# The Quiet (R)Evolution in Expectations of Corporate Environmental Performance

## Emerging Trends in the Uptake of Ecosystem Services

BSR's Ecosystem Services Working Group

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# About This Report

This report was written by Sissel Waage, Linda Hwang, and Kit Armstrong. It is based on interviews Sissel Waage conducted with corporate leaders around the world. The report also includes insights from discussions during a September 2011 roundtable that was convened by BSR's Ecosystem Services Working Group and attended by global private and public sector representatives and ecosystem services thought leaders in NGOs and research institutions. We are grateful to all interviewees and roundtable participants for their candid input, as well as members of BSR's Ecosystem Services Working Group for ongoing engagement, discussion, and comments on drafts of this report.

Any errors in the report are those of the authors alone. Please direct comments or questions to Sissel Waage at swaage@bsr.org.



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# Executive Summary

Companies face a wide and growing range of issues, from labor through environmental impacts in supply chains, manufacturing, product use, and end of life. The challenge for corporate managers is to assess the relevance of a specific issue, prioritize among issues, and recommend pathways forward.

Ecosystem services is a relatively new issue facing companies today. Despite its wonky moniker, it is ratcheting up on stakeholder agendas—most notably in pockets of government and the financial services' lending sector.

Ecosystem services, which are derived from functioning natural systems, are the multitude of goods and services from which people benefit. They include the natural dynamics that enable reliable flows of clean water, a relatively predictable climate, and the production and maintenance of fertile topsoil in which to grow crops. Many global studies such as the Millennium Ecosystem Assessment (MA) have documented a downward trend in ecosystem services.

For companies, the implication of an ecosystem services analytical approach is simple. The focus would no longer be on the upward or downward direction of individual metrics. Rather, an ecosystem services analytical approach is one that considers not just the individual parts but also the functioning of the whole—that is, how multiple parameters contribute to (or undercut) the ability of a broader ecological system to produce the goods and services that people have come to expect and enjoy.

This issue frame is increasingly being embraced due to concerns about the status of ecosystem services. The signals that ecosystem services concepts are beginning to shape expectations of and even requirements for, the private sector are increasing and include:

» The large body of peer-reviewed material, including the Millennium Ecosystem Assessment (MA), The Economics of Ecosystems and Biodiversity (TEEB) report, and the European Environment Agency's classification of ecosystem services, has helped establish categories and an overall definition for ecosystem services.

» Some national governments, including those of Colombia, Costa Rica, Spain, the UK, the United States, and Vietnam, are exploring policy mechanisms to restore and maintain ecosystem services and natural capital.

» A small but influential set of financial institutions has put into place requirements to consider ecosystem services within financial due diligence processes.

» A growing number of companies are discussing ecosystem services and testing decision-making aids.

While corporate work on ecosystem services issues is greater than it has ever been before, it is often occurring in a pilot testing way with a focus on a wide range of questions, including:

» How would an ecosystem services-informed approach differ from business as usual and current corporate environmental management processes?

» What is the added value of an ecosystem services perspective relative to existing corporate environmental management practices?

» What ecosystem services metrics should be monitored within corporate management processes? Why and how?

» How would these new ecosystem services indicators and concepts be integrated into existing processes and protocols (e.g., environmental and social impact assessments and life cycle assessments)? At what cost?

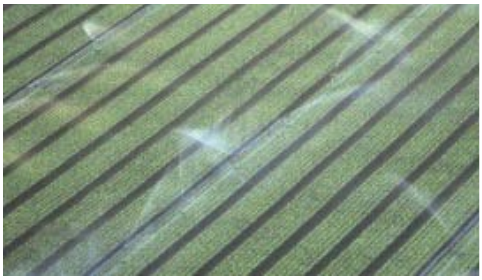
While ecosystem services concepts and approaches are gaining advocates, the challenge for companies pivots around *if, when, and how* to take action.

The aim of this report is to provide a better understanding of the uptake of ecosystem services concepts and the emerging business case for action, of any kind, related to ecosystem services. In issuing this synthesis of the current state of play, BSR's Ecosystem Services Working Group hopes to deepen understanding of the opportunities and challenges associated with applying ecosystem services concepts and tools in private sector settings as well as to move the field of application forward.

*For more information on BSR's work related to ecosystem services, please see www.bsr.org/en/our-work/working-groups/ecosystem-services-tools-markets or contact swaage@bsr.org.*

## Introduction

Corporate managers will face a growing number of new questions about their impacts on ecosystem services in the coming years. The reason is simple. Trendsetting financial institutions, NGOs, academics, and public agencies have adopted an additional, new lens with which to consider risk and impacts: that of ecosystem services, which is premised on the functioning of ecological systems within which all businesses operate.



Corporate issue trackers will likely face such overarching questions as:

- Is your company contributing to or undercutting the function of the natural systems in which you source, produce, sell, and recycle or dispose of your goods and services?
- Is your business aware of these impacts?
- Are you taking preventative or restorative action?

These questions are emerging within the broader context in which changing business conditions have come to be the norm. Competitors, suppliers, buyers, and even stakeholder demands on a myriad of issues are can and do shift suddenly. With ongoing change comes the need to ask: Are today's processes effective for enabling business success? This question is even more relevant to corporate environmental performance.

Most large companies continually consider their environmental management processes and add new parameters to environmental and social impact assessment processes (ESIAs) as well as life cycle assessments (LCAs). Yet, it is unclear whether scrutiny extends more broadly throughout business decision-making processes in other parts of the company. It is also unclear whether these processes include a systemic view of effects, dependencies, and risks associated with natural infrastructure and ecosystem services upon which both business and society relies.

Advocates of ecosystem services analytical approaches assert that corporate assessments should include this broader, systems-based frame—and will need to do so in the future as they gain the attention of financial services decision makers and public sector officials.

Within this context, this report aims to provide a snapshot of the current state of play of ecosystem services uptake in multiple arenas that are relevant to companies.[1] It begins with a brief overview of ecosystem services concepts and then lays out the current state of play within the field. The report then describes the emerging activity within the private sector related to ecosystem services.[2] The report ends with recommendations on potential next steps related to business activity and ecosystem services issues.




1. Throughout this report, for ease of discussion, we refer to "private and public sector representatives" as well as thought leaders and trendsetters in financial services institutions, NGOs, and academia, all of whom have informed this report through: (1) semistructured interviews that were conducted from February through December 2011, (2) interactions with corporate members of BSR's Ecosystem Services Working Group over the course of 2011 (for a full list see www.bsr.org/en/our-work/working-groups/ecosystem-services-tools-markets), and (3) discussions at a 40-person roundtable discussion among public and private sector representatives as well as NGO and academic leaders working on ecosystem services, which was convened by BSR's Ecosystem Services Working Group in September 2011.
2. This information is derived from review of publicly available materials from companies as well as interviews conducted by BSR's Ecosystem Services Working Group from February through December 2011.

**Box 1. Ecosystem Services Defined**

Ecosystem services are the flows from well-functioning ecological systems. For example, forests can serve as ongoing sources of wood that can be used in building and papermaking. Standing forests sequester carbon that would otherwise contribute to dynamics leading to climate change, and offer relatively predictable flows of freshwater by absorbing rainfall from storms, filtering the rainwater through the soil, and then enabling reliable flows (rather than deluges) downriver. The dynamics of both land and ocean ecosystems interact to affect heating and cooling of land and sea, which in turn affect air currents and influence localized weather patterns.

Ecosystem services are most commonly divided into four groups including:

**Provisioning services:** Goods produced by functioning ecosystems, such as crops, wood, fish, etc.

**Regulating services:** Natural processes regulated by ecosystems, such as pollination of crops by bees and buffering of coasts from storms.

**Cultural services:** Nonmaterial benefits obtained from ecosystems and upon which people and societies have placed value.

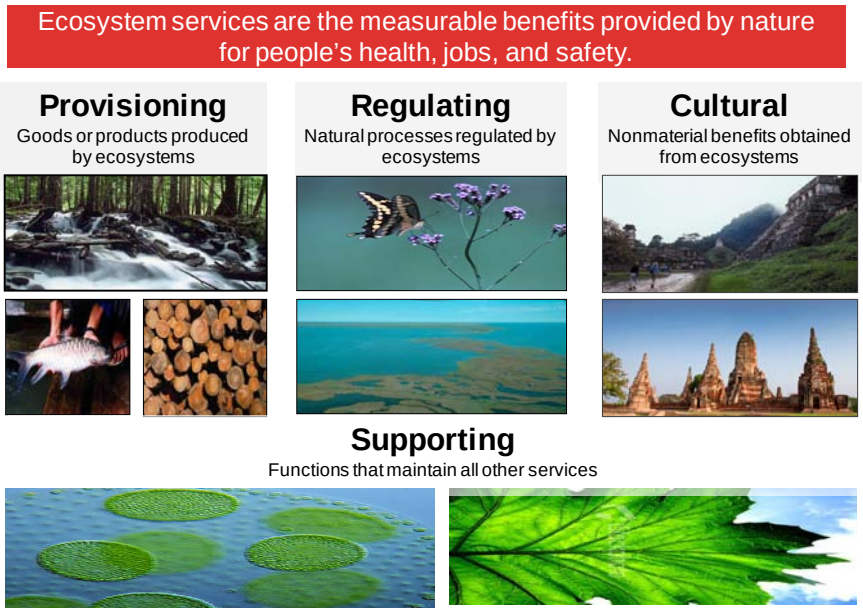
**Supporting services:** The ecological dynamics that enable the ongoing functioning of all other services.

*Source:*
www.maweb.org/en/index.aspx

# Background

While the term is academic, the ecosystem services concept is focused on some of the most fundamental inputs into successful businesses (see Figure 1 and Box 1). Ecosystem services are the flows from natural systems from which people benefit, including the ongoing production of natural resources (such as timber for building and paper production, and crops for food and fuel, to name a few), fertile topsoil, to a relatively predictable climate. Grounded in decades of work within the scientific community, ecosystem services are now a set of concepts, and increasingly analytical approaches, that are coming of age.

**Figure 1. Ecosystem Services**




*Source:* Excerpted from World Resources Institute, *The Millennium Ecosystem Assessment*, 2005, www.maweb.org/en/index.aspx.

For corporate environmental managers, the takeaway is that scientists working on ecosystem services issues are fundamentally focused on a systems approach to understanding function and outcomes. They are no longer focused on outputs nor are they exclusively examining the upward or downward direction of a particular parameter, such as water consumption or nitrogen dioxide emissions.

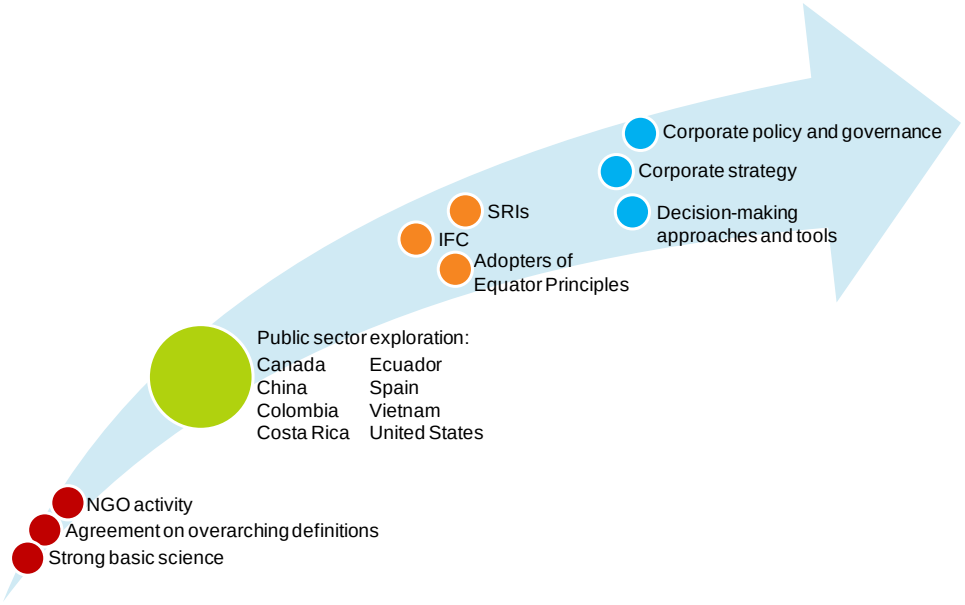
Instead, the ecosystem services approach asks how individual parameters interact within a dynamic system, in order to enable (or undercut) the system's functioning. The key question for a company evaluating its impacts on ecosystem services is this: If we pursue a given project, will a specific ecosystem still be able to produce the goods and services that people and businesses have come to rely on?

While the potential corporate actions needed to respond to such a shift in expectations could be evolutionary, in terms of integration of new processes and new parameters, the effects on corporate responsibility could be revolutionary. An ecosystem services approach could shift discussions around responsibility from discrete actions on specific lands to cumulative effects of multiple actors across large geographic areas. And this shift in expectations is no longer theoretical, as the uptake of ecosystem services concepts are now underway.

## State of Play of Ecosystem Services Uptake

Based on BSR's tracking of ecosystem services issues across academic, NGO, and public and private sectors since 2007, it is clear that engagement with the concept is on the rise.

**Figure 2. The Ecosystem Services Engagement Continuum**




While the total number of players engaging with ecosystem services outside of academic and research communities is limited, the striking insight comes from considering the entire continuum of activity—from the consolidation of science into widely agreed-upon terms and definitions to growing national public sector engagement, through expanding range and types of corporate exploration. The direction of uptake appears to be headed in only one direction—upward.

### Agreement about How to Define Ecosystem Services

The large body of peer-reviewed material, including the Millennium Ecosystem Assessment (MA), The Economics of Ecosystems and Biodiversity (TEEB) report, and the European Environment Agency's classification of ecosystem services, has helped establish clear categories and an overall definition for ecosystem services. In addition, information on the state of ecosystem services is growing. A range of national efforts are continuing to build on these assessments of ecosystem services. For example, the UK government's national assessment and the EU research syntheses are deepening and extending applied work on ecosystem services. In addition, ongoing work led by the U.S. EPA, in collaboration with academics, on final ecosystem goods and services (FEGS) is likely to further the analytical frameworks that undergird future application of the concepts.

### The Public Sector Explores Concepts and Approaches

A growing set of national governments are exploring ecosystem services concepts and applications. This work spans from exploration of new policy

**Box 2. Aligning Ecosystem Services Parameters to Existing Data Sets**

While the MA, TEEB, and other keystone reports agree on the overarching definition and categories of ecosystem services, those categories do not always align with existing data sets. In response, some ecosystem services modelers, such as the ARIES team, have created charts that lay out how ecosystem services parameters could be measured using existing data sets. This mapping of theoretical parameters to actual measures has been a sticking point on which there is a need for broader-based agreement among thought leaders in the form of peer-reviewed work. Such work could ultimately assure the private sector that there is widespread support for one coherent analytical approach.

**Stakeholder Perspective**

"This [ecosystem services work] *is* rocket science. Defining ecosystem function takes a lot of effort and time, and putting a value on that is also difficult. We're at the beginning of this curve of finding out what those functions are and how they relate to other natural resources.

If you're in the risk-management business, then you have to look at these issues long and hard before you become involved in it."

—Government representative discussing his agency's activity on ecosystem services during the September 2011 BSR roundtable on ecosystem services

**Box 3. Ecosystem Services in Due Diligence**

The finance sector is undergoing a period of significant learning is now underway about how to integrate ecosystem services considerations into financial due diligence processes. Investors will have to grapple with a wide range of technical and institutional questions, such as how to understand the ecosystem services implications of one project within the context of cumulative effects and other nonproject activities, and how to incentivize analysts within investment institutions to factor ecosystem services into decision-making.

These developments in the investment sector add to the case for companies to consider impacts on ecosystem services.

mechanisms to drive greater investment into ecosystem services (as well as natural capital), through public lands management that includes consideration of ecosystem services. (For more information on government uptake of ecosystem services, see BSR's report *Global Public Sector Trends in Ecosystem Services, 2009–2011 Summary*.) This interest is emerging along with recognition that natural capital is under increasing pressure and that ecosystem services in many areas no longer flow in the ways that we have come to expect.

This growing public sector interest in ecosystem services is evident in a range of ways. For example, corporate representatives informed us that:

» Regulators in **Brazil** asked one company for "a more joined-up ecosystem-based approach" in managing extractive industry projects that are underway.

» **Greenlandic** government officials requested that a company work on an integrated ecosystem approach in their strategic impact assessment work.

BSR's tracking of ecosystem services related to public sector activity has documented increasing activity:

» The **EU** is considering whether specific new legislation or enabling frameworks are needed to advance initiatives on ecosystem services.

» The **UK's** Department for Environment, Food, and Rural Affairs (Defra) has begun to link biodiversity metrics for corporate reporting with an ecosystem approach as a basis for evaluating performance.

» The government of **Vietnam** has adopted and implemented a national policy of Payment for Forest Environmental Services.

» Seven countries—**Colombia, Madagascar, Mexico, Norway, the Philippines, Uganda, and the UK**—are exploring the integration of natural capital and ecosystem services indicators into GDP, through active engagement in a pilot project coordinated by the World Bank. The Global Partnership for Ecosystems and Ecosystem Services Valuation and Wealth Accounting is focused on the development of tools to integrate the economic benefits of ecosystems, such as forests, wetlands, and coral reefs, into national accounting systems.

Overall, public sector activity is still nascent. At present, there is little clear policy on ecosystem services. Nonetheless, BSR's policy tracking from 2009 through the present shows that public sector explorations are on the rise and that a growing amount of public sector funds are available to define, measure, map, and/or apply ecosystem services concepts.

This public sector activity on the topic differs regionally, but is particularly apparent in the U.S. (related to public lands management) and the EU, as well as countries around the world (e.g., Colombia, South Africa, Vietnam, and others). In these nations, opportunities are ripe for NGOs, the public sector, private sector, and academia to share information about how to monitor ecosystem services in an effort to lower transaction costs of considering ecosystem services impacts and dependencies on the ground.

## The International Finance Corporation Leads the Way

A small but influential set of financial institutions are now integrating ecosystem services considerations into their due diligence processes. The net effect is that more questions are being asked to evaluate impacts, dependencies, and risks associated with natural infrastructure. For example, when considering a large capital investment, is a company factoring in risks such as the shifting availability of water, timber, or specific crops? Alternatively, when looking at existing supply

**Stakeholder Perspective**

"An ecosystem services approach, as compared with today's corporate environmental approach, is the difference between counting doorknobs and assessing whether the doors can open or not."

—Corporate representative interviewed in 2011 on the topic of ecosystem services and potential implications for corporate performance expectations

**Box 4. Challenging Corporate Environmental Management Protocols**

Advocates of an ecosystem services approach highlight the lack of attention to regulating and supporting services, while also questioning the degree to which current environmental assessment approaches fully integrate ecosystem services parameters. These critics assert that many companies use a list of some indicators but do not take a systems-oriented view of ecological structure and function, which is the core of ecosystem services.

chain management strategies, is the company taking into account the cumulative environmental effects in key sourcing areas?

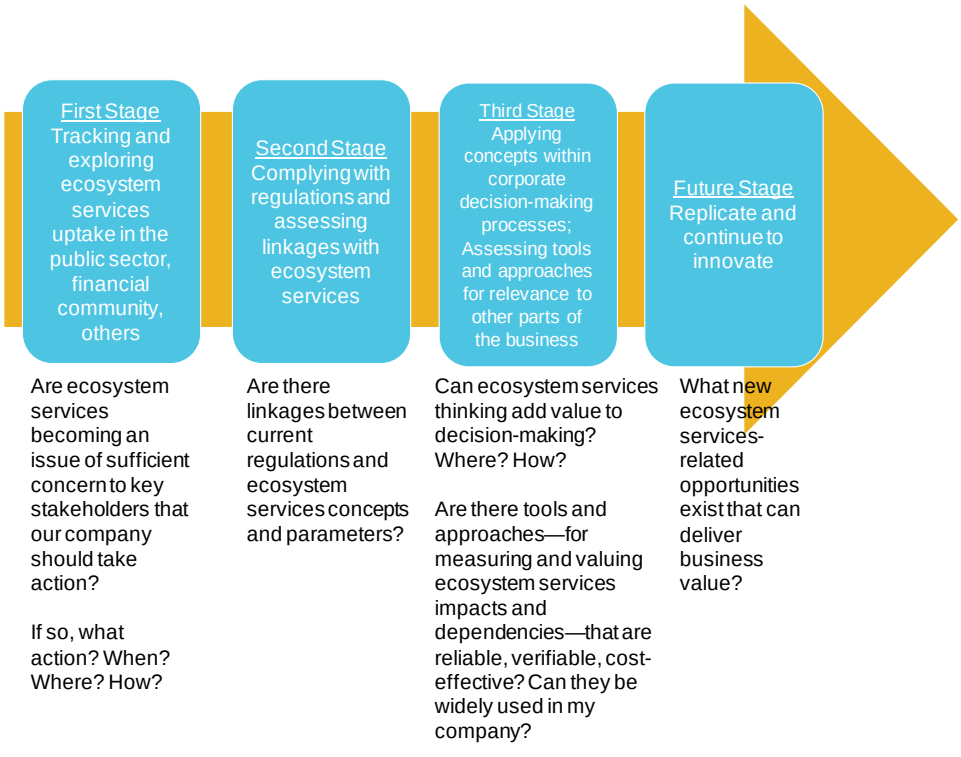
Taking the lead, the International Finance Corporation's (IFC) newly updated Environmental and Social Sustainability Performance Standards now include ecosystems services. Since January 2012, the IFC has required that the projects it funds routinely consider ecosystem services in ESIAs. Between the IFC's Performance Standards and the Equator Principles, which 76 banks have adopted, these guidelines have set a new bar for financial and risk-management due diligence, as well as by European Export Credit Agencies.

Financial institutions are still crafting the exact approach to application within their industry. Preliminary, informal discussions have indicated that the IFC's consideration of ecosystem services may not significantly change ESIAs, since companies may already be including numerous key ecosystem services parameters in existing ESIAs. The details of specific issue applicability and ESIA approaches will more clearly emerge in the coming months.

## Business Takes a Closer Look

Since BSR began tracking work on ecosystem services in 2007, it has become clear that, despite most business representatives' public tone of caution, a growing number of corporate managers are engaging on these issues. This engagement is occurring along a spectrum—from companies that are only tracking the uptake of ecosystem services approaches within the public sector; through firms that are testing decision-making tools that assess the impacts, dependencies, and monetary value of ecosystem services; to businesses that are crafting corporate goals and policies to hold employees accountable for meeting new benchmarks in their work. See figure 3 for details.

**Figure 3. Current Spectrum of Engagement**



### Box 5. Adopting the Lens of Ecosystem Services

Several corporate representatives stated that they arrived at ecosystem services issues through discussions on how to address corporate impacts on biodiversity.

In one case cited during a 2011 interview, a member of a company's board of directors inquired about operational impacts on biodiversity. European staff argued that this question was far too narrow since the discussion in Europe is focused on biodiversity and ecosystem services (BES). Since well-functioning ecosystems must maintain biodiversity, BES is a more appropriate frame, European colleagues argued, for companies to ensure that they are considering all relevant issues.

After testing the BES frame internally, corporate managers found that it was an effective tool for engaging employees on both biodiversity and related environmental issues.

### Box 6. Integrating Ecosystem Services into Biodiversity Assessment Guidelines for New Projects

Ecosystem services were highlighted for one company, by members of its board of directors and other key stakeholders, which sparked creation of a biodiversity standard. As the IFC performance standard was issued, it was decided that ecosystem services should also be included to form an integrated biodiversity and ecosystem services (BES) approach to the issues within the company.,.

When applied to new project assessments, if the risk assessment process determines that a project could have a strong influence on four or more ecosystem services, then it is placed in a high-risk category with separate guidelines to follow. The assessment specifically includes provisioning, regulating, and cultural services. In certain geographic regions, greater weight was also placed on indigenous persons' rights and water dependence.

To date, the process has resulted in more interaction between environment and community affairs teams and provided an opportunity to confirm what environmental professionals think is known about communities in which the company works. The hope is that this approach will result in improved corporate environmental and social performance.

**Stakeholder Perspective**

"If you were to take an ecosystem services-based approach, then you would probably put the ecosystem as the target of your investigation along with stakeholders. You would not focus on the project and project lifetime, but on a larger geographical and temporal scale."

—Fortune 100 corporate manager on the distinction between current environmental assessment approaches and potential future ecosystem services-based approaches

# Applying Concepts within Corporate Processes

Based on one of the first sets of interviews with corporate managers on the topic of business activity related to ecosystem services, conducted throughout 2011 by BSR, we learned that some companies in select industries—such as oil and gas, mining, chemicals, entertainment, and tourism—have built a case for exploration of, as well as action on, ecosystem services issues. Some have done so simply because of national government authorities' growing number of questions about impacts on ecosystem services as they review potential agreements, as well as increasing scrutiny from NGOs and investors on the topic. Other firms explain that their activity on ecosystem services stems from their culture of sector leadership and the desire to maintain a leadership position within their industry.

Corporate managers of those companies that are engaging asserted that they had found that an ecosystem services perspective offers new insights that existing approaches to environmental and social impact management do not address, including issues such as:

» Operational dependencies on ecosystem services
» How the supply and demand of ecosystem services affects business operations, including risks associated with cumulative impacts
» The relationship between livelihoods and the environment

## Many Forms of Engagement

For companies that have moved beyond "tracking" the concept, two approaches are emerging.

**DECISION-MAKING APPROACH**
In the cases described in the chart below, companies are applying ecosystem services concepts to identify opportunities and risks in different areas of business operations. Although we do not yet have widely agreed-upon measurement parameters for ecosystem services, companies see value in incorporating risks and dependencies on ecosystem services into these processes, even at a high level. Illustrative applications are in the table below.

| Business Application | Details |
|---|---|
| *Real estate management* | » Assess "idle" lands in terms of what ecosystem services exist and could be restored, with conservation value used to communicate potential value that could be realized.<br>» Prioritize selection of lands for restoration and how to efficiently allocate resources to make decisions about parcels. |
| *Corporate finance* | » Factor ecosystem services considerations into decisions about potential mergers, acquisitions, and major investments and new project development, in terms of both opportunity as well as potential risk. |
| *Corporate strategy* | » Define and embody environmental leadership by applying an ecosystem services approach and corresponding parameters.<br>» Support brand value and differentiate it from competitors. |

### Box 7. Links Between Regulations and Ecosystem Services

Even within the bounds of current regulation, some companies see a link between compliance and consideration of ecosystem services. For example, in the United States, ecosystem services have come up in work on Natural Resource Damage Assessments (NRDAs) as one way to consider the present and potential future value of environmental assets and seek to maximize their value. Several corporate representatives asserted that they are investing in research on how restoration could enhance land values and/or decrease risk, with an eye on NRDAs and corporate risk management and revenue enhancement. This work has included exploration of restoring wetlands to function as water filters and then selling within regulated mitigation banking schemes (where they exist). In addition, some companies have been looking at conservation easements on idle properties as a way to generate tax credits.

### Stakeholder Perspective

"How will an ecosystem services approach to business decision-making and operations translate into business revenues or societal benefits? Until this is clear, we won't act."

—Fortune 100 corporate manager in a 2011 interview

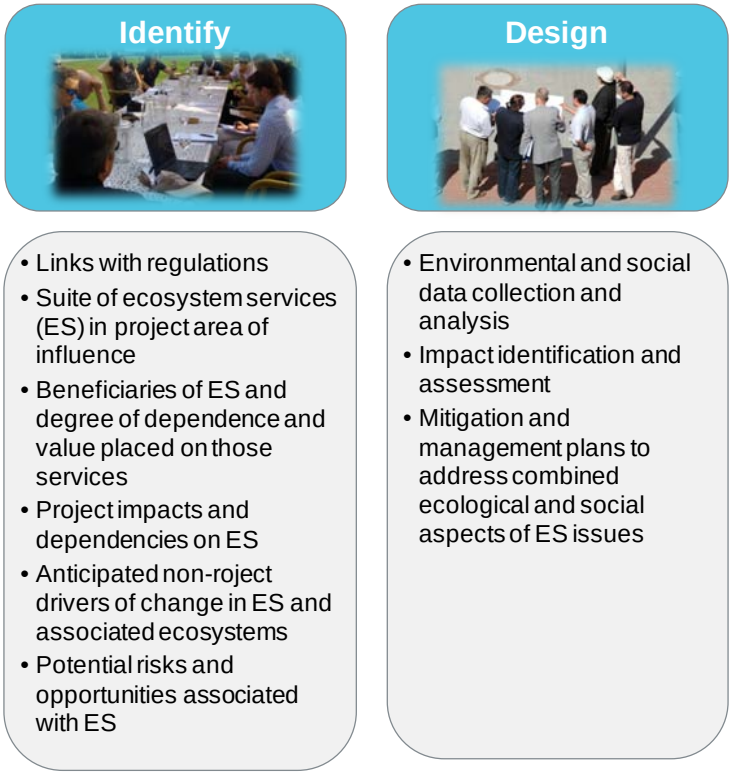
| | |
|---|---|
| *Supply chain management* | » Assess potential for disruption of key supply chains from shifts in flow of ecosystem services.<br>» Analyze parts of the supply chain to identify quantifiable impacts and dependencies on ecosystem services. |
| *Product life cycle assessment (LCA)* | » Assess how life cycle stages could affect biodiversity and ecosystem services. |

Applications across all of these corporate domains are still very nascent. Yet, based on work to date, numerous corporate representatives feel that value has been and will continue to be realized from introducing ecosystem services thinking into real estate management and corporate finance decision-making processes. In addition, corporate decision-makers assert that ecosystem services may add value to corporate strategy, supply chain management, and LCA.

**BUSINESS-ACTIVITIES APPROACH**

While some companies are integrating ecosystem services concepts at an overarching decision-making process level, others are applying them to specific activities, in effect expanding their ESIA processes (see Figure 2).

**Figure 4. Current Corporate Applications of Ecosystem Services**




Once a company has determined that ecosystem services warrant additional focus, the question shifts to *how* to apply ecosystem services concepts and decision-making aids to business activities. At this stage, companies ask: How can the company make better capital decisions, enable more efficient operations, manage risk, and address customer needs through application of ecosystem services analytical approaches and tools?

**Box 8. Challenges with "Universally Relevant" Tools**

Corporate representatives critique so-called universally relevant models as providing information that is too coarse to be relevant to many site-specific decision-making processes. For example, in managing risks within a watershed, multiple values for water should be considered. Far upstream, there may be concerns about adequate flows for anadromous fish to spawn. There may be concerns with flooding in the mid-watershed. In an estuary, there may be questions about adequate freshwater flow.

Therefore the challenge is that the analytical framework of an ecosystem services decision-making aid or tool be calibrated to accurately represent these distinct values (ecological and others) for various ecosystem goods and services in a watershed in order to be effective in aiding decision-making processes.

**Stakeholder Perspective**

"We don't hear any of our stakeholders flagging ecosystem services as a key issue on which they expect us to act. Until someone says we should act, we won't."

—Fortune 100 corporate manager in a 2011 interview

## Assessment of Ecosystem Services-Related Tools

A range of tools has emerged in the last few years that aim to help planners and decision makers quantify ecosystem services. (For a comparative assessment of some of the most prominent current tools, please see BSR's 2011 report *New Business Decision-Making Aids in an Era of Complexity, Scrutiny, and Uncertainty*). In 2011 interviews, some business managers reported that the tools did not add any new information, while others asserted that the tools did reveal impacts and dependencies on ecosystem services that their current processes and practices did not uncover.

One company that tested multiple tools at the same time within the same context asserted that the findings were commonly reported in large ranges, sometimes as significant as an order of magnitude, which made the findings inappropriate for making long-term monetary projections of the company's impacts. While some tools may be sufficient for short-term valuation, according to this business representative, even within that group there were significant ranges on the monetary figures that limited relevance and undercut confidence in the findings. The core issue is that the method for valuing ecosystem services remains one in which specific numbers are difficult or impossible to determine. Therefore, ranges—which can be quite large—are offered, but they make the tool less useful for business decision making where companies expect greater clarity around financial projections.

BSR's interviews with corporate managers highlighted additional challenges with the current ecosystem services tool domain:

- **It is difficult to select tools for a specific site or set of conditions** since at present there is no guidance on how to match tools with the types of questions that a company is asking, specific application contexts, and available data sets.
- **Ecosystem services tools are usually not easy to apply** because they seldom run on available data (since many require custom inputs) and employees do not have the skills needed to apply the tools.
- **The findings are often unable to be consistently replicated by others** who applied the same tool to the same question using the same data, implying that these tools are beta versions that require refinements.
- The tool **outputs could not be easily applied and aligned** with existing corporate decision-making processes.

Overall, business managers reported that the challenge at present is that there are very different tools and approaches to integrating ecosystem services and no tried-and-true methods. In addition, well-linked end-to-end processes that can be applied through a corporate system do not currently exist.

Therefore, corporate managers who seek ecosystem services tools will likely need to adapt tools so that they are appropriate for specific contexts and available data sets. Unfortunately, many of the current ecosystem services tools have been built as more general decision-making aids.

In summary, corporate representatives who have tested ecosystem services tools have concluded that most of the existing tools have neither been able to prove their value in terms of adding new insights nor validate findings (even ones that were not that insightful). However, the Ecosystem Services Review (ESR) was highlighted by some as one useful framework for early issue identification. In addition, Parametrix's EcoMetrix was pointed to as a useful site level tool for granular analysis and prioritization.

**Box 9. Illustrative Ecosystem Services Tool Application within a Corporate Context**

An environmental NGO asked one company to pay for the removal of nonnative species from a wetland and provide an easement on the land in question. Before deciding, corporate representatives engaged a team of outside specialists to collaborate with the NGO to conduct an independent assessment of the current wetland structure and function using a new site-level tool for assessing multiple ecosystem services parameters concurrently.

They found that while the structure was suboptimal in terms of presence of nonnative species, the function was strong, according to numerous ecological parameters. Based on the findings, the NGO revised its initial assumptions about the wetland dynamics. Further, both parties agreed that the disturbance that the restoration work would cause would likely undercut short-term performance of the wetland, without significant long-term improved benefit.

Overall, the application of this ecosystem services assessment tool led to the environmental NGO rescinding its request about corporate action on the wetland. It also shifted the internal corporate discussion to how best to use the funds to improve the ecological function of a specified area.

Finally, another significant hurdle that corporate managers found in testing ecosystem services tools is that in many cases (though not all, such as those associated with sensitive environments and large projects) the cost of applying tools currently outweighs the benefits. Overall, these findings imply that the field of ecosystem services decision-making aids will continue to grow and evolve in the coming years, as existing tools are refined and new ones created.

## Barriers to Engagement

Our research identified three main barriers facing companies that are integrating ecosystem services into decision-making processes.

**Some companies believe that current practices are sufficient to identify all relevant environmental impacts and opportunities**.
Business managers in these firms, primarily in agriculture as well as some in forestry, asserted that their current sustainability initiatives already address numerous ecosystem services parameters. Some agricultural corporate representatives argued that their tracking of ecosystem services issues confirmed that the best approach to managing environmental impacts, including those related to ecosystem services, is to address each one individually. They explained that "an integrated ecosystem services lens does not provide the level of detail needed to make corporate decisions." In a few cases, decision makers have stopped tracking ecosystem services issues and ended their external engagement on the topic after their exploratory work led to these conclusions.

**Some companies have determined that ecosystem services concepts and tools are not relevant today, though they may become important in the future if mainstream investors and regulators take action on the topic**.
For example, a pharmaceutical company representative asserted that it was impossible to make ecosystem services concepts relevant to any part of the business, primarily because it was infeasible to show that *not* taking action would represent reputational and/or regulatory risks. However, this representative added that if the company's funding sources begin to require information on ecosystem services, then the company would take immediate action.

Companies that have assessed the issue and chosen not to take action at this time are nonetheless closely monitoring the issue and the uptake of ecosystem services concepts. These companies believe that a wait-and-see approach is most judicious.

**Ecosystem services have widely varying salience in different parts of the world.**
A number of companies debate the relevance of ecosystem services to the firm as a whole, but within distinct geographic regions, do see growing interest in engaging. Specifically, European business units perceive that both biodiversity and ecosystem services, as a linked concept of BES, are critical to successfully managing environmental and social impacts. Further, they point out that examining BES as an integrated concept drives more successful uptake given regional differences.

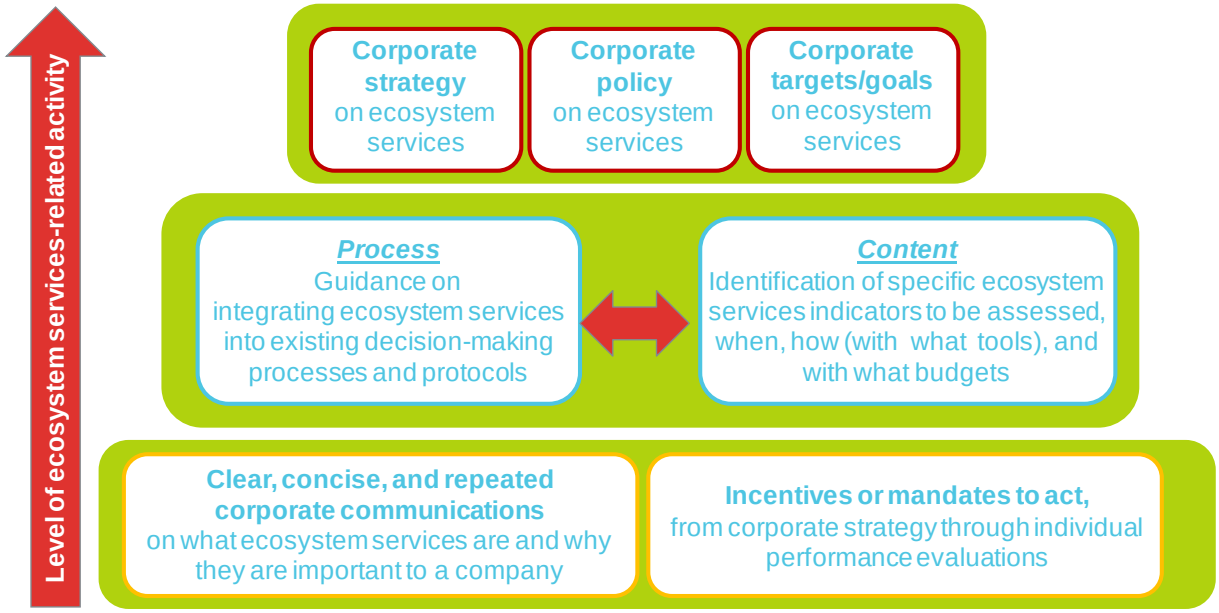
Within this context of differing regional interest in the concept, the absence of publicly available information about some companies' ecosystem services-related activity sometimes masks their very active discussion on the topic.

## Early Lessons

Overall, interviews with corporate representatives resulted in some preliminary lessons on corporate ecosystem services applications. Most notably, companies need to:

- Communicate clearly, concisely, and repeatedly (in writing and orally) about what ecosystem services are and why they are important.
- Provide specific indicators on what should be assessed, when, how, and with what budget(s), including guidance on what tools or processes to use and why.
- Provide clarity on mandates to act from corporate strategy through individual performance evaluations, to ensure adoption and enduring action.

**Figure 5. Illustrative Foundations of an Ecosystem Services Approach**



**Box 10. Competitive Differentiation: An Ecosystem Services-Based Strategy**

One extractives company began to examine ecosystem services in a research setting to identify potential opportunities for leadership. In the sector in which the company operates, responsible performance in "sensitive areas" is fundamental to business success over time because it can lead to better access to future sites and resources. Thus, providing evidence that the company can operate responsibly in sensitive areas was identified as critical to license to operate and business longevity.

To do this, the company explored the application of an ecosystem services approach to identify potential processes that it could implement. A preliminary finding of this work was that an ecosystem services perspective offered new insights that did not surface within the company's current environmental impact assessment approach. In particular:

» Long-term operational risks associated with dependencies on ecosystem services, which may be changing in availability over time
» Both short-term and long-term risks associated with cumulative impacts on the flow of ecosystem services at a particular site
» The relationship between local livelihoods and corporate demands (and impacts) on ecosystem services.

This corporate assessment of whether or not an ecosystem services lens would add value to issue identification resulted in the conviction that it did contribute to improved assessments.

In response, the company committed an investment of US$250,000 to internal research on methodologies for measuring impacts on ecosystem services within sensitive areas, which is focused on:

1. Conducting remote sensing analytical work on key attributes of ecosystem services within current sensitive areas
2. Collaborating with researchers to assess data for these attributes
3. Exploring valuation modeling

In addition to this research, the company is using the Ecosystem Services Review (ESR) tool as the first step in framing internal issue identification discussions and analyses prior to launching into more detailed environmental, social, and health impact assessments.

Overall, the corporate representatives overseeing this work assert that the process of beginning to apply ecosystem services concepts within the company has shown that there is a significant need for training to link these new ideas to existing protocols for environmental impact assessment, environmental management, and risk assessment. In response, the company is trying to embed ecosystem services concepts in training so that colleagues understand the concept and can improve assessment of risk and identify solutions for aligning current and new approaches. The work remains preliminary because the company is determining whether, at an operational level, ecosystem services assessments will be simple, useful, and accurate.

A different company that is also focused on sensitive areas, particularly near national parks, asserts that the issue is one not just of leadership but also about license to operate and the rights of indigenous persons, both of which lead to a high standard for operating and often restoration during and after operations. Corporate managers assert that this operating context will ultimately lead to the need to define ecosystem services at key sensitive sites. They will need to determine how to undertake operations differently given the impacts on and indigenous peoples' dependencies on ecosystem services.

## Accelerating Progress on Ecosystem Services

Even as companies perceive the growing business case for integrating ecosystem services issues into corporate governance, strategy and/or operations, the challenge is how to take action. The set of corporate experiences and applications to date highlights many unanswered questions. For instance, there are not yet widely agreed-upon coherent guidelines on specific indicators to track, measure, and assess findings, ideally in a way that maps to existing corporate environmental assessment processes and protocols (e.g., EIAs, LCAs, etc.). In addition, companies lack direction on how to prioritize some ecosystem services over others, particularly in cases where key stakeholders disagree about priorities. Most documents published in recent years have provided conceptual approaches, but specific operational guidance is still very much in development as the field continues to grow and mature.

In response to these gaps, more and more players have stepped in. For example, the oil and gas industry has developed detailed checklists for ecosystem services issues during various stages of a project's life cycle. World Resources Institute (WRI) is creating a tool specifically for integrating ecosystem services into impact assessments. The IFC is working on the details of applying its performance standard related to ecosystem services, which will have implications for the due diligence processes of banks that have adopted the Equator Principles.

Ultimately, the key to integrating ecosystem services into environmental management will be demonstrating how this work would contribute to project managers' goals of delivering projects on time and in budget. The easier it is for companies to integrate new measures or approaches into existing processes, the more likely that integration is to happen.

All of these issues contribute to a tone of caution among business representatives who discuss ecosystem services, especially given the challenge of working in multiple global locations with poor ecosystem services data and diverse stakeholders with a wide range of values, interests, and priorities.

To integrate ecosystem services into decision making, different sectors will need to answer a number of questions, as detailed in the table below.

| Sector | Unanswered Questions |
|---|---|
| Multilateral organizations, NGOs, and scientists | » What is the agreed-upon understanding of terms and dynamics among the following: ecosystem services, natural capital, natural value, green infrastructure, biodiversity, and sustainability?<br>» How will the monitoring of key flows of ecosystem services occur? Who will undertake this, what methodological protocols will be used, and at what cost?<br>» Who will catalogue and track the existing methodological protocols for various ecosystem services that exist or are being developed (e.g., within the U.S., is it the U.S. Geological Survey, U.S. Environmental Protection Agency, and U.S. Department of Agriculture)?<br>» Are there "surrogates" for some ecosystem services, especially supporting services, that could serve as indicators of change? |
| Policy makers | » Will stand-alone policy or regulation be adopted, or will it be integrated into existing regulatory frameworks? If so, how will alignment occur? In what countries?<br>» Will ecosystem services be addressed in land use planning?<br>» Will ministries of finance begin to consider and integrate ecosystem |

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| | services terms and approaches? If so, where and how?<br>» What ecosystem services indicators may inform public policy from a national wealth accounting perspective?<br>» What are the boundaries of responsibility of various players with respect to impacts on ecosystem services? |
| Financial services organizations | » To what extent will the new IFC Performance Standards that name ecosystem services significantly change investor due diligence processes and outcomes around the world?<br>» What is "enough" information, in light of the systems approach that is being taken? |
| Business | » How would a company apply ecosystem services concepts? At what point in a project's life cycle would a company apply these concepts? At what level of detail and at what cost?<br>» How will current processes such as ESIAs be changed to include ecosystem services? |

The question is how ecosystem services concepts will continue to evolve into an emerging domain of application in the coming years. They will likely continue to expand in importance as multiple sectors begin to consider landscapes and broader ecosystems upon which business and society relies.

Given this context, which can be characterized as more "populated" than ever before, but still very much emergent, BSR has identified three priorities for development to achieve progress more quickly:

1. **Document corporate applications of ecosystem services concepts in decision-making processes.** This documentation would ideally show the relevance and value of ecosystem services to businesses as well as *how* to apply the concept in corporate settings and what it will cost.

2. **Synthesize lessons learned from corporate applications.** While many companies remain in a quiet, exploratory mode, there is an ongoing need for trusted independent analysts to document, synthesize, and disseminate lessons learned to date, particularly highlighting what is working and what is not.

3. **Update, maintain, and manage knowledge related to corporate applications of ecosystem services concepts.** This knowledge might include details on advances in ecosystem services science, credible available data sets for specific geographies, reliable tools for particular applications, and case studies.

Ideally, work on ecosystem services will focus on some of these key areas. This strategy would enable companies to draw from a growing body of work on how systematic consideration of ecosystem services can spark more innovation and effective on-the-ground action to maintain and restore the natural infrastructure we all rely on.

# Appendix: Illustrative Corporate Activities Related to Ecosystem Services

| **Company** *(in alphabetical order)* | **Type of Engagement** *(governance and policy, strategy, or operations)* | **Description of Activities** | **Source(s) and More Information** | **Partners** |
|---|---|---|---|---|
| AkzoNobel | Operations | **"The Ecosystem Services Review (ESR) is now one of the sustainability tools available for use in the BU [business unit] strategy process."** | http://report.akzonobel.com/2010/ar/sustainability/stakeholderactivity.html?cat=h<br><br>www.akzonobel.com/system/images/AkzoNobel_Position_Statement_Biodiversity_and_Ecosystems_tcm9-15743.pdf | World Business Council for Sustainable Development (WBCSD), World Resources Institute (WRI), and Cranfield University |
| American Electric Power (AEP) | Operations | " 'Ecosystem services' is a term that refers to the concept that people receive "services" from healthy, functioning ecosystems. The electric power industry may also benefit from these ecosystem services, but we do not fully understand what services we rely on, what services our operations may impact, or the economic consequences if those services were no longer provided by nature. AEP is working with the Electric Power Research Institute [EPRI] and other research organizations **to help us understand the role of the electric power industry in using and protecting ecosystem services."** | www.aepsustainability.com/ourissues/envperformance/biodiversity.aspx | EPRI and Wildlife Habitat Council |
| Barrick Gold | Governance and policy | "Barrick's **Biodiversity Standard**, developed in 2009, formalizes our stewardship activities and environmental management strategy. It **requires us to integrate biodiversity into project planning and decision making, to assess the direct and indirect impacts of new projects (and expansions of existing projects) on ecosystem services** to design projects that avoid potentially significant impacts on biodiversity, to exploit opportunities to protect and enhance biodiversity, to consult with stakeholders, and to engage in partnerships that address scientific and practical challenges relating to biodiversity protection or enhancement. The standard applies from exploration through mine closure with the goal of no net loss to biodiversity. The standard is now being implemented across the company. In 2011, several operations are participating in a pilot project designed to test the standard. The goal of the pilot project is to determine if the guidance is an effective tool for our operations to fully implement the standard." | http://barrickresponsibility.com/2010/en/environment/biodiversity.html | BSR |

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| BC Hydro | Governance and policy | "**The [Fish & Wildlife Compensation] program [FWCP] has a forward-looking, ecosystem-based approach** that defines the desired outcomes and takes actions **to restore, enhance, and conserve priority species and their habitats.** Working together with First Nations and local community and environmental groups, the FWCP has invested more than $100 million in more than 700 projects that conserve and enhance fish, wildlife, and their supporting habitats affected by BC Hydro-owned and -operated generation facilities." | www.bchydro.com/about/three_bottom_lines/environmental_policy.html<br><br>www.bchydro.com/about/our_commitment/compensation_programs.html | Fisheries and Oceans Canada |
| BP | Operations | "We require our businesses to **screen for potential impacts on ecosystem goods and services as part of the screening process for new businesses and projects.** BP continues working to further understand its impact and dependencies on ecosystems, recognizing that we not only have an impact on the services which ecosystems provide but also in many instances rely on them. We are also trying to understand the opportunities that an ecosystem services approach may bring to enhance sustainable business development and natural ecosystems."<br><br>From *Ecosystem Marketplace:* "BP's Cherry Point refinery in the U.S., for example, used an ecosystem services approach that restores an environmental asset to compensate for a future environmental loss as part of the permitting process for a facilities relocation project. Specifically, it built a water retention pond and drainage system to compensate for the loss of the natural services previously provided by the undeveloped land." | www.bp.com/sectiongenericarticle800.do?categoryId=9036333&contentId=7067124<br><br>www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=7590&section=home | IPIECA and the International Association of Oil and Gas Producers (OGP), BSR, Cambridge Natural Capital Leaders Platform |
| Coca-Cola | Governance and policy | "Because we depend on local water supplies, understanding watersheds and how they work is extremely important to our business. We have **developed plant-level training and management tools** to help local employees and our bottling partners understand watershed issues and engage with communities, governments, and conservation organizations to manage them." Part of the project involved payments for watershed services in Tanzania. | www.thecoca-colacompany.com/citizenship/watershed_protection.html | WWF (World Wildlife Fund) and U.S. Agency for International Development (USAID) |
| The Dow Chemical Company | Strategy | **"**Over a five-year period, **The Nature Conservancy will work with Dow to help our company manage the economic and ecosystems value of our resources.** TNC will provide technical support, strategic counsel, and comprehensive evaluations as **Dow incorporates the value of nature and biodiversity into its companywide goals and plans.** Dow will invest [US]**$10 million** in these efforts. We believe it is a sound investment—one that will bring real returns to our company and our world. And as we advance our efforts on land and water management, biodiversity, and ecosystem services, we will collaborate with TNC to develop a new series of benchmarks for our next generation of Sustainability Goals." | www.dow.com/news/multimedia/media_kits/2011_01_24a/pdfs/Andrew_Liveris_Prepared_Remarks.pdf | The Nature Conservancy (TNC) and BSR |

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| Eni | Operations | "Eni considers the conservation of biodiversity and ecosystems an essential component of the way it manages its activities . . . **Eni identifies and evaluates all potential impacts from its operations on species, habitats, and ecosystems.** At a local level, Eni supports initiatives that combine the protection of biodiversity and ecosystems with opportunities for the development of local communities, building an awareness of the issues in the territory with dedicated initiatives. Eni is **mapping operating sites with respect to areas with a high level of biodiversity and presence of ecosystem services** with a view to differentiating operations on the basis of their relevance to such environmental considerations and to prioritize the implementation of Biodiversity Action Plans. In 2010, **biodiversity and ecosystem services issues were integrated into the new ESHIA standards** for the evaluation of the environmental, social, and health impacts **to be implemented in all new development projects."** | www.eni.com/en_IT/sustainability/communities/biodiversity-ecosystems/biodiversity-ecosystems.shtml | BSR, WBCSD, International Union for Conservation of Nature (IUCN), and Fondazione Eni Enrico Mattei |
| ExxonMobil | Operations | "ExxonMobil Upstream Research Company funded the **Ecosystem Services Measurement and Assessment Project** with the aim of documenting ecosystem management tools and metrics that may be used in coastal, offshore, and Arctic regions and then determine which tool(s) could be most applicable. This project aims to identify, assess, and recommend remote-sensing technologies and ecosystem services models and methodologies appropriate for the Arctic marine and ice ecosystem." | www.efdsystems.org/Portals/25/XOM%20EcoSys%20Measurement%20Summary%20Final%20release.pdf<br><br>http://www.exxonmobil.com/Corporate/safety_env_biodiversity.aspx | BSR |
| Goldman Sachs | Strategy | "We take seriously our responsibility for environmental stewardship and believe that as a leading global financial institution we should play a constructive role in helping to address the challenges facing the environment. To that end, we will work to ensure that our people, capital, and ideas are used to help find effective market-based solutions to address climate change, ecosystem degradation, and other critical environmental issues, and we will seek to create new business opportunities that benefit the environment. We will evaluate opportunities and, where appropriate, **encourage the development of and participate in markets for water, biodiversity, forest management, forest-based ecosystems, and other ecosystem features and services."** | www2.goldmansachs.com/citizenship/environment/environmental-policy-framework.pdf<br><br>www2.goldmansachs.com/citizenship/environment/center-for-environmental-markets/index.html | |
| Hitachi | Operations | " . . . **utilizing the Corporate Ecosystems Services Review (ESR) to assess the business activities of the Hitachi Group that are associated with ecosystems.** One of the projects is to look at the production of the electronic materials (copper-clad laminates) produced in Japan and determine the impact of the business on the ecosystem. By utilizing ESR, the Hitachi Group will be able to develop innovative and sustainable environmental strategies." | www.hitachi.com.sg/about/activities/eco_conference/2010/presentations/index.html<br><br>www.hitachi.com/csr/environment/index.html | WBCSD |

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| Lafarge | Operations *(for quarry siting and rehabilitation)* | "Our use of these resources can affect biodiversity and ecosystems, directly or indirectly throughout the life cycle of a quarry. We consider that our extractive activities are compatible with biodiversity protection; we believe that, with proper planning and rehabilitation, we can in some places make a net positive contribution to biodiversity conservation and ecosystems management**,** and thus protect our long-term resources . . . Mainstreaming ecosystem considerations into business is increasingly important as a way of addressing the challenges of a resource-constrained world; we are **contributing to further development of effective tools for valuing ecosystem services."** | www.lafarge.com/04292011-sustainable_development-public_position-2010-uk.pdf | WBCSD |
| Mead Westvaco (MWV) | Strategy | "MWV is a leader in ecosystem-based, multiple-use, stewardship-oriented forestry. Our **Ecosystem-Based Forestry** approach uses multiple management zones, with each zone having one primary and numerous secondary functions. In determining these zones, our forest managers consider water quality, site productivity, wildlife habitat, visual quality, biodiversity, and the need to protect areas of special significance." | www.meadwestvaco.com/Stewardship Sustainability/FiberSourcing/EcosystemBasedForestry/index.htm | Conservation International and TNC |
| Mondi | Operations | "Mondi acknowledges that its business and ecosystem services are inextricably linked. Not only do we have an impact on ecosystems and their regulatory (climate regulation, flood control, and waste disposal) and provisioning services (freshwater, fiber, and food), but we also depend on them. There is increasing global focus on ecosystems and the economic value and importance of their services . . . Mondi's operations and their impacts on biodiversity are monitored to make sure that we minimize any negative impacts on soil and water resources, and that we safeguard functioning ecosystems. The group has been involved in some of the early, pioneering work on ecosystems—playing a key role in wetland, grassland, and HCV [High Conservation Value] ecosystems." Activities include: (1) **developing ecosystem management plans** for forestry operations in South Africa and Russia and (2) **managing ecosystems and biodiversity in company-managed forests.** | www.mondigroup.com/desktopdefault.aspx/tabid-1745/ | WBCSD |
| Puma | Operations | **"**PUMA has **published an economic valuation of the environmental impacts caused by GHG emissions and water consumption along its value chain**. Ultimately, PUMA's undertaking will see the inclusion of further environmental key performance indicators in Stage 1, followed by social and economic impacts in later stages of development . . . By identifying the most significant environmental impacts, PUMA will develop solutions to address these issues, consequently minimizing both business risks and environmental effects . . . The first results of PUMA's E P&L [environmental P&L] have revealed that the direct | http://about.puma.com/?p=6644 | |

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| | | ecological impact of PUMA's operations translates to the equivalent of EU€7.2 million of the overall impact valuation. An additional EU€87.2 million falls upon four tiers along the supply chain. In total, this leads to an overall environmental impact of GHG and water consumption of PUMA's operations and the supply chain of EU€94.4 million. By putting a monetary value on the environmental impacts, **PUMA is preparing for potential future legislation such as disclosure requirements.** These costs will serve as a metric for the company when aiming to mitigate the footprint of PUMA's operations and all supply chain levels and will not affect PUMA's net earnings . . . The E P&L statement is a milestone . . . It is an essential tool and a shift in how companies can and should account for and, ultimately, integrate into business models the true costs of their reliance on ecosystem services, and PPR HOME will encourage and collaborate with the industry to adopt this tool," said Jochen Zeitz, Chairman and CEO of PUMA and Chief Sustainability Officer of PPR. | | |
| Rio Tinto | Operations *(for real estate management)* | "We are a major user and owner of land, biodiversity, and water resources. This can present significant risks to our operations when coupled with the changing ecosystem service legislative frameworks. Three of the most significant risks include biodiversity compensation (through offsetting), rights to access and use water, and mitigation and offsetting of our carbon emissions. These present both financial and reputation threats but also opportunities for our operations. We are developing a Natural Capital project to **investigate the business case and methodologies** around designing and implementing ecosystem service offsets and investments in nonoperational land based assets." | www.riotinto.com/ourapproach/17214_ecosystems_services.asp | IUCN, WRI, and WBSCD |
| Shell | Operations | " . . . **set up and lead an ecosystems services working group** . . . [to] help Shell to assess its potential impact on ecosystems and identify how it relies on ecosystem services. The group will also explore the potential risks of ecosystem degradation and the opportunities of integrating an ecosystems approach into project design and impact assessment." | www.shell.com/home/content/environment_society/environment/biodiversity/biodiversity_experts/ | IUCN, Wetlands International, TNC, Earthwatch, Energy & Biodiversity Initiative (EBI), and BSR |
| Sony | Operations (*for water use)* | "Sony benefits from ecosystem services in the implementation of various business activities. At the same time, Sony recognizes that these same business activities exert an impact on the natural environment. To help keep balance among all life-forms on the planet, business activities with conservation of the natural environment, **Sony is working to maintain and recover biodiversity both from its business and social contribution activities, thereby protecting the ecosystem services** and ultimately benefiting from their sustainable use."<br><br>"Kumamoto—home to Sony Semiconductor Kyushu Corporation's | www.sony.net/SonyInfo/csr/environment/biodiversity/index.html | |

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| | | Kumamoto Technology Center (Kumamoto TEC)—was originally blessed with abundant groundwater resources. However, these resources have diminished sharply in recent years, attributable to a decline in the amount of land under cultivation and an increase in land used for residential purposes. Recognizing groundwater as an important ecosystem service—and its own responsibility as a manufacturer that uses significant quantities of water in the fabrication of semiconductors—Kumamoto TEC has been working since 2003 with local residents, an environmental NGO, agricultural organizations and agricultural cooperatives to improve groundwater recovery, thereby replenishing groundwater in neighboring rice paddies. This is accomplished by filling nearby paddy fields with water pumped from rivers prior to summer and fall plantings and after harvesting, causing the water to penetrate into the soil and ultimately return to the aquifer. Such practices are referred to as **Payment for Ecosystem Services (PES)** and are recognized as playing a key role in efforts to protect biodiversity. In fiscal year 2009, Kumamoto TEC replenished approximately 2.26 million cubic meters of groundwater." | | |
| Syngenta | Operations | "Since 2008, Syngenta has applied the ESR in geographic regions and corporate departments for new products and services. The sustainability department has adopted ecosystem services as an **organizing concept for decision making**." | www.wbcsd.org/web/projects/ecosystems/Syngenta_with_notes.pdf<br><br>www2.syngenta.com/en/media/positionstatements_full.html | WRI, Earthwatch, and WBCSD |
| The Walt Disney Company | Governance and policy | "Healthy ecosystems provide many benefits to Disney and the communities in which we work and live. We are developing an ecosystem management **strategy designed to deliver a net positive impact on ecosystems**. As part of this strategy, ecosystem impacts are first identified during the design-review process of new building projects. Then, habitat and restoration solutions are developed to avoid, minimize or mitigate those impacts. Finally, a set of sustainable design solutions are evaluated for potential implementation.<br><br>*Long-term goal:* Have a net positive impact on ecosystems<br>*Targets:*<br>(1) Develop and implement an integrated approach to design, engineering, and habitat protection for all new construction projects.<br>(2) Increase the level of support from the Disney Worldwide Conservation Fund each year for the next five years." | http://corporate.disney.go.com/citizenship2010/environment/overview/ecosystems/ | WWF, WRI, and BSR |
| Veolia Environment | Governance and policy | " . . . **initiated cooperation with the economic research laboratory** of the University of Columbia, New York (Center for Energy, Marine Transportation, and Public Policy, CEMTPP) **on the subject of economic applications of ecosystem services."** | www.veolia.com/en/medias/focus-on/biodiversity.htm | French Institute of Biodiversity, CEMTPP, and WBCSD |

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| Vittel (Nestlé Waters) | Operations | "A **Payments for Ecosystem Services program was developed and implemented** by Vittel (Nestlé Waters) in northeastern France. In order to address the risk of nitrate contamination caused by agricultural intensification in the aquifer, Nestlé Waters is financing farmers in the catchment to change their farming practices and technology." | http://pubs.iied.org/pubs/pdfs/G00388.pdf | Numerous (see source for details) |
| Weyerhaeuser | Strategy | "Weyerhaeuser manages forests for wood production as well as the ecosystem services they provide. These include clean air and water, habitat for fish and wildlife, and sites of cultural, historical, and scenic importance."<br><br>Goals: "**Maintain or enhance the ecosystem services provided by our Timberlands**" and "increase revenues from ecosystem services and Weyerhaeuser Solutions business." | www.weyerhaeuser.com/Sustainability/Planet/SustainableForestManagement<br><br>www.weyerhaeuser.com/Sustainability/Planet/SustainableForestManagement/SustainableForestryPolicy | WBCSD |