DEDICATED TO MAKING A DIFFERENCE

Corporate Ecosystem Valuation

Building the business case

World Business Council for
Sustainable Development

About the WBCSD

The World Business Council for Sustainable Development (WBCSD) brings together some 200 international companies in a shared commitment to sustainable development through economic growth, ecological balance and social progress. Our members are drawn from more than 36 countries and 22 major industrial sectors. We also benefit from a global network of 60 national and regional business councils and partner organizations.

Our mission is to provide business leadership as a catalyst for change toward sustainable development, and to support the business license to operate, innovate and grow in a world increasingly shaped by sustainable development issues.

Our objectives include:

Business Leadership – to be a leading business advocate on sustainable development;

Policy Development – to help develop policies that create framework conditions for the business contribution to sustainable development;

The Business Case – to develop and promote the business case for sustainable development;

Best Practice – to demonstrate the business contribution to sustainable development and share best practices among members;

Global Outreach – to contribute to a sustainable future for developing nations and nations in transition.

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Foreword

In the course of daily operations, all businesses impact and depend on ecosystems and the essential ecosystem services they provide.

For instance, freshwater is a critical input for every conceivable major industrial process; the pharmaceutical industry benefits from genetic resources; agribusiness and the food sector depend on ecosystem services like pollination, and pest and erosion regulation; forest industries – and the downstream construction, communications and packaging sectors – rely on continued supplies of timber and wood fiber; all extractive industries cause some level of ecosystem disturbance; while tourism increasingly builds on an ecosystem's cultural services and aesthetic values; and all building owners and plant operators benefit from the natural hazard regulation service that some ecosystems provide. In fact it is hard to think of any economic activity that does not benefit from ecosystem services or in some way alter the ecosystems around it.

Meanwhile, as confirmed by the UN's 2005 Millennium Ecosystem Assessment, there is significant ongoing ecosystem degradation and loss of essential ecosystem services – like climate regulation, flood control, waste treatment, as well as food, fiber and freshwater. More recently, in 2007, the G8 Environment Ministers launched the Potsdam Initiative, including a study on *The Economics of Ecosystems and Biodiversity* (TEEB), which will be analyzing the global economic benefits of biodiversity and the costs of policy inaction. Initial results from TEEB, just based on deforestation, show that the world loses natural capital worth between €1.35 trillion and €3.10 trillion (US$ 1.9 trillion and US$ 4.5 trillion) each and every year. Because these loses are real, ecosystem degradation is becoming a critical sustainability issue for business and society at large.

In response to the emerging reality of natural resource limits and losses, businesses must expect changing government policies and regulatory frameworks to be developed to address these pressing ecosystem challenges – at the global, regional and local levels. Already we are seeing mindsets changing about the level and scope of business impacts on, and use of, ecosystems – among customers, regulators, shareholders, investors, NGOs and the media. Companies, and their operations, will be under increased scrutiny and should respond by better understanding and proactively managing their ecosystem impacts and dependence, as well as exploring and developing new business solutions to meet these challenges.

Over the years, the WBCSD's ecosystems journey has followed an upward trajectory. The latest step is **corporate ecosystem valuation**, which refers to the use of ecosystem valuation by business where both ecosystem degradation and the benefits provided by ecosystem services are explicitly accounted for with the intention of informing and improving corporate decision-making. Based on an extensive study completed in March 2009 – *Corporate Ecosystem Valuation: A Scoping Report:* that looked at existing applications of economic valuation to ecosystems and ecosystem services, the WBCSD's Ecosystem Focus Area launched the Ecosystem Valuation Initiative (EVI).

Focused within the framework of existing business accounting and financial analysis tools, the EVI project is working with a number of member company "road testers" to develop a *Guide to Corporate Ecosystem Valuation* that makes the case for corporate ecosystem valuation as an integral part of business planning and decision-making and guides companies through the process of undertaking ecosystem valuation studies. The target date for the release of the guide is October 2010 during the next Conference of the Parties to the Convention on Biological Diversity (CBD) in Nagoya, Japan.

We know that sustainable development is not possible without fully functioning ecosystems and business as a committed solution provider. With this in mind, the aim of the *Guide*, and its use in association with other decision-support tools, such as the *Corporate Ecosystem Services Review* or the *WBCSD Global Water Tool*, is to assist business to proactively respond to the world's ecosystem challenges and changing expectations of stakeholders.

We encourage all member companies to embrace the concept of corporate ecosystem valuation as a key component in their business strategies.

Since 1997 the WBCSD, often in partnership with other organizations like the International Union for Conservation of Nature (IUCN) and the World Resources Institute (WRI), has:

- **Created awareness** around the concept of business and biodiversity and the global regulatory framework governing these issues *(Business & Biodiversity: A Guide for the Private Sector, 1997)*
- **Built understanding** around the business relevance of biodiversity *(Business & Biodiversity: A Handbook for Corporate Action, 2002)*
- **Discussed the challenges** inherent in the use of ecosystem services and the implications for business as a response to the Millennium Ecosystem Assessment *(Business and Ecosystems – Ecosystem Challenges and Business Implications, 2006)*
- **Advocated for market mechanisms** and illustrated business dependence on the conservation of biodiversity and the sustainable supply of ecosystem services *(Markets for Ecosystem Services – New Challenges and Opportunities for Business and the Environment, 2007)*
- **Supported business decisions** through a tool to assess and manage risks and opportunities arising from company impacts on ecosystems and dependence on ecosystems services *(Corporate Ecosystem Services Review, 2008).*

Bjorn Stigson President, WBCSD

Bob Elton President & CEO BC Hydro, Chair WBCSD Ecosystems FACT

10 reasons why business should conduct corporate ecosystem valuation

Here are 10 good reasons why companies should employ corporate ecosystem valuation as a decision-support tool to improve operational efficiency and/or develop new business opportunities while reducing their environmental impacts or ecological "footprint" or building up their ecosystem assets.

1 Improving business decision-making

Corporate ecosystem valuation can be used to strengthen internal management planning and decision-making around environmental impacts or the use of natural resources, and enhance business performance and the financial bottom line.

2 Capturing & pricing new income streams

Corporate ecosystem valuation provides a tool for informing the development of new ecosystem markets by assessing how much ecosystem services are worth, at what levels they might be priced or sold by the company, and whether the returns are sufficiently high to warrant investing in market or product diversification.

3 Saving costs

Corporate ecosystem valuation can demonstrate that investing in ecosystem services such as water regulation and purification and natural hazard regulation can generate considerable cost savings and avoided expenditures.

4 Reducing taxes

Companies may be eligible for tax relief or preferential tax rates when they own assets that generate ecosystem services that produce broader social benefits or choose to carry out their business in an environmentally friendly way. Corporate ecosystem valuation can help companies to quantify these benefits.

5 Sustaining revenues

Corporate ecosystem valuation can assist in calculating the financial returns from investing in natural capital as key inputs into production against projected revenues and income streams in the future.

6 Revaluing assets

Corporate ecosystem valuation both helps companies get a better picture of what their assets are worth and points to opportunities for generating more income or earning a better return from them.

7 Investigating new goods & services

Corporate ecosystem valuation can help determine & verify the environmental benefits associated with new technologies & business solutions.

8 Assessing liability & compensation

As environmental regulations become ever-more stringent, companies will face an increasing array of penalties, fines and compensation claims when their operations damage ecosystems. Corporate ecosystem valuation provides a means for businesses to calculate the monetary risks of environmental harm when they are appraising projects and investments. It also allows for businesses to gauge the costs of ecosystem damage when claims are levied against them.

9 Measuring company & share value

Traditionally, environmental performance indicators have not been included when measuring a company's value. Yet where good environmental performance is generating clear benefits to the company or society, including these impacts can make a substantial difference to measures of company and share value. Corporate ecosystem valuation provides the means to quantify these impacts.

10 Reporting performance

Corporate ecosystem valuation can measure a company's environmental performance and facilitate more complete reporting and disclosure, as well as permit environmental progress and benefits to be integrated with more conventional financial measures.

The value of ecosystem services for business

The world's ecosystems are under threat. Most types of natural habitats are showing signs of severe degradation, wild populations of fauna and flora are declining, and land, air and water are all becoming more and more polluted.

The interim report of the European Commission's study *The Economics of Ecosystems and Biodiversity* (TEEB), published just last year, tells us for example that forests have shrunk by about 40% in the past 300 years, the world has lost about half of its wetlands since the beginning of the 20th century, and a third of coral reefs have been seriously damaged through fishing, pollution, disease and coral bleaching.

The *Millennium Ecosystem Assessment* (MA), perhaps the most comprehensive audit ever of the condition of the world's ecosystems, revealed in 2005 that all of the earth's ecosystems have been transformed in some way through human actions in the past 50 years. This has severely compromised their ability to deliver the provisioning, regulating, supporting and cultural services that are of such importance to human well-being. As the downward arrows in figure 1 show, the condition of most services globally has worsened.

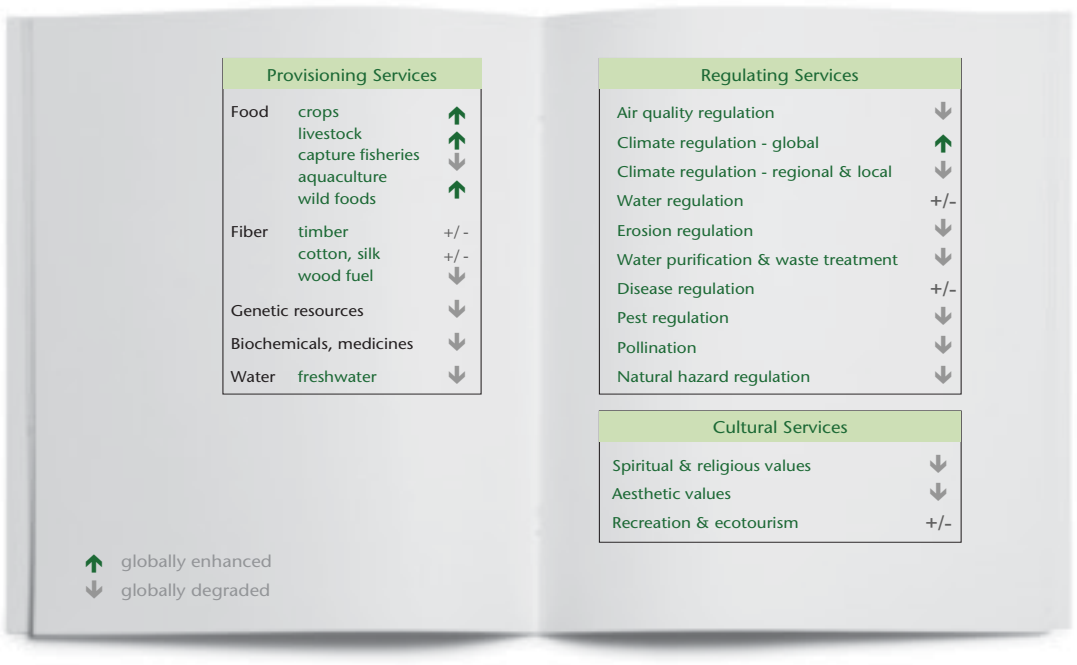


Figure 1
Ecosystem service balance sheet

Adapted from Millennium Ecosystem Assessment, 2005, *Ecosystems and Human Well-being*: *Synthesis*, Island Press, Washington DC.

Ecosystem service degradation is not, however, just a biological or ecological problem. It also has serious economic consequences – for all industries, sectors and social groups.

Just over a decade ago, one of the first attempts was made, by 13 environmental economists, to value the world's ecosystem services. The results, which were published in an article in the scientific journal *Nature*, argued that the world's ecosystem services were worth some US$ 33 trillion a year[1] – a figure that was then almost twice as high as global gross domestic product (GDP). In contrast, the TEEB interim report calculated that the degradation of biodiversity & ecosystems, due to deforestation, means that each year the world loses natural capital worth between €1.35 trillion and €3.10 trillion (US$ 1.9 trillion and US$ 4.5 trillion).[2]

These kinds of figures make an important point. Ecosystem services generate tangible value for businesses and the wider economy, and their degradation gives rise to appreciable private and public costs and losses. Any threat to ecosystems is therefore also a threat to businesses and the economy, and any effort to maintain and conserve ecosystems is a way of safeguarding important economic value. From a financial point of view, as well as from environmental and social perspectives, ecosystem value matters to business.

3 Businesses depend on & impact ecosystems & their services

All business operations depend in some way on ecosystems and their services. How a business conducts its operations also has the potential to have an impact on the value of an ecosystem or ecosystem service – for the company itself, as well as for other sectors and groups.

Some ecosystem values are relevant to all types of businesses – for example the benefits and avoided costs associated with ecosystem services such as water regulation and purification. In many cases, the exact scope and importance of ecosystems to businesses, as well as their potential to have an impact on how ecosystem services are supplied to others, will vary depending on the sector in which they operate and the place they occupy in the value chain.

For example, provisioning services such as food, fuel and fiber are particularly valuable for resource-dependent sectors such as agriculture, forestry and fisheries, and as primary or secondary inputs for many manufacturing and processing operations. Regulating services such as pollination and pest control are critical to agricultural production, while water and erosion regulation are essential to hydropower operations.

The benefits to be gained from managing ecosystem impacts are especially apparent among many areas of the extractive or "heavy" industries such as oil and gas, mining or construction. For other sectors, such as financial services or consumer products, the impact of company operations on ecosystem services is felt more through the way in which they influence their clients' or suppliers' operations.

4 Ecosystem change presents both business risks & opportunities

A company's dependence and impact on ecosystems, and the benefits, added value, costs and cost savings that the links between them create, directly affect business performance. They pose a number of risks to corporate profits and can create lucrative new opportunities. *The Corporate Ecosystem Services Review,*[3] produced by the WBCSD, WRI and the Meridian Institute, provides a thorough description of the links between ecosystem services, business risks and opportunities.

Figure 2 illustrates how changes in the provision of ecosystem services relate to the operational, regulatory and legal, reputational, market and product, and financing risks and opportunities that businesses face. It shows that many of these are reflected directly in companies' balance sheets, because they affect income and profits, and influence costs and losses.

	Examples of risks	Examples of opportunities
Operational The day-to-day activities, expenditures and processes of the company	- Higher costs for freshwater due to scarcity - Lower output for hydropower facilities due to siltation - Disruptions to coastal business due to flooding	- Increasing water-use efficiency - Building an on-site wetland to circumvent the need for new water treatment infrastructure
Regulatory and legal The laws, government policies and court actions that can affect corporate performance	- New fines, new user fees, government regulations, or lawsuits by communities that lose ecosystem services due to corporate activities	- Engaging governments to develop policies and incentives to protect or restore ecosystems that provide services a company needs
Reputational The company's brand, image or relationship with customers, the general public and other stakeholders	- Retail companies being targeted by non-governmental organization campaigns for purchasing wood or paper from sensitive forests - Banks facing similar protests due to investments that degrade pristine ecosystems	- Implementing and communicating sustainable purchasing, operating or investment practices in order to differentiate corporate brands
Market & product Product and service offerings, customer preferences, and other market factors than can affect corporate performance	- Customers switching to other suppliers that offer products with lower ecosystem impacts - Governments implementing new sustainable procurement policies	- Launching new products and services that reduce customer impacts on ecosystems - Participating in emerging markets for carbon sequestration and watershed protection - Capturing new revenue streams from company-owned natural assets - Offering eco-labeled wood, seafood, produce and other products
Financing Cost and availability of capital investors	- Banks implementing more rigorous lending requirements for corporate loans	- Banks offering more favorable loan terms - Investors taking positions in companies supplying products and services that improve resource-use efficiency or restore degraded ecosystems

Figure 2
Business risks & opportunities associated with ecosystem change

From WBCSD, WRI & Meridian Institute, 2008, *The Corporate Ecosystem Services Review: Guidelines for Identifying Business Risks & Opportunities Arising from Ecosystem Change,* World Resources Institute, Washington DC.

Why undervaluing ecosystems is a problem for business

The close relationship between ecosystem services, business risks and opportunities and corporate profits and losses suggests that ecosystem values should be important considerations in business planning and decision-making. After all, they have a material impact on business performance, just like any other cost or benefit.

However, in reality, the idea that ecosystems might be of financial or economic value has conventionally been given little attention in the "hard" measures that are used to assess and report on company performance, and to weigh up different business opportunities and risks. As a result, decisions have often been made based on partial, or even misleading, information about the costs and benefits of carrying out business. In the worst case, undervaluing ecosystems may have served to undermine business performance by failing to identify new cost-saving or revenue-generating opportunities, or to highlight potentially costly liabilities.

Whereas financial wisdom decrees that the most profitable land use, resource management option or investment choice is that which generates the highest

returns, ecosystem value has rarely been factored into these equations – thereby missing out on a huge range of costs and benefits that affect business performance. Financial assessment and analysis techniques traditionally take note only of commodities and products that have a clear market price. This automatically excludes many ecosystem services because they are usually not traded and tend not to be priced.

Thus, while a cost-benefit analysis of the most profitable use of forest land may point to the returns to be gained from timber plantations or crop farming, it will rarely consider the economic value of genetic resources or water regulation services. Similarly, conversion of a swamp for the purpose of housing development would in all likelihood quantify (and possibly even compensate for) the loss of fisheries, but it would rarely see the diminution of water purification and waste treatment services as potential costs to either the developer or the surrounding community. The complex calculations that are carried out to determine the most cost-effective technologies and infrastructure for ensuring clean and regular freshwater supplies would most probably ignore the considerable savings to be gained from investing in upstream watershed management.

The net result has been that undervaluing ecosystems and their services has remained a persistent – even if not always recognized – problem for businesses. This is the case even though, ultimately, such a limited view of costs and benefits has often done little to further either private or public interest.

Using corporate ecosystem valuation to improve business performance

While acknowledging the importance of addressing ecosystem degradation and measuring ecosystem impacts and dependencies, many companies are challenged by trying to identify exactly how to integrate such information into their core operational and corporate decisions. Corporate ecosystem valuation offers an approach that can help in addressing this challenge. Being able to express ecosystem value in monetary terms provides figures that can be directly integrated with conventional financial measures and unequivocally linked to the financial bottom line. Most basically, corporate ecosystem valuation enables ecosystem costs and benefits to be treated in the same monetary terms as any other cost that a business might incur or benefit that it might generate. It brings into the equation a category of risks and opportunities that considerably impact business performance, but to date have been largely excluded from the financial calculations that inform decision-making.

Being able to factor ecosystem value into corporate decision-making is becoming more and more important as new ecosystem markets develop (for example, the burgeoning trade in carbon and biodiversity offsets or payments for water regulation services), and as new regulations (such as the EU Liability Directive) increasingly require that companies manage their ecosystem impacts and dependencies. There are considerable opportunities emerging for businesses to use corporate ecosystem valuation to improve their planning, reporting and decision-making.

The aim of corporate ecosystem valuation is to identify the ways in which businesses can better secure the operational, regulatory and legal, reputational, market and product, and financing opportunities afforded by ecosystem services, and more effectively avoid or mitigate the risks. These opportunities and risks, and the use of corporate ecosystem valuation, relate both to enhancing business performance and the financial bottom line, as well as to complying with external demands and requirements.

As illustrated in figure 3, corporate ecosystem valuation can provide an important source of decision-support information for internal management planning – identifying ways to capture new income streams, saving costs, reducing taxes, sustaining revenues or revaluing company assets, for example. It also generates data that can assist businesses in assessing, complying with and reporting on the external requirements and demands that are placed on them by governments, regulators, shareholders, customers and the general public – such as assessing liability and compensation (including environmental offsets and credits), measuring company value and share price and reporting on performance.

Enhancing business performance & the financial bottom line

Capturing and pricing new income streams

Corporate ecosystem valuation can help to identify opportunities for businesses by diversifying their product and customer base. Carbon credits, biodiversity offsets, payments for watershed services, nature-based recreation and eco-labeling or certification have all emerged as lucrative markets over recent years. In some cases these are new markets that businesses may be considering moving into, and in other cases they may already be services that a business is generating but for which it is not currently being remunerated. Corporate ecosystem valuation provides a tool for informing the development of these markets, assessing how much ecosystem services are worth, and determining at what levels they might be priced or sold by the company and whether the returns are sufficiently high to warrant investing in market or product diversification. It also shows how there may be opportunities to "stack" or "bundle" additional ecosystem services onto those already being offered or marketed by the company.

Saving costs

Corporate ecosystem valuation can point to ways of reducing company costs and expenditures. Investing in securing ecosystem services such as water regulation, purification and waste treatment and natural hazard regulation can generate considerable cost savings and avoided expenditures for businesses. Corporate ecosystem valuation can, for example, assess whether it makes economic sense to invest in a wetland for its water purification services as compared to building a water treatment plant.

Reducing taxes

Corporate ecosystem valuation may identify opportunities to reduce a company's tax burden. In some countries companies may be eligible for tax relief or preferential tax rates when they own assets that generate ecosystem services, or choose to carry out their business in ways that generate broader social benefits for environmental reasons (for example conserving important biodiversity, using resources and energy efficiently or avoiding pollution). For example, in the US, Allegheny Power, an electric utility company, made use of a "bargain sale" provision in the federal tax code to claim a property's environmental value as a charitable contribution in connection with a sale, resulting in significant tax-related savings. Monetary valuation of the ecosystem services or environmental benefits that the business is generating provides both a pointer as to where and how much tax relief may be claimed and a rationale for claiming this relief.

Sustaining revenues

Corporate ecosystem valuation can assess the monetary benefits of investing in ecosystem conservation and show how revenues can be sustained over the longer term. Ecosystem services such as forest erosion control, for example, help to avoid reservoir siltation, while shoreline protection and flood attenuation assist in safeguarding buildings and other infrastructure. Corporate ecosystem valuation can assist in calculating the financial returns from investing in ecosystem services as key inputs into production against projected revenues and income streams in the future.

Revaluing assets

Corporate ecosystem valuation is a way of more accurately valuing company assets. Traditionally, ecosystems are not considered to be part of a company's asset register, even though in many cases they constitute a valuable stock of natural capital and generate substantial income flows and returns on investment. Corporate ecosystem valuation helps companies to get a better picture of what their assets are worth, and also to point to opportunities for generating more income or earning a better return from them.

Business risks & opportunities

- Operational
- Regulatory & legal
- Reputational
- Market & product
- Financing

Complying with external demands & requirements

Assessing liability and compensation

Corporate ecosystem valuation can quantify in monetary terms a company's ecosystem impacts, thereby assessing its liabilities. As environmental regulations become evermore stringent, so companies face an increasing array of penalties, fines and compensation claims when their operations damage ecosystems. Corporate ecosystem valuation provides a means for businesses to calculate the monetary risks of environmental harm when they are appraising projects and investments (for example as part of more conventional cost-benefit analysis, natural resource damages assessment, environmental and social impact assessment and strategic environmental assessment procedures). It also allows for businesses to gauge the costs of ecosystem damage when claims are levied against them.

Measuring company value and share value

Corporate ecosystem valuation can improve how companies and their shares are being valued by external sources. Traditionally, environmental performance indicators have not been included when measuring a company's value. Yet, where good environmental performance is generating clear benefits for the company or society, including these impacts can make a substantial difference to measures of company and share value.

Reporting performance

Corporate ecosystem valuation can allow for certain aspects of a company's environmental performance (i.e., its impacts on ecosystem services or resource/energy use efficiencies) to be measured in financial terms. Although mainly intended to inform internal management decision-making, results could prove to be important for public reporting and disclosure.

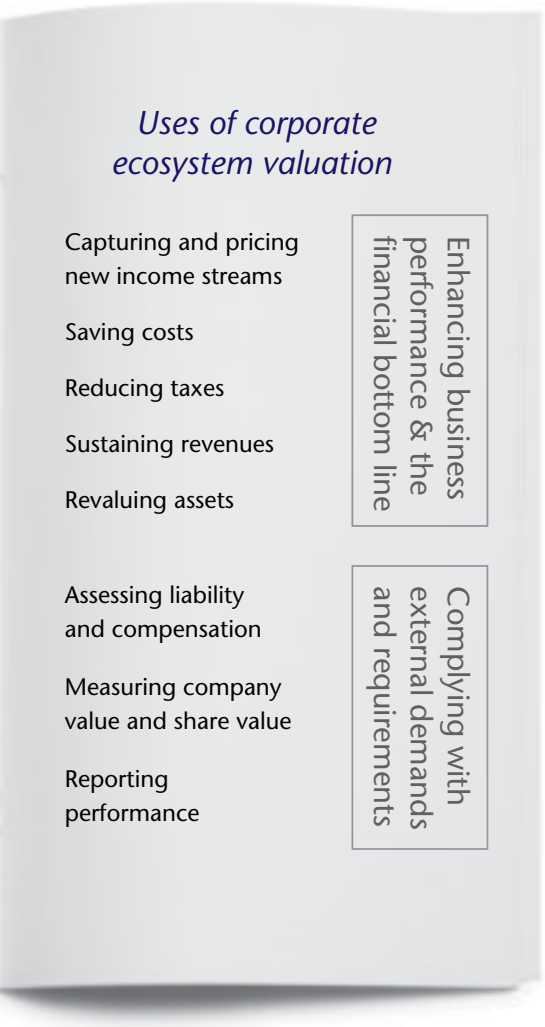


Figure 3
Using corporate ecosystem valuation to improve business performance

	What valuation does	Business motivation	Outcome
Identifying new investments, markets, prices and products	Valuing ecosystems & ecosystem services that company owns or can sell	To reimburse land management costs and turn a profit for shareholders To earn revenue from reclaimed mine lands	Implementation of a fee-to-access program for recreational users of company lands Identification of eco-assets that could generate income via mitigation credits that would be equal or greater to alternative uses or sale values
Managing risk	Valuing costs or losses avoided by preventing ecosystem degradation	To improve the ability of investors to make sound choices To minimize costs and maximize cost effectiveness of production by reducing ecosystem water service risks	Identified the financial implications of future environmental risks to companies Highlighted the financial, social and environmental rationale for investing in source protection
Highlighting opportunities	Valuing benefits obtained by investing in ecosystems	To enhance regulatory compliance, profitability & shareholder returns To earn income from unused land To prolong the lifetime and production of a hydropower facility	Highlighted cheaper and more effective waste management options Gained deductions in federal taxes Operational cost savings and greater revenues
Assessing environmental liability and compliance	Valuing the ecosystem damages and costs that company activities may generate	To comply with natural environmental damage assessment and compensation requirements	Monetary estimate of environmental damage costs incurred which could be used in courts of law
Articulating environmental performance and costing impacts	Valuing the broader ecosystem impacts (positive and negative) generated by company	To generate information as an input into decision-making and change management behavior	Recommendations leading to cost savings, revenue generation, waste reduction and improved image
Reassessing company value and share value	Valuing ecosystem benefits and cost-savings that company's activities generate	To reflect company's sustainable development metrics in financial valuation measures	Reassessed estimates of company and share value

Figure 4
Examples of business applications of ecosystem valuation

Adapted from information presented in WBCSD, 2009, *Corporate Ecosystem Valuation: A Scoping Report*, World Business Council for Sustainable Development, Geneva. pages 21-28 @ www.wbcsd.org/web/evi.htm

How ecosystem valuation has been applied

A recent scoping study by the WBCSD[4] found that ecosystem valuation has evolved over the past 50 years into a series of tools and approaches that are now widely accepted and commonly used by the research community and within the appraisals, assessments and evaluations carried out by government agencies and non-governmental organizations. From its early roots in the public construction and infrastructure boom after the Second World War, there has been a progressive expansion in scope from a focus on the "environmental" problems associated with air, land and water pollution into a more all-encompassing "ecosystem" concern with nature, biodiversity and broader environmental and social well-being issues (figure 5).

Ecosystem valuation continues to grow more widespread as environmental regulations become evermore stringent, popular concern about nature escalates, producers and consumers move towards greener practices, more and more businesses embrace a triple bottom-line philosophy, and market-based solutions are increasingly promoted as a response to environmental problems.

To date, ecosystem valuation practices have been dominated by the public agencies and non-governmental organizations that are mandated to further the interests of the public. Where the private sector has been engaged in these projects and programs, it has been more as a passive player: ecosystem valuation has primarily been imposed on business from the outside as a tool to determine liabilities and penalties stemming from their impact on the environment, to set charges and taxes to be levied on them, or to try to convince them to improve their environmental track record.

The use and application of ecosystem valuation by and for business has emerged much more recently: for the most part over the past decade or less. The WBCSD scoping study found that companies are starting to show a great deal of interest in factoring ecosystem costs and benefits into their analytical, assessment and reporting frameworks, so as to better respond to ecosystem opportunities and risks. It however identified only six initiatives that could be strictly defined as ecosystem valuation tools that had been developed specifically by or for business, underlining the fact that corporate ecosystem valuation is very much a developing field.

The review of initiatives carried out by the scoping study also made it clear that both the tools used and the basic aims of ecosystem valuation by business differ from their more conventional applications in public interest decision-making. While the common factor is a triple bottom-line motivation, most ecosystem valuation applications to business have a primary focus on corporate financial goals and the financial bottom line. In other words, they tend to be driven by a wish to identify ways of managing business risks and capturing business opportunities in ways that at the least do no harm to ecosystems, and in most cases optimize conservation goals. Almost all use a mix of conventional ecosystem valuation techniques and corporate financial analysis tools. They are defined by their lack of adherence to a single valuation model: they mix and match available methods as suits their specific purpose and the particular context in which they are being carried out.

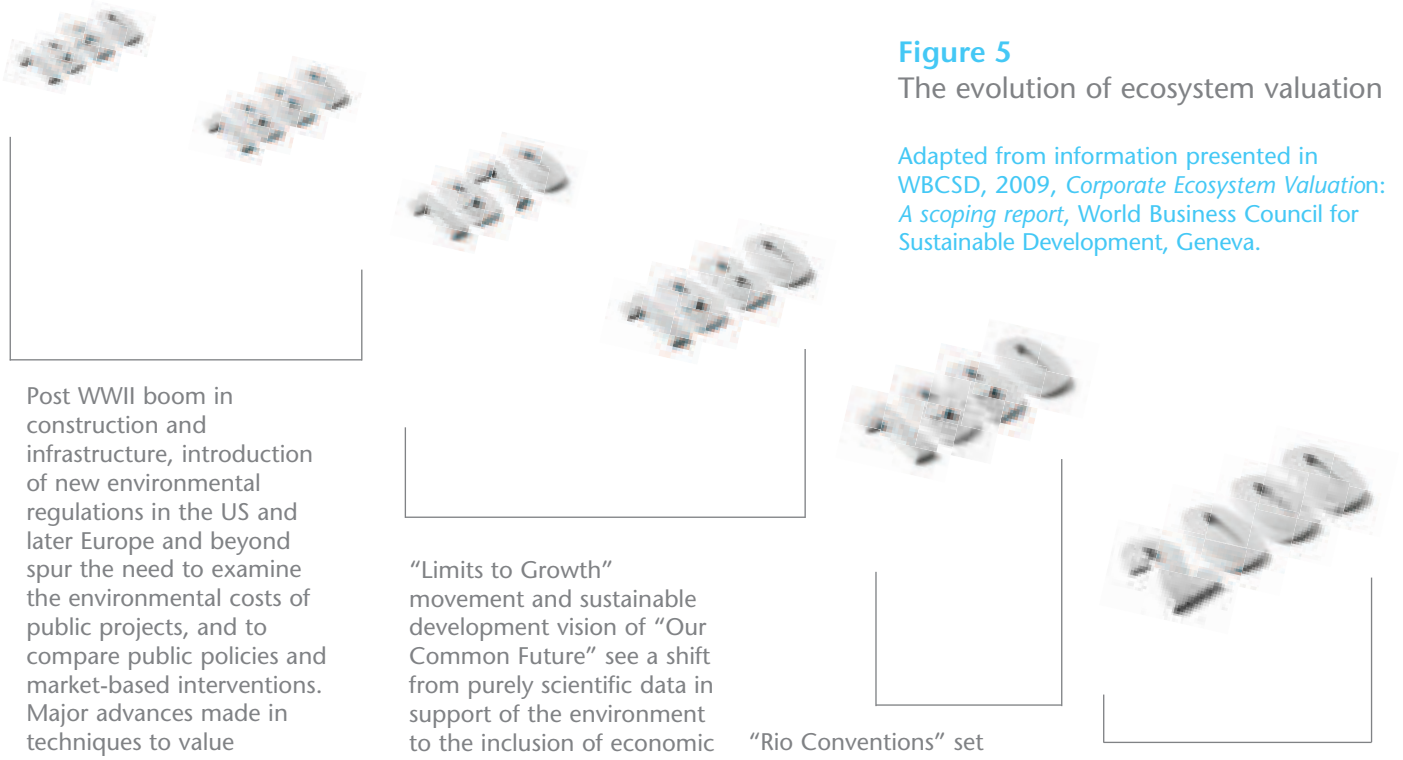


Figure 5
The evolution of ecosystem valuation

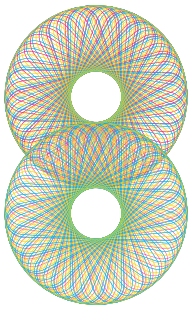
Adapted from information presented in WBCSD, 2009, *Corporate Ecosystem Valuation: A scoping report*, World Business Council for Sustainable Development, Geneva.

Post WWII boom in construction and infrastructure, introduction of new environmental regulations in the US and later Europe and beyond spur the need to examine the environmental costs of public projects, and to compare public policies and market-based interventions. Major advances made in techniques to value environmental impacts, especially "brown" sector air and water pollution issues.

"Limits to Growth" movement and sustainable development vision of "Our Common Future" see a shift from purely scientific data in support of the environment to the inclusion of economic arguments. Environmental valuation procedures become standardized within cost-benefit analysis framework.

"Rio Conventions" set globally agreed goals and targets, leading to an increased focus on the valuation of biodiversity and nature, and the integration of ecosystem valuation tools and approaches within conservation planning.

Millennium Development Goals and Millennium Ecosystem Assessment stimulate a concern with the links between ecosystem values, human well-being and poverty reduction.



What are the challenges in developing a common approach to corporate ecosystem valuation?

Corporate ecosystem valuation should be developed within a business context and via a common approach that can be applied by different sectors and types of businesses. It will be important to establish a level playing field both in terms of the varying dependencies and impacts on ecosystem values of different types of businesses, and between "hard" profit and loss figures and the "soft" environmental and social concerns that traditionally have been excluded from financial analysis and business decision-making.

Corporate ecosystem valuation must be credible enough to stand up to scrutiny in a business context, and yet pragmatic enough to be easily incorporated into ongoing decision-making. It must also be able to employ techniques and generate results that are championed by businesses themselves, yet also accepted externally by governments, shareholders and the general public. Without this broader consensus, efforts by companies to undertake and apply corporate ecosystem valuation run the risk of having only limited impact, within and outside the business community.

Although widely accepted common procedures exist for ecosystem valuation in the public interest, they have yet to be fully developed for use by business. To reach this stage, it is necessary to review – and attempt to address – the informational, conceptual, methodological and resource issues that are currently challenging the development and uptake of a common approach to corporate ecosystem valuation (figure 6).

Informational

Awareness and information about the business advantages offered by ecosystem valuation

- Ecosystem valuation is a new field, which is as yet little known or understood by many businesses
- Need to make available information about how ecosystem values impact companies

Conceptual

Framework for ecosystem valuation that is founded on business interests and bottom-line goals

- Lack of fit between sole public interest focus of valuation approaches and the goals of business
- Need to define the core elements of a business approach to ecosystem valuation

Methodological

Valuation techniques and metrics that mesh with corporate financial planning and decision-making

- Current frameworks, metrics and approaches do not fully integrate economic, social and environmental goals
- Need to integrate ecosystem values into existing financial and business planning procedures

Resource

Availability of and willingness to commit resources with which to conduct ecosystem valuation exercises

- Requirements for funds, expertise, skills and time with which to carry out ecosystem valuation
- Need to engage interest and support for ecosystem valuation among business leaders

Figure 6
Challenges to the development & uptake of corporate ecosystem valuation

Informational challenges revolve around the fact that, although an increasing number of businesses are beginning to think seriously about their ecosystem impacts and dependencies, corporate ecosystem valuation is a very new topic, about which most companies are largely unaware. Due to its extremely limited application in the corporate arena, there is also a real paucity of information about how ecosystem value impacts business, positively and negatively, and a lack of examples of the value of key ecosystem services for different sectors and business types. Serious gaps also remain in the scientific data and information required to link the status or condition of particular ecosystems to the delivery of a given level of services, or to assess how these will change if ecosystems are degraded. Fostering this awareness and understanding, and generating and sharing this information, is a critical step in building a body of practice in corporate ecosystem valuation.

Conceptual challenges can be found in the exclusion of business from common ecosystem valuation. The overriding rationale behind, and focus of, most of the valuation tools, initiatives and applications that are currently in use is on better identifying non-market ecosystem values in order to secure public benefits and economy-wide gains. Companies do not operate with the sole aim of maximizing social goals and public benefits. There is a need to identify the core elements that would form the basis of corporate ecosystem valuation, and use these as the starting point for developing a framework that is founded on business interests and bottom-line goals.

Methodological challenges relate less to the frameworks (such as total economic value), common metrics (cash) or suite of techniques that are used to place a monetary value on ecosystem services, and more to the ways in which information on ecosystem values are incorporated into planning and decision-making. Here, it is important not to try to force "mainstream" models into a business perspective, or superimpose a "mainstream" approach onto business calculations, but to look at new ways of valuing ecosystem dependencies and impacts within the realm of the financial and business planning procedures that companies already use. Unless ecosystem values are dealt with inside companies in similar ways to other costs, benefits and management decisions, they are likely to remain marginal with respect to corporate decision-making.

Resource challenges concern the material and other requirements for businesses to conduct corporate ecosystem valuation exercises as a routine part of their planning, analysis and reporting. Corporate ecosystem valuation requires funding, expertise and time to carry out – and the availability of, and willingness to commit, such resources can in many cases pose a major challenge. At the same time, it will not always be easy for the proponents of corporate ecosystem valuation to convince their senior managers and finance units that there is a need, and an advantage, to mainstream these approaches into the company's planning and decision-making. To a large extent, overcoming this challenge depends on recognition by business leaders themselves that investing in corporate ecosystem valuation will, ultimately, save on costs and sustain profits. Addressing the challenges outlined above will facilitate successful uptake of corporate ecosystem valuation. However, another major challenge, which this publication has not extensively covered, is the need to ensure that policy-makers and regulators design and employ fiscal and regulatory frameworks around ecosystem markets and payments that from a business perspective are predictable, flexible, equitable, operational and transparent. Furthermore, it is essential that these policy frameworks effectively leverage business capacity as a solution provider.

Strengthening corporate ecosystem valuation: The next steps

There is both a growing need and an increasing interest to further develop the use of corporate ecosystem valuation. At the same time, it is also apparent that there are a number of challenges to be overcome if corporate ecosystem valuation is to reach its full potential. Although common procedures exist, and are widely accepted, for ecosystem valuation in the public interest, they have yet to be fully developed for use by companies or with the aim of strengthening business goals.

Building on the *Corporate Ecosystem Services Review* platform, the WBCSD's new Ecosystem Valuation Initiative (EVI) aims to fill these gaps, and meet these demands. Based on the direct experiences of member companies as corporate ecosystem valuation "road testers" during August 2009 to July 2010, the EVI is developing a *Guide to Corporate Ecosystem Valuation* with an October 2010 target release date. The guide will make the business case for corporate ecosystem valuation and lead companies through the process of actually undertaking a corporate ecosystem valuation study. Based on more effective and inclusive accounting of ecosystem costs and benefits, the guide will be used by member companies to measure, manage and mitigate their impacts on ecosystems, as well as explore new business development opportunities.

Key terms

An ecosystem is a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. Examples of ecosystems include deserts, coral reefs, wetlands, rain forests, boreal forests, grasslands, urban parks and cultivated farmlands. Ecosystems can be relatively undisturbed by people, such as virgin rain forests, or can be modified by human activity, such as farms.

Ecosystem services – sometimes called "environmental services" or "ecological services" – are the benefits that people obtain from ecosystems. Examples include freshwater, timber, climate regulation, protection from natural hazards, erosion control and recreation.

Biodiversity is the variability among living organisms within species, between species, and between ecosystems.

A company depends on an ecosystem service if that service functions as an input or if it enables, enhances, or influences environmental conditions required for successful corporate performance.

A company impacts an ecosystem service if the company affects the quantity or quality of the service.

Natural capital is the stock of ecosystems that yield a flow of valuable ecosystem services.

Corporate ecosystem valuation is where both ecosystem degradation and the benefits provided by ecosystem services are explicitly accounted for with the intention of informing and improving business decision-making.

Partly adapted from WBCSD, WRI and Meridian Institute, 2008, *The Corporate Ecosystem Services Review: Guidelines for Identifying Business Risks and Opportunities Arising from Ecosystem Change*, World Resources Institute, Washington DC.

Notes & references

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