and approaches that would not attract more traditional research funding.

Cambridge Ecosystems and Natural Capital Programme: Run through the Cambridge Programme for Sustainability Leadership as one of the CCI partners, and increasingly drawing on wider CCI resources, this programme has created roundtables and discussion forums to: construct new narratives for communication by and within companies; engage the investment community through new metrics and accounting for natural resources; develop green supply chains; and map the risk landscape for the private sector.

At their core all of these initiatives focus on greater communication and cooperation. The issue of conservation is multidimensional and often requires dialogues between competing stakeholders. Creating a forum for discussion can aid in finding common ground now and will result in larger scale change in the future.

Conclusion: Eight bold steps for the Future of Biodiversity

Conserving the Earth's biodiversity so those that inhabit it will have safe food, clean drinking water and a habitable environment requires big thinking and bold action. "The Cambridge Conservation Initiative is unique in its ability to address the global challenge of sustaining the world's natural capital because it can harness Cambridge's convening power, draws on the intellectual authority, practical experience and global networks of its members and has a powerful shared vision," says Dr Mike Rands, the Executive Director of CCI.

The following eight point plan to address this century's biodiversity challenge was spelt out by Dr Leon Bennun of BirdLife International drawn from a recent article in Science co-authored by CCI researchers. It represents one way forward, a roadmap, for how the conservation community can be a potent force in combating the depletion of natural resources:

- Perform immediate actions to provide a breathing space and more fundamental changes in the medium-term
- Secure a strong new CBD strategic plan and address associated political challenges including access and benefit sharing and finance
- Achieve better links between climate change and biodiversity conventions
- Do more practical conservation, building on the approaches that are already proving to be effective
- Fill knowledge gaps by keeping better track on emerging threats, e.g. improve understanding of ecosystem functioning and finance monitoring
- Steer a new trajectory for agriculture with better investment in sustainable solutions and technologies
- Integrate biodiversity in decision making, mainstream it across sectors and put better messages across to governments

- Build institutional and individual capacity

Now the key to change is a commitment to carry these steps forward. The Cambridge Conservation Initiative sees communication and more dialogue as a way to begin that process. A new narrative around biodiversity must be constructed; one that clearly defines the problem in language that everyday citizens can understand and rally around. This has begun to happen, but more outreach must take place. Critically, the conservation community must engage the two largest stakeholders in the biodiversity dialogue – government and business. Points of commonality between these groups can hopefully lead to mitigation and then eradication of those practices that are stripping the Earth of the resources it needs to remain a vital planet that provides for its many inhabitants.