



Private Sector Uptake of Ecosystem Services Concepts and Frameworks

The Current State of Play

March 2013



About This Report

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Contents

4 Introduction

6 Current Corporate Activity and Trends

- Trend 1: A business case for action on ecosystem services is emerging within some industries.
- Trend 2: Corporate applications of ecosystem services concepts span the gamut of business decision types—from governance through strategy and operations.
- Trend 3: Moving from ecosystem services concept to action remains a challenge, due to relatively little corporate testing and sharing of effective approaches and tools.
- Trend 4: Many corporate managers' preliminary conclusions about ecosystem services assessments are that they generate insights, particularly around business dependencies that may be at risk within a changing climate.

11 Pathways Forward

12 Appendices

- Appendix 1: Corporate Activity Related to Ecosystem Services
- Appendix 2: Research Design and Methods
- Appendix 3: 2011 Semi-Structured Interview Questions
- Appendix 4: 2012 Survey Questions for Private Sector Representatives
- Appendix 5: 2012 Survey Questions for Public, NGO, Multilateral, and Academic Representatives

Introduction

Thirty-five companies now mention ecosystem services in publicly available materials. Corporate engagement with the issue is clearly on the rise. This report offers the first state of play on corporate ecosystem services work.



Ecosystem services are a core element of business infrastructure—so fundamental that they have been often overlooked. These services include protection of coastal areas and key infrastructure, such as harbors, the regulation of reliable and sufficient flows of water, the regeneration of productive soil, and carbon sequestration in plants and soil. Ecosystem services are also essential to about 450 million people whose livelihoods are dependent upon their ongoing flow, as [documented](#) by the Intergovernmental Panel on Climate Change (IPCC).

With thirty-five companies now publicly naming ecosystem services in corporate communications, it is clear that business leaders are beginning to perceive that the issue is important. Corporate work on ecosystem services covers a wide spectrum. Some companies have crafted corporate policies of no net, or net positive, impact on ecosystems or ecosystem services. Other businesses are exploring the issue and pilot testing analytical tools. Yet, others simply state that they recognize the importance of ecosystem services. (For details, please see appendices which include quotations from corporate websites on their ecosystem services work.)

This report offers the world's first summary of emerging trends associated with corporate uptake of ecosystem services concepts. It is based on BSR's primary research, as detailed in the appendices. It is noteworthy that this report does not provide information about verifying or validating corporate claims. Rather, it documents how companies are describing their work on ecosystem services—in their own words. In this sense, it offers a snapshot of how companies are describing initiatives on ecosystem services and what trends BSR perceives based on this self-reporting, as well as our ongoing [research](#). As an output from BSR's [Ecosystem Services Working Group](#) (ESWG), this report responds to corporate members' requests for BSR to provide an understanding of the private sector's current activity on this issue. It draws on insights from 2011 and 2012 research by BSR's ESWG, as described in the research methods section in the appendices. Our intent is to offer new intelligence on the state of play around corporate engagement with ecosystem services concepts around the world.

Ecosystem Services Defined

Ecosystem services are the benefits that functioning ecosystems provide to people. Humans realize these benefits in terms of factors that contribute to personal health, jobs, and safety. The 2005 Millennium Ecosystem Assessment (MEA) organizes ecosystem services into four overarching categories:

- » **Provisioning services:** Goods or products produced by ecosystems (e.g., food, freshwater, wood, fiber, etc.).
- » **Regulating services:** Natural processes regulated by ecosystems (e.g., regulations concerning climate, food, or disease; water purification; etc.).
- » **Cultural services:** Nonmaterial benefits obtained from ecosystems (e.g., aesthetic, spiritual, educational, recreational, etc.).
- » **Supporting services:** Functions that maintain all other services (e.g., nutrient cycling, soil formation, primary production, etc.).

Source: Millennium Ecosystem Assessment. 2005. <http://www.unep.org/maweb/>



“Ecosystems are not only important in their own right, but they also provide essential services to human populations. Provisioning services supply food, water, minerals, medicines, construction materials, and fibers. Regulating services control climate, irrigation, disease vectors, and wastes. Cultural services interact with human spirituality and provide recreational, artistic, and aesthetic benefits. Supporting services refer to assistance with nutrient cycles and crop pollination.”

Source: Cameron, Edward. 2011. “Human Rights and Climate Change: Moving from an Intrinsic to an Instrumental Approach,” in *Georgia Journal of International and Comparative Law*. Volume 38: 673-716.

Current Corporate Activity and Trends

Thirty-five global companies state in publicly available materials that they are working on ecosystem services issues. (For the full list and details, as per publicly available information, please see Appendix 1.)

This corporate work can be synthesized into a few trends, including:

Trend 1: A business case for action on ecosystem services is emerging within some industries.

Based on BSR's research (as described in the appendices), it is clear that within some companies in select industries—such as oil and gas, mining, chemicals, entertainment, and tourism—there is now a business case for exploration of, and in some cases action on, ecosystem services issues based on:

- » **Investors' and NGOs' work**, such as the World Bank's International Finance Corporation ([IFC](#)) and the 79 [Equator Banks](#) that now include ecosystem services in due diligence processes;
- » **National governments' interest in the issue**, around the world, as documented in a 2013 BSR [report](#), and/or
- » **Internal corporate culture of sector leadership** and the desire to maintain an industry leader.

A growing number of corporate representatives state that they see biodiversity and ecosystem services as their next set of issues to address, following on, and related to, carbon and water.

Trend 2: Corporate applications of ecosystem services concepts span the gamut of business decision types—from governance through strategy and operations.

The span of corporate efforts related to ecosystem services is quite broad. A sampling of the different applications that companies are exploring is summarized in Table 1.

Table 1. Corporate Applications of Ecosystem Services Approaches

Private Sector Application	Example
Corporate strategy	AkzoNobel
Corporate accounting	PUMA The Dow Chemical Company
Project siting and development	Shell The Walt Disney Company
Environmental and social impact assessments (ESIAs)	BP
Land management	Lafarge Mead Westvaco
Payments for ecosystem services	Rio Tinto Vittel (Nestlé Waters) Goldman Sachs
Supply chain management	British American Tobacco
Corporate performance reporting	Weyerhaeuser

Corporate environmental management	Coca-Cola Hitachi
Risk assessment	Anglo American EDP Rabobank
Stakeholder engagement	Holcim
External collaboration and partnerships	Dow and The Nature Conservancy, American Electric Power and the Wildlife Habitat Council

Note: Please see Appendix 1 for details and citations, including URLs.

Details on illustrative applications are listed in Table 2 below.

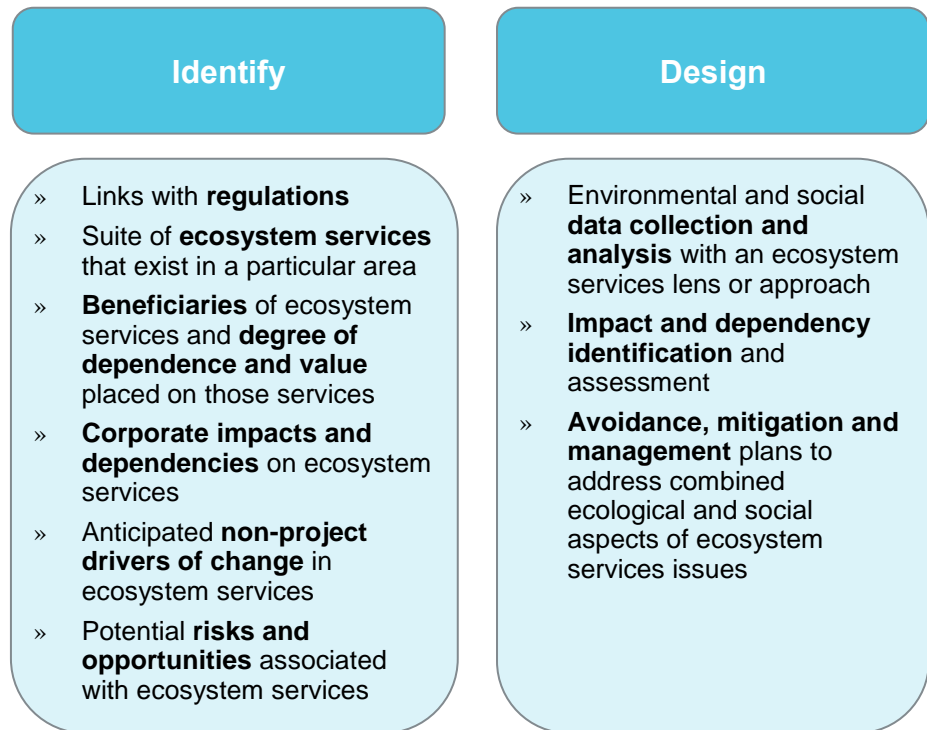
Table 2. Corporate Applications of Ecosystem Services Concepts

Business Application	Details
Real estate management	<ul style="list-style-type: none"> » Assess “idle” lands in terms of what ecosystem services exist and can be restored, with conservation value used to communicate the value that can be realized. » Prioritize selection of lands for restoration and assess how to efficiently allocate resources.
Corporate finance	<ul style="list-style-type: none"> » Factor ecosystem services opportunities and risks into decisions about potential mergers, acquisitions, major investments, and new project development.
Corporate strategy	<ul style="list-style-type: none"> » Define and embody environmental leadership by applying an ecosystem services approach and conducting an assessment of impacts and dependencies. » Support brand value, and differentiate from competitors.
Supply chain management	<ul style="list-style-type: none"> » Assess potential for supply chain disruption due to future changes in flows of ecosystem services, as a result of climate change, or land management practices on adjacent lands. » Analyze parts of the supply chain to identify quantifiable impacts and dependencies on ecosystem services.
Product life-cycle assessment (LCA)	<ul style="list-style-type: none"> » Assess how life-cycle stages could affect biodiversity and ecosystem services.

Note: Please see Appendix 1 for details and citations, including URLs.

While some companies are integrating ecosystem services concepts at an overarching corporate decision-making process level, others are applying the ideas and analytical approaches to specific activities, such as expanding their ESIAs processes (see Figure 1).

Figure 1. *Current Corporate Applications of Ecosystem Services*



Trend 3: **Moving from ecosystem services concept to action remains a challenge**, due to relatively little publicly available information on corporate testing of effective approaches and tools.

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

The challenge facing corporate managers is the lack of widely agreed-upon, coherent guidelines on specific indicators to track, measure, and assess ecosystem services impacts and dependencies—ideally in a way that maps to existing corporate environmental assessment processes and protocols (e.g., ESIAAs, LCAs, etc.). In addition, the private sector lacks direction on how to consider trade-offs and how to factor in stakeholder requests to prioritize some ecosystem services over others, particularly in cases where key stakeholders disagree about priorities. Specific, private-sector-tailored operational guidance is still very much in development as the field’s business applications continue to emerge.

In response to these gaps, more and more players have stepped into the arena. For example, IPIECA has developed detailed [checklists](#) for ecosystem services issues during various stages of an oil and gas project’s life cycle. The World Resources Institute (WRI) is creating an [approach](#) for integrating ecosystem services into impact assessments. The IFC is working on the details of applying

its performance standards (PS) related to ecosystem services, including [PS6](#), which also is now integrated into the due diligence processes of banks that have adopted the [Equator Principles](#). Academics, environmental consulting firms, multi-lateral organizations, and other NGOs have developed numerous tools for use in decision-making processes. (For details on metrics and tools, please see BSR's [2013 report](#) entitled "Measuring and Managing Corporate Performance in an Era of Expanded Disclosure: A Review of the Emerging Domain of Ecosystem Services Tools.")

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

All of these issues contribute to a tone of caution among many business representatives who discuss ecosystem services, especially given the challenge of working in multiple countries around the world with relatively little available ecosystem services data and diverse stakeholders who hold a wide range of values, interests, and priorities. Significant forward movement on the integration of ecosystem services into decision making is likely contingent, in part, upon different sectors answering a number of questions, as detailed in the table below.

Table 3. Questions Regarding the Integration of Ecosystem Services into Decision Making

Sector	Unanswered Questions
Multilateral organizations, NGOs, and scientists	<ul style="list-style-type: none"> » What is the agreed-upon understanding of terms and dynamics among the following: ecosystem services, natural capital, natural value, green infrastructure, biodiversity, and sustainability? » How will the monitoring of key flows of ecosystem services occur? Who will undertake this task, what methodological protocols will they use, and at what cost? » Who will catalogue and track the existing methodological protocols for various ecosystem services (e.g., within the United States, is it the U.S. Geological Survey, U.S. Environmental Protection Agency, and U.S. Department of Agriculture, within Europe the European Environment agency, or on a global scale the Intergovernmental Platform on Biodiversity and Ecosystem Services or IPBES)? » Are there "surrogates" for some ecosystem services, especially supporting services, which could serve as indicators?
Policy makers	<ul style="list-style-type: none"> » In what countries will there be definitive policy action on ecosystem services? » Will ministries of finance begin to consider and integrate ecosystem services terms and approaches? If so, where and how? » What ecosystem services indicators may inform public policy from a national wealth accounting perspective? » Will stand-alone policy or regulation be adopted, or will it be integrated into existing regulatory frameworks? If the former occurs, how will alignment occur? » Will ecosystem services be addressed in land-use planning? » What are the boundaries of various players' responsibility with respect to impacts on ecosystem services?

Financial services organizations	<ul style="list-style-type: none"> » To what extent will the new IFC Performance Standards that name ecosystem services significantly change investor due diligence processes and outcomes around the world? » How much information is enough in light of the systems approach that is core to ecosystem services assessments?
Business	<ul style="list-style-type: none"> » How would a company apply ecosystem services concepts? At what point in a project's life cycle? At what level of detail and at what cost? » How will current processes, such as ESIA's, be changed to include ecosystem services?

Trend 4: Many corporate managers' preliminary conclusions about ecosystem services assessments are that they generate insights, particularly around business dependencies that may be at risk within a changing climate.

In BSR's 2011 and 2012 research, numerous corporate managers asserted that an ecosystem services assessment has the potential to yield new insights relative to existing approaches to conducting environmental and social impact assessment. Specifically, corporate representatives reported in interviews that ecosystem services assessments have already drawn attention to:

- » *Operational dependencies* on ecosystem services;
- » *Potential supply chain risks* associated with cumulative impacts on key ecosystem services upon which suppliers rely, and
- » *Threats to local stakeholder livelihoods*, particularly in highly natural resource-dependent economies and rural areas.

Yet, corporate managers felt that the most fruitful applications of ecosystem services frameworks in private sector settings are still being identified through pilot testing. In addition, the difference between ecosystem services approaches and the insights that they generate, relative to existing corporate environmental assessment processes, remains to be fully assessed.

Overall, private sector experience with ecosystem services concepts and analytical tools remains emergent. In addition, numerous business critics remain, such as corporate interviewees who stated that the concept and current approaches offer little that is new to well-developed sustainable business initiatives, such as within the agricultural or forestry domains. Uptake within these sectors is likely contingent upon showing the difference between current practices, particularly around sustainable agriculture and sustainable forestry, and ecosystem services approaches.

Pathways Forward

BSR has identified three priorities for accelerating progress within the private sector:

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 at what cost in terms of undertaking ecosystem services assessments at various scales.
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 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 applications in the private sector will focus on these key areas and provide businesspeople with the insights that they need to justify more widespread and in-depth work on the topic. This research would enable companies to draw from a growing body of material on how systematic consideration of ecosystem services can spark innovation and effective on-the-ground action to maintain and restore the natural infrastructure upon which we all rely.

Appendix 1: Corporate Activity Related to Ecosystem Services

In order to provide a snapshot of how companies are engaging with ecosystem services concepts and analytical approaches, the table below categorizes each activity as follows:

- » Governance and Corporate Policy: Mandatory company-wide policy, management approach, or measurement and reporting system addressing ecosystem services.
- » Strategy: Incorporating ecosystem services into corporate business models or as a key component of revenue generation.
- » Operations: Utilizing ecosystem services to inform decisions at the site and/or business-unit level.

Company	Type of Engagement (governance, strategy, and/or operations)	Description of Activities	Source and More Information	Partners
AkzoNobel	Governance and Operations	<p>2010: “The <u>Ecosystem Services Review ESR</u> is now one of the sustainability <u>tools available for use in the BU strategy process.</u>”</p> <p>2011: “We continue to be involved in the IUCN Leaders for Nature program in the Netherlands. During 2012, we will work together with peer companies on a so-called <u>Inspirational program on ecosystems.</u>”</p>	<p><i>Policy statement:</i> www.akzonobel.com/system/images/AkzoNobel_Position_Statement_Biodiversity_and_Ecosystems_tcm9-15743.pdf</p> <p>2010: http://report.akzonobel.com/2010/ar/sustainability/stakeholderactivity.html?cat=h</p> <p>2011: http://report.akzonobel.com/2011/ar/servicepages/search.php?q=ecosystem&pageID=19162&cat=b</p>	World Business Council for Sustainable Development (WBCSD), World Resources Institute (WRI), and International Union for Conservation of Nature (IUCN)
American Electric Power (AEP)	Operations	<p>“AEP, in conjunction with EPRI, is <u>assessing the ecosystem service tradeoffs associated with different land-use management scenarios.</u> EPRI is conducting the study at the 60,000-acre ReCreation Land site in east-central Ohio, which is <u>former AEP surface-mined land that has been reclaimed and converted to recreational use.</u> In 2002, EPRI conducted a detailed assessment of the ReCreation lands to consider possible revenue from developing environmental ‘eco-asset’ credits on the site. Now, nearly 10 years later, the concepts around ecosystem services are gaining new attention, making it worth taking a more rigorous look at this concept to understand ecosystem services at this and other AEP properties.”</p>	<p>www.aepsustainability.com/ourissues/envperformance/biodiversity.aspx</p> <p>www.aep.com/environmental/recreation/recland/</p>	Electric Power Research Institute (EPRI) and Wildlife Habitat Council
Anglo American	Operations	<p>“Anglo American is using a <u>high-level risk assessment tool</u> that was developed by an environmental NGO and considers biodiversity and ecosystem services risks and opportunities at a site level to inform global level understanding of high-risk or opportunity sites.”</p>	<p>www.angloamerican.com/development/case-studies/environment/environment03</p> <p>www.naturalvalueinitiative.org/content/001/case_studies.php?id=032</p>	Fauna & Flora International (FFI)

AngloGold Ashanti	Operations	<p>“Ecosystem services, especially biodiversity services, are coming under the spotlight in many countries . . . In 2011, we continued to refine our <u>draft biodiversity management standard</u> which will be applied to set an internal standard and common performance expectations. The standard will be finalized in 2012.”</p> <p>Ecosystem services are also referenced in a restoration case study from South Africa.</p>	<p>www.aga-reports.com/11/sustainability-report/context-and-strategy/sustainability-journey</p> <p><i>Case study (South Africa):</i> www.anglogold.com/subwebs/informationforinvestors/reporttosociety04/values_business_principles/environment/e_cs_sa_7_11.htm</p>	BSR
Barrick Gold	Governance and Operations	<p>“Barrick’s Biodiversity Standard, developed in 2009, formalizes our stewardship activities and environmental management strategy. <u>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</u>, 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.”</p> <p>“In 2011, several operations participated in a pilot project designed to test the Standard’s Implementation Guidance. The goal of the pilot project was to determine if the guidance section of the standard is an effective tool to allow our operations to fully implement the standard. The pilot project is still underway and the guidance document is undergoing final revision. <u>It will be introduced to our operations, along with conservation data tools and training, in 2012.</u>”</p>	<p>http://barrickresponsibility.com/2011/environment/biodiversity</p>	BSR
BC Hydro	Governance and Operations	<p>“BC Hydro’s environmental priority is to <u>achieve no net incremental environmental impact</u> by 2024 when compared to 2004.”</p> <p>“The [Fish & Wildlife Compensation] program has a <u>forward-looking, ecosystem-based approach</u> that defines the desired outcomes and takes actions to <u>restore, enhance, and conserve priority species and their habitats</u>. Working together with First Nations and local community and environmental groups, the FWCP has invested in 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.”</p>	<p><i>Policy statement:</i> www.bchydro.com/about/sustainability/environmental_responsibility/environmental_policy.html</p> <p><i>Fish & Wildlife Compensation Program:</i> www.bchydro.com/about/our_commitment/compensation_programs.html</p>	Fisheries and Oceans Canada
BG Group	Operations	<p>“Ecosystem services—the beneficial and diverse resources and processes supplied by natural ecosystems—are becoming increasingly important in environmental policy making, for industry and for BG Group . . . In 2011, we initiated a program of work to <u>build our understanding of ecosystem services</u> and how they can be applied to our business.”</p>	<p>www.bg-group.com/sustainability11/Environment/Pages/Biodiversity.aspx</p>	BSR and IPIECA

BHP Billiton	Governance and Operations	<p>“Throughout the life cycle of our activities, we assess and manage the potential impacts we may have on ecosystem services, including biodiversity, water, and other land uses. <u>Starting from project inception, we identify, assess, and manage the specific risks to ecosystem services</u>, including biodiversity, water, and other land uses, including those posed by closure of an operation.”</p>	<p><i>Policy statement (p. 41):</i> www.bhpbilliton.com/home/aboutus/sustainability/reports/Documents/2011/BHPBillitonSustainabilityReport%202011.pdf</p>	Conservation International
British American Tobacco	Governance and Operations	<p>“We recognize that we have both an impact and a dependence on biodiversity, through our business operations and use of ecosystem services, such as forest products, soil, and water . . . In order to meet this commitment, <u>we commit to assessing our impacts</u>, i.e., we will identify areas of high biodiversity value and <u>understand our impacts on ecosystem services</u>.”</p> <p><i>British American Tobacco Biodiversity Partnership:</i> “The main thrust in Term 2 has been to adopt a <u>risk-based approach to the management and conservation of biodiversity</u> by British American Tobacco. Biodiversity Risk and Opportunity Assessment (BROA) was adopted as the core tool to drive change. To date, 19 British American Tobacco companies across the globe have completed BROAs and action plans, working with local partner organizations and all have started to implement their plans . . . Term 3 has a sharper focus on the key issues relating to biodiversity and ecosystem services in tobacco-growing and mixed agricultural landscapes and ecosystems. The scope of our activities are focused on the following key themes: landscapes and livelihoods, forests and trees, water, and soil.”</p>	<p><i>Policy statement:</i> www.bat.com/group/sites/uk_3mnfen.nsf/vwPagesWebLive/DO725ECW/\$FILE/mcdMD725KML.pdf?openelement www.batbiodiversity.org/</p>	Earthwatch Institute, FFI, and Tropical Biology Association

BP	Governance and Operations	<p>“Our environmental and social practices, which form part of our operating management system (OMS), set out how our major projects identify and manage environmental and social impacts. Projects implementing our environmental and social practices screen for <u>potential impacts to sensitive or protected areas, endangered species, and ecosystem services as part of the screening process</u> conducted at the early planning stages, prior to accessing an area and beginning work.”</p> <p>“In 2011, BP took part in Tread Lightly, a benchmarking study covering 30 major companies working in the oil, natural gas, or mining industries. The study <u>highlighted opportunities that BP is working on, including the possibility of improving our policy and strategic approach to biodiversity and ecosystem services issues, as well as our use of reporting metrics.</u>”</p> <p>From <i>Ecosystem Marketplace</i>: “BP’s Cherry Point refinery in the United States, for example, <u>used an ecosystems services approach that restores an environmental asset</u> 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.”</p>	<p>www.bp.com/sectiongenericarticle800.do?categoryId=9040202&contentId=7067123</p> <p>www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=7590&section=home</p>	IPIECA, BSR, Natural Value Initiative, and the UNEP World Conservation Monitoring Centre (WCMC)
Coca-Cola	Governance and Operations	<p>“Because we depend on local water supplies, understanding watersheds and how they work is extremely important to our business. We have <u>developed plant-level training and management tools</u> 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.</p>	<p>www.thecoca-colacompany.com/citizenship/watershed_protection.html</p> <p>www.thecoca-colacompany.com/citizenship/community_initiatives/USAID.html</p>	WWF and U.S. Agency for International Development (USAID)
The Dow Chemical Company	Operations	<p>“In January 2011, Dow and The Nature Conservancy announced a breakthrough collaboration to help Dow and the business community recognize, value, and incorporate nature into global business goals, decisions, and strategies. Over the course of five years, Dow and The Nature Conservancy are working together to <u>implement and refine ecosystem services and biodiversity assessment models at three Dow sites</u> around the globe. These sites will serve as “living laboratories” for developing, testing, and <u>implementing scientific and economic methods</u> that can be used by Dow and other companies to improve business practices through conservation.”</p>	<p>www.dow.com/news/multimedia/media_kits/2011_01_24a/</p> <p>www.dow.com/sustainability/change/nature_conservation.htm</p>	The Nature Conservancy and BSR

EDP	Operations	<p>"In Spain, HC Energía continues the work of identifying and making an inventory of habitats and biodiversity existing in the areas of influence of the energy generation centers in order to determine the initial state of these areas and establish management practices and minimize the risks to prevent the occurrence of situations of environmental risk. In 2011, <u>environmental risk assessments</u> (ERA) were performed [at] CH La Barca, [where] the desk work was supplemented by a field campaign to verify the current state of the environment and describe a list of <u>indicators on the state of the ecosystem services</u> provided."</p>	<p>www.edp.pt/en/sustentabilidade/Risco/RiscosAmbientais/Pages/RiscoAmbiental.aspx</p> <p><i>Biodiversity policy (2007):</i> www.edp.pt/en/sustentabilidade/ambiente/biodiversidade/politicadebiodiversidade/Pages/Biodiversidade.aspx</p>	IUCN and WBCSD
Eni	Governance and Operations	<p>"Eni considers the conservation of biodiversity and ecosystems an essential component of the way it manages its activities . . . Eni <u>identifies and evaluates all potential impacts from its operations on species, habitats, and ecosystems</u>. 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 <u>mapping operating sites with respect to areas with a high level of biodiversity and presence of ecosystem services</u> 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, <u>biodiversity and ecosystem services issues were integrated in the new ESHIA</u> [Environmental, Social, and Health Impact Assessment] <u>standards</u> for the evaluation of the environmental, social, and health impacts to be implemented in all new development projects."</p>	<p>www.eni.com/en-IT/sustainability/communities/biodiversity-ecosystems/biodiversity-ecosystems.shtml</p>	BSR, WBCSD, IUCN, and Fondazione Eni Enrico Mattei
ExxonMobil	Operations	<p>"We identify biodiversity protection objectives and consider ecosystem services and exploration activity through our <u>ESHIA process, the preparation of Environmental Management Plans, and our environmental business planning efforts</u>."</p> <p>"ExxonMobil Upstream Research Company funded the Ecosystem Services Measurement and Assessment Project with the aim of <u>documenting ecosystem management tools and metrics that may be used in coastal, offshore, and Arctic regions</u> 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."</p>	<p>www.exxonmobil.com/Corporate/safety_env_biodiversity.aspx</p> <p><i>Study (Arctic ecosystems):</i> www.efdsystems.org/Portals/25/XOM%20EcoSys%20Measurement%20Summary%20Final%20release.pdf</p> <p><i>Case study (Gulf of Mexico):</i> www.sgmsummit.org/schedule/Werner.pdf</p>	BSR
Fibra (Brazil)	Operations	<p>"Fibra is working on improving its management capabilities, by evaluating the potential use of <u>ecosystem services valuation techniques in-house</u>. It is working toward the integration of ecosystem service valuation into the decision-making process, which Fibra believes will improve its business model."</p>	<p>www.guardian.co.uk/sustainable-business/biodiversity-conservation-valuation-ecosystem-services</p>	WBCSD

Freeport-McMoRan	Operations	<p>“To achieve these policy objectives, we and our subsidiaries: . . . Acknowledge that certain areas may have particular <u>ecological, biodiversity, or cultural values</u> as well as development potential and, in such instances, <u>consider these values</u> along with the economic, social, and other benefits resulting from development.”</p> <p>“We continue to engage and participate in workshops and initiatives related to the field of ecosystem services. In 2011, we participated in a <u>benchmarking study of biodiversity and ecosystem services within the extractives sector</u> conducted by the Natural Value Initiative.”</p>	www.fcx.com/envir/envir_bio.htm www.fcx.com/envir/pdf/policies/Envirn/EnvPol_jul07.pdf	BSR and Natural Value Initiative (NVI)
Fujitsu Limited	Governance and Operations	<p>“The recent remarkable deterioration of ecosystems makes conserving biodiversity an urgent necessity to ensure sustainable ecosystem services . . . To achieve that goal, we settled on the Fujitsu Group Biodiversity Action Principles in October 2009. In this, we introduced both (1) pursuing the conservation of biodiversity and the sustainable use of natural resources in business activities and (2) contributing to building a society that ensures the conservation of biodiversity and the sustainable use of natural resources as themes for future efforts. We then established four related action plan items in the Fujitsu Group Environmental Protection Program (Stage VI), which started in FY 2010 . . . We first <u>analyzed how our business activities affected biodiversity and ecosystem services</u> . . . To reduce such impacts, in FY 2010 we constructed the <u>Fujitsu Group Biodiversity (BD) Integration Index</u> as a means of quantitatively evaluating the influences of business activities on biodiversity.”</p>	<p><i>Policy statement:</i> www.fujitsu.com/global/about/environment/approach/biodiversity/ www.fujitsu.com/global/about/environment/biodiversity/conservation/</p>	Biodiversity in Good Company Initiative
Goldman Sachs	Strategy	<p>“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, <u>encourage the development of and participate in markets for water, biodiversity, forest management, forest-based ecosystems, and other ecosystem features and services.</u>”</p>	<p><i>Policy statement:</i> www.goldmansachs.com/citizenship/environmental-stewardship-and-sustainability/environmental-policy-framework/environmental-policy-framework-main-page.html www.goldmansachs.com/citizenship/environmental-stewardship-and-sustainability/environmental-markets/center-for-environmental-markets.html</p>	WRI and Resources for the Future
Holcim	Operations	<p>“Aggregate Industries UK, a subsidiary of Holcim, operates the Ripon City Quarry, in the Yorkshire Dales in England, mining sand and gravel since 1964. As part of legal requirements and its commitment to sustainable development, where relevant the company systematically restores ecosystems as part of its extraction operations . . . <u>Ecosystem valuation was considered as a tool to help identify the restoration option</u> with the greatest benefits to local communities and the region.”</p>	<p><i>Case study (U.K.):</i> www.wbcsdcement.org/index.php/component/docman/doc_download/1214-holcim-esr-and-valuation-usage-uk</p>	IUCN and WBCSD

Hitachi	Operations	<p>“ . . . <u>utilizing the Corporate Ecosystems Services Review (ESR) to assess the business activities of the Hitachi Group that are associated with ecosystems</u>. 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.”</p>	<p>www.hitachi.com.sg/about/activities/eco_conference/2010/presentations/index.html</p> <p>www.hitachi.com/environment/vision/ecosystem.html</p>	WBCSD
Lafarge	Operations	<p>“Mainstreaming ecosystem considerations into business is increasingly important as a way of addressing the challenges of a resource-constrained world; <u>we are contributing to further development of effective tools for valuing ecosystem services</u>.”</p> <p>“The Ecosystem Services Review and Valuation Project enables Lafarge with the WWF’s expertise, to quantify the economic benefit of ecosystem <u>services on company land</u>. Those benefits can then be maximized in land management programs. The results are published and widely communicated to corporate environmental decision makers . . . This project will help ecosystem services review and valuation models become a key future reference for Lafarge’s Land Management Program.”</p>	<p><i>Policy statement:</i> www.lafarge.com/04292011-sustainable_development-public_position-2010-uk.pdf</p> <p>www.lafarge.com/VIDEOS/02252011-Sustainable_Development-Lafarge_WWF_USA-transcript-uk.html</p> <p><i>Case studies:</i> www.wbcsdcement.org/index.php/component/docman/doc_download/1213-lafarge-rehabilitation-of-bamburice-cement-quarries-for-biodiversity-conservation-and-to-provide-oth</p> <p>www.wbcsdcement.org/index.php/component/docman/doc_download/1215-lafarge-cev-at-presque-isle-aggregates-quarry-in-michigan-usa</p>	WBCSD and WWF
Mead Westvaco (MWV)	Operations	<p>“MWV is a leader in <u>ecosystem-based, multiple-use, stewardship-oriented forestry</u>. 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.”</p>	<p>www.meadwestvaco.com/StewardshipSustainability/FiberSourcing/EcosystemBasedForestry/index.htm</p>	Conservation International and The Nature Conservancy
Mondi	Operations	<p>“Our business and ecosystem services are inextricably linked . . . We have been involved in some of the early, pioneering work on ecosystems, playing a key role in the conservation of wetlands, grasslands, and HCV [high conservation value] ecosystems. Activities include: (1) <u>developing ecosystem management plans</u> for forestry operations in South Africa and Russia and (2) <u>managing ecosystems and biodiversity in company-managed forests</u>.”</p>	<p>http://sd-report.mondigroup.com/2011/environmental-performance/responsible-forestry/eco-bio-forestry</p>	WBCSD

Nestlé	Governance and Operations	<p>“Nestlé is committed to developing its business in a way that safeguards natural capital, and in particular biodiversity and ecosystem services . . . Specifically Nestlé commits to: Act as a responsible steward of Natural Capital by supporting our employees to understand and make informed business decisions that will lead to safeguarding of natural capital . . . <u>Identify the value of externalities, both in our direct operations and through our supply chains, and integrate these into our business planning framework</u> . . . Advocate for the elimination of policy instruments (incentives, subsidies, and fiscal measures) that are harmful to natural capital . . . Advocate for the introduction of standards, regulation, and incentives to guide purchasing and investment behavior that reflects the true value of natural capital in decision making.”</p>	<p><i>Policy statement:</i> www.nestle.com/Common/NestleDocuments/Documents/Creating%20Shared%20Value/Environment/Natural%20Capital%20Commitment%20April%202012.pdf www.nestle.com/csv/Environment/biodiversity/Pages/biodiversity.aspx</p>	WCMC, Cambridge Natural Capital Leaders Platform, and WWF
PUMA	Governance	<p>“PUMA has <u>published an economic valuation of the environmental impacts caused by GHG [greenhouse gas] emissions and water consumption along its value chain</u>. 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 . . . The first results of PUMA’s EP&L [environmental profit and loss statement] have revealed that the direct ecological impact of PUMA’s operations translates to the equivalent of €7.2 million of the overall impact valuation.”</p> <p>From <i>The Guardian</i> (Oct. 2012): “Sports giant Puma <u>will next year unveil a coalition of companies</u> that are prepared to develop groundbreaking work on creating an environmental profit and loss account (EP&L). The news comes as Puma chairman, Jochen Zeitz, announced that the company has for the first time taken its EP&L down to a product level, which will demonstrate to consumers what products are more sustainable by putting a price tag on the environmental damage they do.”</p>	<p>http://about.puma.com/?p=6644 www.guardian.co.uk/sustainable-business/blog/puma-scales-up-environmental-profit-loss-product</p>	
Rabobank	Governance	<p>“Rabobank Group believes it is important that clients know which ecosystem services constitute an opportunity or a business risk, and which factors can have an adverse impact on these services, including factors resulting from changes to, or dependence on, biodiversity and ecosystem services. To this end, Rabobank <u>formulated a new draft policy on biodiversity and ecosystem services</u> during the year under review. This policy was discussed with WWF in 2010, and will be discussed with the group entities and a number of other relevant stakeholders early in 2011.”</p>	<p>http://2010.annualreportsrabobank.com/annual-report-2010/Report.r2010/Strategy.Objectives/aEN1231_New-policy-on-biodiversity-and-ecosystem-services.aspx</p>	WWF and Conservation International

Rio Tinto	Strategy and Operations	<p>“As part of our biodiversity strategy, our goal is to have a ‘<u>net positive impact</u>’ (NPI) on biodiversity. This means minimizing the impacts of our business and contributing to biodiversity conservation to ensure a region ultimately benefits from our presence.”</p> <p>“In 2009 we formalized a program to explore the threats and opportunities for the group arising from emerging green markets in biodiversity, carbon, water, and other ecosystem services. The Natural Capital Project has begun <u>exploring the ecosystem service values of our extensive nonoperational landholdings</u> . . . At our Kennecott Copper operation in Utah we have successfully developed and then sold wetland credits as part of our Inland Sea Shorebird Reserve project. In Madagascar we are exploring the possibility of developing ecosystem service credits around water and biodiversity at a number of our conservation management sites.”</p>	<p><i>Policy statement:</i> www.riotinto.com/documents/ReportsPublications/RTBiodiversitystrategyfinal.pdf www.riotinto.com/ourapproach/17214_ecosystems_services.asp</p>	IUCN, WRI, WBSCD, and Prince's Rainforest Project
Shell	Operations	<p>“. . . set up and lead an ecosystems services working group . . . [to] help Shell to <u>assess its potential impact on ecosystems and identify how it relies on ecosystem services</u>. The group will also explore the potential risks of ecosystem degradation and the opportunities for integrating an ecosystems approach into project design and impact assessment.”</p>	<p>www.shell.com/home/content/environment_society/environment/biodiversity/biodiversity_experts/</p>	IUCN, Wetlands International, BSR, The Nature Conservancy, Earthwatch Institute and EBI
Sony	Operations	<p>“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 . . . Targets: (1) <u>Conduct biodiversity assessments</u> at resource extraction and harvesting sites; (2) <u>Promote environmental contribution activities</u> that respond to the needs of local communities.”</p> <p>“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 . . . Such practices are referred to as ‘<u>Payment for Ecosystem Services</u>’ and are recognized as playing a key role in efforts to protect biodiversity.”</p>	<p><i>Policy statement:</i> www.sony.net/SonyInfo/csr/report/environment/biodiversity/policy/index.html www.sony.net/SonyInfo/csr/environment/biodiversity/index.html</p>	
Syngenta	Operations	<p>“Since 2008, Syngenta has applied the ESR [WRI's Corporate Ecosystem Services Review] in geographic regions and corporate departments for new products and services. The sustainability department has adopted ecosystem services as an <u>organizing concept for decision-making</u>.”</p>	<p>www.wbcsd.org/web/projects/ecosystems/Syngenta_wit_h_notes.pdf www2.syngenta.com/en/media/positionstatements_full.html</p>	WRI, Earthwatch Institute and WBSCD

The Walt Disney Company	Governance and Policy	<p>"We are developing an ecosystem management strategy <u>designed to deliver a net positive impact on ecosystems</u>. Walt Disney Imagineering Research & Development is leading this effort through pioneering work in the area of ecosystem services. This entails an integrated approach to design, engineering, and habitat protection for all new construction projects."</p> <p>"In addition to our operations and programs, the Disney Worldwide Conservation Fund (DWCFF) <u>contributes to nature conservation projects</u> around the world. We also have a number of programs to inspire kids and families to celebrate, discover, and conserve ecosystems we share with wildlife."</p>	http://thewaltdisneycompany.com/citizenship/environmental-goals	WWF, WRI, BSR, and The Nature Conservancy
Veolia Environment	Operations	"... initiated cooperation with the economic research laboratory of the University of Columbia, New York (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
Vittel (Nestlé Waters)	Operations	"A <u>Payments for Ecosystem Services program was developed and implemented</u> 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 URL)
Weyerhaeuser	Governance and Operations	"We manage 20.3 million acres of timberland in the United States, Canada, Uruguay, and China. As part of our 2020 <u>sustainability goal to maintain or enhance the ecosystem services provided by our timberlands</u> , and to help us and our stakeholders understand the full range of values our timberlands offer, we developed a plan to <u>measure and report against a comprehensive set of 18 ecosystem services our forests provide</u> ."	www.weyerhaeuser.com/Sustainability/Planet/SustainableForestManagement/EcosystemServices	WBCSD

Appendix 2: Research Design and Methods

This paper is based on primary research, in the form of:

- » **Twenty-eight one-on-one semi-structured interviews, conducted in 2011 and 2012**, with BSR's ecosystem services subject matter lead, Sissel Waage, and corporate leaders who are engaged with the issue, following their response to an email request sent to corporate contacts of:
 - BSR's Ecosystem Services Working Group (ESWG);
 - World Resources Institute's Mainstreaming Ecosystem Services Initiatives ([MESI](#)), who were contacted by the WRI staff member forwarding BSR's email asking for an interview;
 - World Business Council on Sustainable Development's ([WBCSD](#)) Ecosystems Team, who were contacted by a WBCSD staff member who forwarded a BSR email asking for an interview;
 - the Wildlife Habitat Council's ([WHC](#)) Ecosystem Services Working Group, who were contacted by a WHC staff member who forwarded an email request for a BSR interview request, and
 - online research that identified additional companies and individuals within the private sector who are engaged with the issue.
- » **Thirty-eight written survey responses in the summer and fall of 2012** to questions about current activity and future uptake of ecosystem services concepts by private, public, NGO, multilateral, and academic representatives (for the specific questions, please see Appendix 5).
- » **Internet-based research** on publicly available corporate communications related to their actions on ecosystem services that was undertaken in the fall of 2011 and winter of 2012.
- » **Quotes from 64 individuals who participated in BSR's ESWG roundtables that were held in September 2011 and October 2012**, both of which were governed by the Chatham House Rules, in which people speak as individuals instead of as representatives of their organizations and in which a coarse-grain explanation of a speaker is used (e.g., public sector employee, private sector employee, NGO representative, etc.) instead of an individual attribution.

The semi-structured interviews followed the highest academic standards, as laid out in research methods books on the topic.¹ All of the interviews were conducted by the same BSR point person, Sissel Waage, who has conducted several hundred semi-structured interviews during and after her doctoral work at the University of California, Berkeley. In her doctoral research, she conducted more than 110 semi-structured interviews, with the vast majority held in person while she lived in a rural community field site for 16 months. After completion of her PhD, Sissel conducted dozens of interviews for her research and publications at The Natural Step, Forest Trends, and BSR to inform publications about ecosystem services, as well as sustainable business, climate change and other topics.

Drawing on this extensive experience with semi-structured interview protocol and practice, the lead researcher on this project, Sissel Waage, began by drafting an interview guide that included a detailed list of questions, as are listed below. This interview guide was sent, via email, for review by BSR's ESWG corporate members to ensure that it would yield information that was of interest to the primary target audience: corporate decision makers. Additional questions and word choices were suggested. The lead researcher then edited and finalized the interview guide.

Outreach via email began to the list of corporate decision makers via the four primary networks listed in the bulleted list above. Many corporate leaders did not respond to an initial email. A second email was sent. When corporate representatives replied, the BSR lead researcher responded with an email requesting a telephone interview.

¹ For example, see: Lindlof, Thomas, and Bryan Taylor, [Qualitative Communication Research Methods](#), SAGE Publications, 2010 and Wengraf, Tom, [Qualitative Research Interviewing](#), SAGE Publications, 2001.

Sissel Waage then conducted all the semi-structured interviews on the telephone. She followed the set of written questions as an interview guide, rather than a strict ordering. That is, she asked all questions with identical phrasing and words. However, the order of questions shifted from one interview to another to allow her to have a conversation with the interviewee. This approach has been found in academic research (as per the books cited earlier) to yield robust findings, while not leading the interviewee or tainting findings with the interviewer's preexisting notions. Rather, semi-structured interviews include attention to following up on interviewees' framing, key words, and discussions. Open-ended questions and requests for elaboration have been found to yield the most detailed and robust information—often through repeating the last word from an interviewee with an upward inflection on the interviewer's voice to indicate a question and request for further detail. By the end of the interview, all questions and topics have been covered, though the order varied from one interview to another.

In terms of the scope of the internet-based research, the lead research manager, Corinna Kester, used www.google.com, www.bing.com, and other search engines to identify the full range of business activity on ecosystem services, from mentions of the issues within environmental or sustainability reports through formal corporate policies passed. It is noteworthy that this research is based on the publicly available information shared by companies. As a result, the list of corporate activity may *not* include all company action related to ecosystem services. A number of businesses are engaging with ecosystem services issues, but are not yet discussing their work publicly.

It is essential to note that the internet research focused on ecosystem services and did *not* include companies active on biodiversity alone. It is also noteworthy that given the scope, budget, and time of this research, the documentation is in the form of direct quotes from corporate materials. Independent verification and validation of these assertions was not undertaken and lay beyond the scope of this particular research project.

Finally, the September 2011 and October 2012 roundtable discussions were convened by BSR's ESWG and designed as well as facilitated by lead researcher Sissel Waage. Agendas were crafted months in advance and shaped based on feedback from both BSR's ESWG's corporate members, as well as invitees from the public, private, NGO, multilateral, and academic sectors. The facilitation approach was similar to that used in conducting semi-structured interviews, both given that the same individual who led the tasks as well as by deliberate design to maintain as much consistency in approach as possible.

If you have questions about this report's research methods, please contact Sissel Waage at swaage@bsr.org.

Appendix 3: 2011 Semi-Structured Interview Questions

Interviews were conducted using semi-structured interview protocols, with the assurance that the research would be synthesized and reported in an anonymous (unattributed) review of corporate applications of ecosystem services concepts and tools. The set of questions—which were not followed in a linear fashion for all discussions, but rather used as a guide for the interviewer so that the interviewee felt that there was a dialogue on the topic—included:

- 1. Please tell me about your company's engagement with ecosystem services to date.**
 - a. When did you begin to apply ecosystem services concepts within your company?
 - b. Why?
 - c. How and in what ways? At what scale?
 - d. To what parts of the business?
 - e. With what supporting rationale or business case?
- 2. Have you applied any specific ecosystem services tools? Why or why not?**
 - a. Which tools?
 - b. Why were these tools selected?
 - c. Were there key characteristics that you looked for in tools?
 - d. Do you have explicit screens for selecting tools?
 - i. If so, can you share the list with us?
- 3. How were these tools applied?**
 - a. In what business contexts?
 - b. During which decision-making processes? (Why?)
 - c. Did you try to mesh current corporate decision-making processes with these new ecosystem services tools? Why (or why not)?
 - i. If so, with what findings and results particularly with regard to the value add of ecosystem services tools?
 - d. Were the findings from ecosystem services tool application findings directly used in making business decisions?
 - i. If so, why and how? And did the findings change the outcome of the business decision?
 - ii. If not, why not?
- 4. What challenges have you seen in implementation of ecosystem services tools?**
 - a. What have been the key challenges and/or barriers?
 - b. What surprised you?
 - c. How did you overcome challenges?
 - d. What are the lessons learned?
- 5. What are the costs (e.g., time, money, need for experts) associated with tool application?**
 - a. What was the cost breakdown (e.g., staff time, consultants, data sets, etc.)?
 - b. Would these costs decrease over time?
 - c. What is the cost to benefit ratio of applying these tools based on your experience to date?
- 6. Can you tell me about your final assessment of each of the tools that you applied?**
 - a. What were key parameters by which you judged the effectiveness of the tool?
 - b. How did the tool fare according to these parameters?
 - c. What changes would you suggest making to the tool in order to increase its effectiveness over time?
- 7. What best practices have you identified to date related to:**
 - a. Applying ecosystem services concepts and/or tools?
 - b. Integrating ecosystem services concepts into key environmental management processes?
- 8. Do these best practices relate to meshing tools within preexisting processes, such as:**
 - a. ESIA? Landscape-level planning? Marine spatial planning? Others?
If so, what are the best practices that you have found or developed to date?
- 9. How have you built the business case internally for applying ecosystem services concepts and tools?**

- a. Has this business case been effective for mobilizing resources?
 - b. Was it strengthened or weakened by your pilot test applications of ecosystem services tools to date?
- 10. What components of the business case remain unanswered?**
- a. How will these components be addressed looking forward?
- 11. What are the lessons that you have learned about applying ecosystem services concepts and tools within your business?** Please illustrate each lesson with examples.
- If response does not cover the following, then probe with:*
- a. What was the biggest unforeseen **obstacle** encountered?
 - b. What lessons have you learned about **project support**?
 - c. What lessons have you learned about the **costs and relative value of insights** garnered?
- 12. Will ecosystem services concepts (and/or tools) be applied more widely in your business in the future?**
- a. If so, why? What are the primary drivers?
 - b. If not, why not?
13. Will the tools be able to support the greater complexity of larger projects without overburdening their costs
14. Are there other finance, design, or operational approaches that could be employed to improve the possibility of scaling? If so, what are they?
16. Is there anything that I have not asked that you would like me to know?
17. Do you have any final questions for me?

Appendix 4: 2012 Survey Questions for Private Sector Representatives

As with all roundtables convened by BSR's Ecosystem Services Working Group (ESWG), the BSR team prepared a pre-event packet for reading prior to the event. This packet included responses to an unattributed (anonymous) synthesis of a pre-event survey that was sent to all ESGW members and invited participants—as well as select thought leaders in the field who are unable to attend the roundtable—which included the questions listed below.

In accordance with the Chatham House Rules approach to the roundtable, the responses were documented *without* attribution or any mention of individual respondents or institutions, that is anonymously. This synthesis of all participants' input—in aggregate without attributions—provided a snapshot of the viewpoints present in the discussion and accelerated the conversation to more in-depth topics quickly. The survey questions were as follows:

Is your company actively exploring, or engaging with, ecosystem services issues?

If not, why not?

If so:

1. What definition is being used within your company for ecosystem services?
2. What initiatives and actions have been launched?
 - a. What are the goals and objectives, including whether it is related to environmental performance, social performance, or both?
 - b. With what approximate budget(s)?
3. Why has this work been launched at this point of time, in terms of both the biophysical and socioeconomic business case?
 - a. With what specific internal drivers or business case elements?
 - b. Is this business case internally perceived as a compelling case for action? Why or why not?
4. What part(s) of the company is (are) engaged with ecosystem services?
 - a. What numbers of people are engaged with ecosystem services within your company?
5. What processes or protocols are being examined for integration of ecosystem services (e.g., strategy, governance, operations, supply chain, siting, design, ESIA's, LCAs, etc.)?
6. What approaches and/or tools, as well as data, are being used?
 - a. What data was missing that you would need to be in place to assist you in an ecosystem services assessment?
 - b. If regional ecosystem services data sets and/or ecosystem services value estimates were available for your operations, did you use them? (Or would you have used them if they had been available?) If so, how? If not, why not?
 - c. If in-depth work has occurred, what approaches or tools were used to assess cumulative impacts on ecosystem services, particularly in light of the tendency for impact assessments to focus on discrete activities?
7. Have you used information from this ecosystem services work to make decisions?
 - a. If so, how? And what was the difference between current environmental assessment approaches, and what was undertaken for this ecosystem services work, both in terms of technical process and budget?
 - b. Was this additional effort determined to be valuable or not?
8. Is your company monitoring and reporting on ecosystem services impacts and dependence?
 - a. If not, why?
 - b. If so, why and how?
9. What is your overall assessment of the relative value add of an ecosystem services lens?
10. What obstacles or challenges have been encountered with applying ecosystem services concepts to work to date?
11. What are the lessons learned to date?
12. Are there specific pathways (existing or to be created) for private sector engagement with ecosystem services issues in the coming months and years? With what objective(s)?
13. Looking forward, to 2025, do you think that ecosystem services will be a part of your organization's decision-making processes?
 - a. If so, how? What do you expect you will be asked to do with ecosystem services data or information in your job?
 - b. If not, why not?
14. What are your objectives in attending this meeting? What would you need to walk away with to make it a successful experience?

Appendix 5: 2012 Survey Questions for Public, NGO, Multilateral, and Academic Representatives

As with all roundtables convened by BSR's Ecosystem Services Working Group (ESWG), the BSR team prepared a pre-event packet for reading prior to the event. This packet included responses to an unattributed (anonymous) synthesis of a pre-event survey that was sent to all ESGW members and invited participants—as well as select thought leaders in the field who are unable to attend the roundtable—which included the questions listed below.

In accordance with the Chatham House Rules approach to the roundtable, the responses were documented without attribution or any mention of individual respondents or institutions, that is anonymously. This synthesis of all participants' input—in aggregate without attributions—provided a snapshot of the viewpoints present in the discussion and accelerated the conversation to more in-depth topics quickly. The survey questions were as follows:

1. How has your institution or organization explored the application of ecosystem services concepts—including analytical approaches, valuation techniques, and any other methods?
 - a. With what goal(s), objective(s), and/or rationale?
 - b. Approximate budget?
 - c. Personnel allocation? Departments, divisions, or units involved?
 - d. Approach(es) and/or tool(s) considered or applied to date?
2. Have you used the information from ecosystem services work to date within decision-making processes or to evaluate proposals?
 - a. If so, how? And with what conclusions drawn about the value add of ecosystem services information?
 - b. If not, what would need to happen to make ecosystem services information an effective contribution to your decision-making processes and/or operating practices?
3. What is (are) the main challenge(s) to applying ecosystem services concepts in the present as well as looking forward?
4. What are the potential pathways forward for applying ecosystem services concepts to decision-making processes within your institution or organization?
5. Can you explain, as it is discussed in your institution:
 - a. Why and how the ecosystem services concept provides an improved basis from which to manage for environmental and social objectives, relative to current criteria?
 - b. What are distinctions between today's environmental impact assessment approaches or processes and assessing ecosystem services impacts and dependencies?
6. What are the potential regulatory implications of ecosystem services?
 - a. For example, how would uptake of ecosystem services measurement impact occur in environmental, social, and health impact assessments (ESIAs, ESHIAs, etc.)?
 - b. What are the potential regulatory changes that could stem from ecosystem services uptake?
 - c. How do you see the process of regulatory uptake occurring?
 - d. How may this process differ in countries with robust environmental regulatory structures versus nations with a less developed regulatory program?
7. In the short- to midterm, will ecosystem services fit into policy and regulatory requirements?
 - a. If so, where? If not why not?
 - b. Is this assessment unique to your institution or likely to be fairly common?
8. Overall, based on your institution's current work on ecosystem services, what do you believe will be the future uptake of ecosystem services, in 5 years? 10 years? 15 years?
9. Are there potential scenarios that you would suggest may and or may not be viable looking forward in terms of ecosystem services within your sector?
10. Looking forward, to 2025, will ecosystem services be a part of your organization's decision-making processes?
 - a. If so, how? And what do you expect you will be asked to do with ecosystem services data or information in your job?
 - b. If not, why not?
11. What would be specific pathways in which the private sector could productively engage in the coming months and years on ecosystem services issues? With what rationale?
12. What are your objectives in attending this meeting? What would you need to walk away with to make it a successful experience?