



## Water valuation Business case study summaries



wbcsd water



## Introduction and acknowledgments

This compendium of case studies is a companion document to the *Water valuation: Building the business case* publication. It illustrates how and why different companies have carried out water-related valuation studies, and is based on publicly information available.

Our special thanks go to WBCSD member companies featured in the two sets of publications, *Water Valuation: Building the business case* and *Water Valuation: Business case study summaries*: Anglo American, The Dow Chemical Company, EDF, Energias de Portugal, Hitachi, Holcim, Lafarge, Mondi, PUMA, Rio Tinto, Veolia and Xylem (previously ITT). We are also extremely grateful to BCSD Portugal, ERM, Sustain Value, US BCSD and PwC for helping us collect additional examples of corporate valuation studies and providing valuable insights.

### 1. Anglo American Cost analysis for operational sustainability

**Anglo American**, with the assistance of ERM, used a cost-based approach to unlock financial value relating to the integration of safety and sustainability issues within Anglo's asset optimization program. **The aim** was to develop a methodology to be used during operational reviews to identify where cost savings could be made for a set of key parameters. **Water**, as one of the parameters, was assessed in terms of its full financial cost to obtain and its availability. **The main business case argument** was to identify potential cost savings, but the results showed that it also provided added value as a result of bringing company experts from various disciplines together to determine the values at stake rather than to work in silos.

**The approach used** "value driver trees", a form of financial cost analysis that separates out the different cost elements relating to each parameter. For water, this considered costs and revenues associated with the use of grey, green, blue and seawater. **The results** relating to water are not publically available.

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[Weblink for additional information](#)

### 2. Antofagasta Valuation tool to assess risks, opportunities and environmental values

**Antofagasta**, with the assistance of Sustain Value, is developing a combined Corporate Ecosystem Services Review (ESR) and Corporate Ecosystem Valuation (CEV) tool to be applied to their mining operations in Chile and elsewhere. **The overall aim** is to develop a tool that could on the one hand help identify and manage potential environmental risks and opportunities, and on the other, determine whether company operations and projects are creating net environmental value, which is a company goal. **The initial assessment stage** determines qualitative values for water, while the more detailed assessment potentially determines monetary values for water, as well as for various other ecosystem services and other environmental externalities. The values are based on the financial and societal impact that company operations cause to different stakeholder groups. For one operation, the value of using raw seawater instead of desalinated seawater is currently being assessed. **The main business case arguments** are to help manage risks and opportunities and to enhance the company's reputation by helping to ensure that the company creates an overall net environmental gain. **The approach adopted** for the qualitative assessment of value (i.e. high, medium and low) is based on professional judgment and consensus, while any potential monetary valuations are likely to be based on benefit (value) transfers. **The results** are currently being determined.

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Additional information:  
Not yet available.

### 3. The Dow Chemical Company

#### Developing tools to integrate ecosystem values in manufacturing plant design and operations

**Dow**, with the support of The Nature Conservancy (TNC) is, over a 5 year period, developing an approach to valuing ecosystem services to apply to their global operations, initially using three pilot sites. **The aim** of the first pilot, at Dow's Texas operations in Freeport, is to identify the critical ecosystem services at the site for the business and to evaluate alternative scenarios for managing associated risks and opportunities using the Corporate Ecosystem Services Review (ESR), and valuation and cost-benefit analysis. Freshwater is one of the three critical ecosystem services identified at the first pilot site, and its value to stakeholders under different scenarios will be assessed. Water quality improvements may also be an ancillary benefit from large-scale tree planting to deal with air quality mitigation. **The main business case arguments** are to help deliver new practices to solve business and conservation issues, identify project level cost savings, and provide additional societal benefits. **The approaches** to be used for valuation have yet to be determined. **The results** are not yet available.

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[Weblink for additional information.](#)

### 4. EDF

#### Water valuation to optimize water use in the Durance Valley, France

**EDF** used water valuation to help the decision-making process for optimal water management in the watershed along the 250km River Durance, in South-East France, with respect to competing multipurpose uses of water. These include agriculture, tourism (fishing, swimming, sailing, etc.), hydropower, drinking water and flood control. **The overall aim** was to optimize water allocation between energy generation and irrigation and to develop appropriate incentives for water savings in order to restore financial margins, and answer to future water demand from other users. **The value used for water** was the energy cost (€ /KWh) based on current and future prices in France and linked to the energy productivity (m<sup>3</sup>/KWh) and the volume of water used (m<sup>3</sup>) by the hydropower plant. **The main business case argument** for the valuation study was to clearly demonstrate the benefits of optimizing water uses for each party and to define the level of remuneration for this savings. **The approach adopted** was to implement a Water Saving Convention, signed by EDF and the two main irrigators, for a six-year period with the possibility to adjust it if it achieved better results than expected. To balance these efforts, EDF has a commitment to remunerate the partners for their savings. The deal was so effective that a first additional agreement was signed in 2003 and a second one in 2006 to increase the savings target from 44 to 65 and then to 90 million cubic meters, showing a decrease in agricultural consumption from 310 million cubic meters in 1997 to 201 million cubic meters in 2005. **The results showed** that in addition to simply the volume of water saved, a key benefit was the timing of the water savings because the saved water could be used to generate more electricity during peak periods of electricity demand when electricity prices are higher. Both parties come out ahead, with a third winner being ecosystems as around 84% of the water savings are used for ecological purposes.

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Weblinks for additional information:  
[EDF website](#) and [Durance Valley website](#)

## 5. Energias de Portugal (EDP) Corporate Ecosystem Valuation for hydropower management in Portugal

**EDP**, with the support of the WBCSD and several Portuguese universities, undertook a Corporate Ecosystem Valuation (CEV) to explore the ecosystem service values associated with the management of a hydropower facility within a watershed in Portugal. **The aim of the study** was to assess the financial and societal benefits provided as a result of maintaining the hydropower facility. **The values assessed in relation to water** included the financial value of water supplies for human consumption and irrigation, and the societal value of recreational fishing on the reservoirs. **The business case arguments** included learning about ecosystem valuation in anticipation of it being a future requirement, potentially using the results for future financial securities negotiations under the EU Environmental Liability Directive, and being able to promote greener EU Renewable Energy Certificates. **The valuation approach used** for the water supply benefits was a market price based approach (m<sup>3</sup> of water multiplied by the water tariff minus operational costs), while for recreational fishing values, a travel cost approach was used (based on angler license fees plus average travel costs). **The results** underline the importance this hydropower system has for society when comparing the total economic value (TEV) of the watershed between two scenarios—“with” and “without” the hydropower system. In the “with” scenario, the TEV of the hydropower system is higher and only 30% is represented by EDP’s financial benefits. In contrast, the “without” scenario shows a 92% decrease in TEV, highlighting the importance of how EDP manages the facility and site for the region.

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[Weblink for additional information](#)

## 6. Esporão SA Valuing water-cost savings to enhance wine production efficiency

**Esporão SA** used a water valuation approach to determine the extent of cost savings from implementing a water reduction management strategy for their wine production operations in Portugal. The main concern in reducing water usage has to do with environmental awareness of the scarcity of water. **The overall aim** was to monitor the financial implications of their pursuit to reduce the volume of water used per bottle of wine produced. **The value used** for water was the financial cost (i.e. market price) of water, in this case based on € 2.30/m<sup>3</sup>. **The main business case argument** for the valuation study was to better focus where water savings could be found and to determine the level of associated financial cost savings. However, the study also led to additional benefits associated with improved collaboration between company staff at all levels, and by informing stakeholders about the importance and value of water use and associated business risks. **The approach adopted** was simply to apply a financial value (i.e. market price) of water per cubic meter to the volume of water saved for a range of different technologies and actions to reduce water consumption. No recognition of value (qualitative or monetary) was given to the additional social value gained as a result of using less water. **The results** have allowed Esporão to reduce water consumption by 30% so far, saving 10 million liters of water in one year. The amount of water used to produce 1 liter of wine has been reduced from 2.8 liters to 1.7 liters. To summarize, the water savings were due to: a change in cleaning procedures, equipment modifications, training, careful monitoring, and controlling leakage.

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[Weblink for additional information](#)

## 7. Hitachi

### Corporate Ecosystem Valuation for water supply and treatment in the Maldives

Hitachi undertook a Corporate Ecosystem Valuation (CEV) study, supported by ERM and Sustain Value, for a new water supply and water treatment plant using reverse osmosis technology and a new gas-fired power supply in Male, the Maldives, and its surrounding islands. **The overall aim** was to quantify and monetize the financial and societal costs and benefits associated with the schemes, in particular focusing on the environmental impacts. **Water was valued** in terms of the financial value that would be generated from supplying and selling water (i.e. based on price/tariffs). Other environmental impacts were monetized as societal values, which included societal benefits from reduced air emissions (NO<sub>x</sub>, SO<sub>x</sub> and particulate matter) and greenhouse gas emissions, and societal costs due to construction works damaging coral reefs. **The main business case arguments** for Hitachi were to better understand the potential applications and advantages of applying a CEV, and to enhance project sustainability by considering environmental impacts from a stakeholder value and monetary perspective at the planning stage. **The study** used market prices for the financial value of water, and benefit (value) transfers and replacement costs to estimate environmental impacts. The quantification of air emissions and greenhouse gases drew upon life cycle assessments to account for both construction and operational impacts. **The results** showed that the proposed scheme is viable from both a financial and societal perspective, with a 30-year economic benefit-to-cost ratio of 2:3 when societal impacts are included.

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Additional information:  
Not yet available

## 8. Hitachi

### Corporate Ecosystem Valuation for precision agriculture IT solutions in the US and France

Hitachi undertook a Corporate Ecosystem Valuation (CEV) study, supported by ERM and Sustain Value, that assessed the potential benefits that could be gained by farmers, agricultural cooperatives/organizations and society as a whole if they used GeoMation Farm technology, a geographic information system (GIS), to implement precision agriculture on farms in the US and France. **The overall aim** was to quantify and monetize the potential financial and societal benefits relating to reduced inputs and pollution and enhanced crop productivity for corn, wheat and soybeans for an average farm in each country. The potential financial and societal value of reduced water consumption was assessed. Benefits were also assessed for reduced nitrogen and pesticide use and pollution. **The main business case arguments** for Hitachi were to better understand the potential applications and advantages of applying a CEV, and to inform the development and marketing of this product in the two targeted countries. **The study** used market prices for the financial values and benefit (value) transfers for the societal values based on a thorough literature review of precision agriculture improvements and environmental values. **The results** revealed which environmental parameters are likely to be of most interest in the US and France, and indicated that using GeoMation Farm could potentially yield significant financial returns to farmers and agricultural cooperatives/organizations from increased crop production and modest financial cost savings from reduced inputs. They also indicated that society would gain significant benefits from reduced water use and nitrate pollution.

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Additional information:  
Not yet available

## 9. Holcim/ Aggregates Industries UK Corporate Ecosystem Valuation for quarry rehabilitation in England

**Aggregates Industries UK**, a subsidiary of Holcim, with the support of the International Union for Conservation of Nature (IUCN), conducted a Corporate Ecosystem Valuation (CEV) to better inform the rehabilitation plan for a proposed extension to a sand and gravel mine in Ripon as part of the UK permitting process. **The aim** was to quantify in monetary terms the impacts that the quarrying and restoration operations (wetland and lake creation) would have on biodiversity and the ecosystem services provided to local communities and the region. **Water** was relevant to the valuation in relation to the creation of a wetland habitat, a recreational lake, and the provision of flood storage capacity. **The main business case arguments** included demonstrating overall community benefit to gain better access to minerals in the future, saving costs relating to this and future planning procedures, and developing a tool to enhance decision-making with respect to biodiversity and local livelihoods. **The valuation approach** adopted was a benefit (value) transfer drawing upon stated preference survey results and meta-analyses for similar impacts and values elsewhere in the UK. **The study** estimated biodiversity benefits from the proposed wetlands of £ 1.4 million, recreational benefits of the proposed lake of £ 350,000, and increased flood storage capacity of the overall area of £ 224,000. After deducting restoration and opportunity costs, this would deliver net benefits to the local community of about £ 1.1 million (in present value terms) over a 50-year period.

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[Weblink for additional information](#)

## 10. ITT/Xylem Stated preference valuation for an improved water supply in the US

**ITT** (now Xylem) undertook a willingness to pay survey targeted at the general public and agricultural and industrial businesses throughout the US to explore their views and preferences on water management and supply. **The overall aim** was to obtain quantitative information on their views and, in particular, to elicit how much they were willing to pay for improved water infrastructure to ensure long-term access to clean water. The value elicited represents the potential additional economic value that consumers would gain from an improved water supply, which they would in theory be happy to pay (it would become a “financial” value if they then had to pay that amount). **The main business case argument** was to demonstrate the demand from both the US public and businesses to justify to the government the desire for greater spending on water infrastructure, as this is a product that ITT provides. **The approach** adopted was a contingent valuation (stated preference) survey completed by 1,050 general public and 550 business respondents. **The results** revealed that two-thirds of US respondents are willing to pay an average of US\$ 6.20 per month more than they currently pay, representing US\$ 5.4 billion a year (four times current federal investment). Fifty-seven percent (57%) of businesses were willing to pay 7% more than they currently do.

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[Weblink for additional information](#)

## 11. Kraft Foods/Tsb Sugar

### Supply chain ecosystem services risks and opportunity valuation tool

**Kraft Foods**, with the assistance of ERM and Sustain Value, is developing a supply chain ecosystem services risk and opportunity valuation tool, which is being piloted at one of Tsb Sugar's sugar cane plantations in South Africa, with their support. **The overall aim** is to develop an approach that can assist Kraft Foods and its suppliers to manage potential ecosystem service risks and opportunities as effectively as practicable to help secure a sustainable supply of commodities for the future. **The values determined** for water are both qualitative and monetary, and are based on the potential risks and opportunities that may occur both with and without management actions put in place. These relate to issues such as floods and droughts exacerbated by climate change, payments for ecosystem services, and increased water prices. **The main business case arguments** are to enhance the reputation for sustainability of both Kraft Foods and its suppliers, to better manage supplier ecosystem service risks, to evaluate potential new revenue streams, and to develop more robust long-term partnerships between Kraft Foods and suppliers to secure supplies and reduce costs. **The approach adopted** is both a qualitative assessment of value (i.e. high, medium and low) based on professional judgment and a monetary valuation based primarily on change in productivity. **The results** are currently being determined.

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Additional information:  
Not yet available

## 12. Lafarge

### Corporate Ecosystem Valuation for quarry reclamation in the US

**Lafarge**, with support from the World Resources Institute (WRI), the World Wide Fund for Nature (WWF) and the Wildlife Habitat Council (WHC), conducted a Corporate Ecosystem Valuation (CEV) to enhance its land management planning for the future reclamation of a quarry in Presque Isle, Michigan, US. **The aim of the study** was to identify the main ecosystem services of relevance and to inform mining design and reclamation. **The values assessed in relation to water** were erosion control (to avoid sedimentation costs) and water purification (i.e. retaining nutrients). Recreational values (fishing, hunting and wildlife viewing) were also assessed. **The business case arguments** included cost savings, optimizing societal benefits, enhancing the company's land asset values, and developing experience in CEV to use for other applications. **The valuation** approach used the InVEST model to determine avoided costs of sedimentation from erosion control and avoided costs of nutrients retained by vegetation. **The results** predicted avoided societal costs of US\$ 2 million per year for erosion control and US\$ 50,000 per year for nutrient retention.

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[Weblink for additional information](#)

### 13. Maryland State Water Quality Advisory Committee

Economic impact assessment and willingness to pay for river quality improvements in the US

**The Maryland State Water Quality Advisory Committee**, with the support of Downstream Strategies, undertook an economic impact assessment and willingness to pay survey of the benefits from acid mine drainage remediation relating to abandoned coal mines on the North Branch Potomac River. **The aim of the study** was to determine what the local economic benefits are in the region relating to the river to inform decisions about future funding so that remediation of the river can continue. **The benefits** assessed relate to improving river water quality in relation to angling and boating expenditures, knock on economic impacts, and additional willingness to pay for enhanced recreational experiences at the site. **The business case arguments** for doing the study were to justify continued levels of funding to ensure acid mine pollution does not pollute the river again. **The valuation approaches** used were primarily visitor expenditure and willingness to pay questionnaires, with 306 anglers and 79 boaters completing the surveys. This was supplemented by the use of IMPLAN software to calculate additional spending and employment effects. **The results** revealed substantial economic benefits from the remediation based on anglers and boaters currently spending US\$ 2.1 million per year in two local counties, with additional knock on expenditures of US\$ 0.9 million. Overall, this results in around 40 full-time equivalent jobs and US\$ 266,000 in state and local taxes. Anglers and boaters are also willing to pay an additional US\$ 4.1 million per year for existing recreational experiences (i.e. this represents additional existing societal value arising from the remediation).

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[Weblink for additional information](#)

### 14. Minera Escondida Limitada

Marginal Abatement Cost Curve for mining water abatement in Chile

**Minera Escondida Limitada (BHP Billiton)**, with the support of PwC, undertook a Marginal Abatement Cost Curve (MACC) assessment of water consumption at a large mine in the Atacama Desert in Chile. **The aim of the study** was to identify potential projects that are the most cost-effective in terms of reducing consumption of high-quality water (HQW) at the mine. **The values assessed** are the net financial costs (or savings) per cubic meter of water consumption avoided. **The business case arguments** are based on finding the lowest cost means for the company to reduce water consumption, plus demonstrating to stakeholders that the company is doing what it can to reduce the use of a scarce resource. **The MACC valuation approach** assesses the financial implementation costs (i.e. capital and operational costs) less any financial cost savings (such as from reduced water and energy consumption), divided by the volume of water consumption (in m<sup>3</sup>) reduced by that project, for a set of projects. **The results** showed that the financial cost of reducing water consumption varied from a savings of US\$ 30 per cubic meter to a cost of US\$ 50 per cubic meter depending on the project.

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Additional information:  
Not yet available

## 15. Mondi

### Corporate Ecosystem Valuation for water use in a catchment in South Africa

**Mondi**, with the support of the World Resources Institute, conducted a Corporate Ecosystem Valuation (CEV) to explore the financial value of water use in the Mhlatuze catchment in South Africa. **The aim of the study** was to better understand the different users and values in a water catchment area using GIS (global information systems) to help inform Mondi's future forestry and water-related management decisions. **The value assessed in relation to water** was the financial value of water consumption by different user groups. **The business case arguments** included resource efficiency in terms of data management using GIS, sustaining revenues by reducing future operational risks from potential water shortages, and helping to optimize societal benefits through improved coordination and planning for water use by all users. **The valuation** approach used was based on the market price of water (i.e. the volume of water in cubic meters used multiplied by the tariff price for each sector). **The results** showed that, based on the data collected (which was not complete), forestry plantations paid 26 million Rand (at 0.38 Rand/m<sup>3</sup>), irrigation (mainly sugar cane) paid 41 million Rand (at 0.70 Rand/m<sup>3</sup>), and urban/industrial users paid 69 million Rand (at 0.81 Rand/m<sup>3</sup>).

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Additional information:

[WBCSD Guide to Corporate Ecosystem Valuation](#)

## 16. PUMA

### Environmental profit and loss account and global water values

**PUMA**, with the assistance of Trucost and PwC, developed an environmental profit and loss account that ultimately aims to include the societal costs of environmental and social impacts for their entire global supply chain (i.e. internalize externalities). **The aim** of the initial stage was to quantify the societal costs of greenhouse gases and water in monetary terms. **Water was valued** in terms of € per cubic meter of water consumed based on the reduced indirect use value accruing to third parties, such as from freshwater replenishment, ecosystem maintenance and water nutrient cycling. **The main business case arguments** include global recognition and reputational benefits gained, being able to help influence the methodology used, which may eventually be adopted by others, and gaining a detailed understanding of the relative significance of the different impacts their products have along the supply chain. **The approach adopted** for the valuation is value (benefit) transfer, using a sliding scale of values per cubic meter for water, based on the societal costs of using water and its relative scarcity at a local or national level. **The results** revealed a weighted average value (i.e. societal cost) of € 0.81/m<sup>3</sup> water giving a total annual societal water cost of € 47.4 million for the global supply chain. This externality cost is added into their environmental accounts as a notional "shadow price".

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[Weblink for additional information](#)

## 17. Rio Tinto

### Corporate Ecosystem Valuation for forest biodiversity offsetting in Madagascar

**Rio Tinto**, with the support of the International Union for Conservation of Nature (IUCN), conducted a Corporate Ecosystem Valuation (CEV) study to explore the economics of a rainforest biodiversity offset in Madagascar as part of the company's policy of net positive impact (NPI) on biodiversity at an operational level. **The study's aim** was to determine the value of financial and societal costs and benefits to different stakeholders from a proposed offsetting scheme involving the conservation of 60,000 hectares of low-land rainforest. **Water values** were relevant as an additional potential benefit arising from forest conservation in the form of water supply provisions. **The main business case arguments** included identifying the potential nature and extent of additional revenue streams (e.g. through ecosystem service credits), improving stakeholder relations by ensuring stakeholders are adequately compensated, and enhancing the company's reputation by doing such studies and offsets. **The approach used** for the water supply valuation was benefit (value) transfer drawing upon a previous willingness to pay survey in the region for household water and linking the water supply to the amount of forest area protected in the watershed. **The results** of the water supply valuation were that present value water supply benefits over 20 years could be around US\$ 200,000 based on a value of US\$ 1.7/ha. This value contributed to the overall estimated US\$ 17 million net present value benefits (primarily carbon storage values) from proposed forest conservation.

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[Weblink for additional information](#)

## 18. SA Water Corporation/GHD

### Corporate Ecosystem Valuation for water catchment management in Australia

**South Australian Water Corporation**, with support from **GHD** and the WBCSD, undertook a Corporate Ecosystem Valuation (CEV) that assessed **the value** of ecosystem services under several water catchment management options in Cox Creek, Australia. **The aim of the study** was to evaluate the financial and societal costs and benefits associated with different catchment management activities, including, for example, creating sediment ponds and wetlands and improving irrigation. **The values assessed in relation to water** were the financial returns from increased vegetable production and a reduction in water treatment costs from improved water quality regulation. **The business case argument** was predominantly the potential cost savings from demonstrating that implementing catchment management could be cheaper than conventional water treatment. **The valuation approach** used was change in productivity using market prices for increased vegetable production and avoided costs for water treatment. **The overall results** demonstrated the economic viability of improved catchment management with benefits of AUS\$ 2.8 million and costs of AUS\$ 1.6 million (i.e. a benefit-to-cost ratio of 1.7:1).

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[Weblink for additional information](#)

## 19. US Business Council for Sustainable Development / Cook Composites and Polymers Corporate Ecosystem Valuation for wetland construction in USA

**The US Business Council for Sustainable Development (US BCSD)** worked with Cook Composites and Polymers (CCP), and supported by the World Resources Institute (WRI) and Ohio State University, to undertake a Corporate Ecosystem Valuation (CEV) in relation to constructing a wetland at CCP's Houston facility to provide stormwater protection. **The aim was** to assess the financial and societal benefits associated with cost savings and environmental improvements from the use of a natural wetland system compared to renovating the existing man-made system. **Water values** were assessed in terms of flood regulation and water quality regulation benefits accruing from the wetland. **The main business case arguments** were the potential to evaluate and justify financial savings, the demonstration of a positive contribution to the community by creating a habitat and ecosystem services, and the ability to help maintain the company's social license to operate. **The approach drew** upon an ecologically based life cycle assessment (Eco-LCA) method to estimate carbon and water quantities saved and a cost-avoided approach to value the benefits from water flooding and water quality regulation services. **The results** demonstrated a net present value benefit of US\$ 200,000 over a 20-year period, including US\$ 25,000 per year in benefits from flood regulation and US\$ 22,000 per year from reduced stormwater quality treatment fees. The value of the estimated 1.2 billion gallons of water saved was excluded from the valuation.

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[Weblink for additional information](#)

## 20. Veolia Corporate Ecosystem Valuation for land management and biofuels in Germany

**Veolia**, with the support of ERM, conducted a Corporate Ecosystem Valuation (CEV) to evaluate different land and water use management options and the potential for payments for ecosystem services (PES) relating to biofuels and biodiversity on a landholding in Germany. **The aim of the study** was to identify the optimum land use option, based on valuing financial and societal value trade-offs, and to use the valuation results to inform the potential for PES. Most of the **values** were heavily influenced by the amount of water used (e.g. biofuel yields and associated reduced greenhouse gas (GHG) emissions and maintaining biodiversity), while others were an environmental cost linked to water use (e.g. GHG emissions from pumping water). **The business case arguments** included cost and tax savings, potential additional revenue streams, enhanced reputation from the demonstration of shared value creation, and learning about the potential use and applications of CEV. **The valuation** approaches used included change in productivity using market prices (e.g. for biofuel and crop yields), benefit (value) transfers for GHGs, and willingness to pay questionnaires (contingent valuation/stated preference techniques) to elicit recreation and non-use values based on 124 visitor and 83 general public respondents. **The results** showed that the preferred option from an overall financial and societal perspective would be to use two biofuel crops, with a societal benefit cost ratio of 17:1. This included recreational values of around € 5 per visitor per year, and an average general public non-use annual willingness to pay value of € 0.6 for East Berliners and € 3.80 for West Berliners. The preferred option would also result in around € 4 million in cost savings from reduced land taxes.

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[Weblink for additional information](#)

## 21. Yorkshire Water

### Stated preference for improved water services in the UK

**Yorkshire Water**, with the support of Newcastle University, undertook a willingness to pay (stated preference) survey to evaluate the views and priorities of their public and business customers in relation to water supply and wastewater treatment services in Yorkshire, UK. **A core study aim** was to determine customer willingness to pay values associated with five levels of service related to 16 service areas. **The value of water** itself was not determined, but willingness to pay was assessed for changes in the level of service for parameters such as security of water supply, river water quality, internal sewer flooding, drinking water quality and bathing water quality. **The business case arguments** for doing the study include the fact that customer service is a top priority for Yorkshire Water, and this questionnaire form allows for powerful quantitative and monetary analysis of customer views. It also provides data to inform the right level of company investment in competing service areas. **The valuation approach** used was a choice experiment (a stated preference) questionnaire survey on 400 customers to elicit monetary values to attain all five levels of all 16 service areas. **The results** revealed separate and combined residential and business benefits for each level of service area improvement. For example, in terms of bathing water quality on beaches, potential improvements go from the current standard of four beaches reaching excellent quality to seven, 13 or 21 beaches reaching excellent quality. Total annual willingness to pay by business and residential customers across the region for these improvements is £ 4.7 million, £ 14.2 million and £ 26.9 million respectively.

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[Weblink for additional information](#)

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October 2012

**Disclaimer**

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Leveraging its strong relationships with stakeholders as the leading advocate for business, the Council helps drive debate and policy change in favor of sustainable development solutions.

The WBCSD provides a forum for its 200 member companies – who represent all business sectors, all continents and combined revenue of more than US\$ 7 trillion – to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The Council also benefits from a network of 60 national and regional business councils and partner organizations, a majority of which are based in developing countries.

For more information visit [www.wbcd.org](http://www.wbcd.org)





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