wbcsd business ecosystems training

BET India Module 2

Measuring and Assessing Impacts and Dependencies

Facilitator Notes

December 2012

Business Ecosystems Training – Contributors

All content is based on WBCSD material and publically available reports.

BET curriculum and structure was designed by KPMG

The structure and content development of BET was governed by an Advisory Committee consisting of WBCSD member companies and Regional Network partners, NGOs, UN and academic institutions.

Facilitators' guide: how it works

This Facilitators' guide is set up to provide all the information needed to present the BET course – **Module 2: Measuring and Assessing Impacts and Dependencies** to a group of delegates

The contents of the guide are:

- Introduction to the course and course timetable
- Facilitators' notes

Within the Facilitators' notes, there are three different types of information provided:

1) Session overview and timeline

Overview of each section and suggested times for delivering the session

2) Facilitators' notes structure

Facilitators' notes – shown on left hand side of each page, these include:

- Detailed notes as to how to run the session, including how long to spend on each slide
- Background notes
- Crib notes for the facilitator to present from

Facilitators' guide: how it works (cont.)

3) Media/activity/handout guidance

Media/activity/handout guidance – shown on the right hand side of each page, these include:

- A copy of the PowerPoint slide the delegates are seeing as the facilitator presents
- Guidelines as to how to run group sessions and exercises

Further information

For further information about BET, please refer to the BET Implementation Guide

- A separate glossary document is provided for this course
- A separate Frequently Asked Questions (FAQs) document is also provided for this course

Introduction to the course

Audience

All delegates are assumed to have no technical background in ecosystems. The audience could therefore include:

- Any business units/functions
- Front line employees
- Middle management
- New joiners

This module is suitable for those with a basic understanding of ecosystems and ecosystems services concepts in the context of their organization, i.e., general ecosystem/biodiversity terminology should be clearly understood, either from:

- External work, i.e. understanding of the ecosystem dependencies of their own company; or
- Attending module 1

The course may be conducted as internal training or an external course for delegates from a number of companies.

Introduction to the course (cont.)

This module will be an opportunity for delegates to understand how different companies or departments are currently accounting for biodiversity and ecosystems services.

Key Topics

Key topics for Module 2 include:

- Measuring ecosystem services change, e.g. Change in freshwater availability
- Introduction to concepts and tools available for measuring impacts and dependencies
- Action planning: Identifying where delegates can apply these concepts in their own organizations

Learning Objectives

By the end of this module, delegates will be able to:

- Define key terms and concepts with regard to measuring ecosystem services impacts and dependency
- Understand the business case for assessing impacts and dependencies on ecosystems
- Apply the Ecosystem Services Review (ESR) framework/methodology to understand impacts and dependencies on ecosystem services change, and

Introduction to the course (cont.)

- Conduct an initial assessment of their own company's impacts, following the application of the ESR in a case study and the action planning exercise to identify relevant applicable tools.

Delegate binders distributed on arrival at the course

- All delegates will be given the links to course material and references for further research
- Additional handouts will be provided throughout the module and are located in the annex for this pack
- The Facilitators Notes should NOT be made available to the delegates in soft copy

Introduction to the course (cont.)

Facilitators

- Two facilitators will be used throughout the training. These should include one specialist with a background in environmental/ sustainability and the other with a background in learning and development
- Presenting and facilitating will be shared between both

Pre-work

- Session 6 can be set as pre-work if delivering the module separately and short of time

BET Module 2: Measuring and assessing impacts and dependencies

Timetable

Time	Duration (mins)	Session	Trainer
	15-45	Session1: Icebreaker and Introduction/Introduction	
	30	Session 2: Measuring change in ecosystem services provision – the basic concepts	
	10	Session 3: Introduction to policy trends	
	15	Session 4: The business case for action	
	10	Session 5: Knowledge check	
	10-25	Session 6: Brainstorming the business case	
	30	Coffee break	
	30	Session 7: Identifying ecosystem impacts and dependence	
	15	Session 8: Knowledge share	
	50	Session 9: Introduction to ecosystem services review (ESR)	
	40-55	Session 10: Introduction to tools, frameworks and methodologies	
	15	Session 11: Wrap up	

Key: Presentation
Exercise

Time guidelines

Time guidelines	Time
Introduction	**15 mins**

Session objective

To establish delegates' level of knowledge, skills to be acquired, and identify learners' needs. To allow the delegates to be introduced to each other.

Session format

This session will be run by the two course facilitators – it is your opportunity to make the delegates feel welcome and at ease and so they can get to know the other delegates.

Handouts

Delegates course material desk pack – hardcopies will be laid out on delegate desks in advance of their arrival at the course. This pack contains copies of all of the slides used throughout this course together with relevant handout materials required for each session.

A glossary of terms used during the module will also be available in the course material desk pack.

Session overview

The primary focus of this session should be giving delegates a warm welcome and ensuring that they feel at ease.

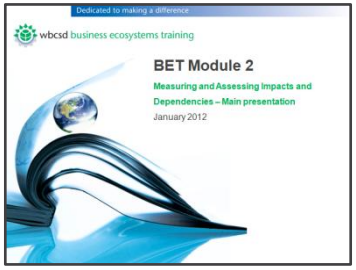
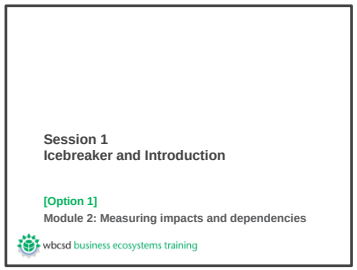
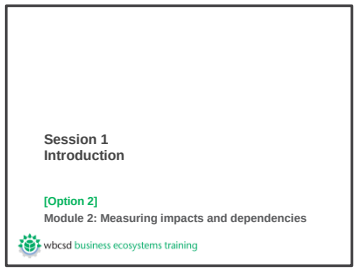
This session allows the course facilitators to introduce themselves and give delegates an overview of their career history.

Delegates can also introduce themselves to each other as part of an icebreaker exercise.

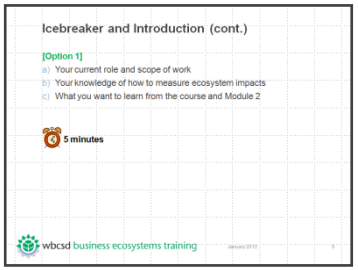
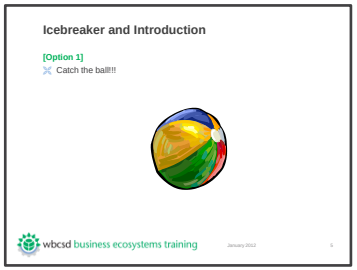
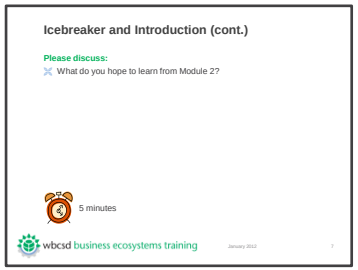
It also explains the structure, content and objectives of the course.

Session 1

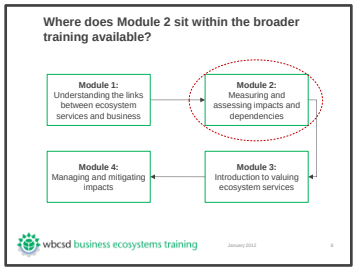
Icebreaker and Introduction

Facilitators' notes	Media/activity/handout guidance
Slide 1: <1 minute Welcome delegates to the BET course **Slide 2: < 1 minute** Tell delegates that the course has been developed by the WBCSD in collaboration with KPMG and an advisory committee made up of several WBCSD member companies, Regional Network partners, academic and UN institutions and NGOs. **Slide 3/4: <1 minute** **Instructions:** Welcome delegates to the course. Tell delegates that, since you will be working together closely over the next few hours, you would like to start the course by providing them with an opportunity to quickly learn more about each other. **[Optional, depending on training structure: if modules are being prepared in one block then no need for icebreaker and intro.]**	   

Icebreaker and Introduction (cont.)

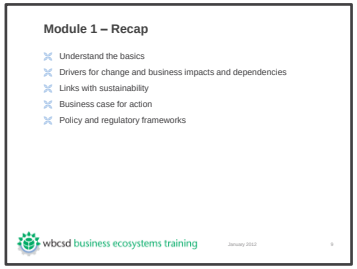
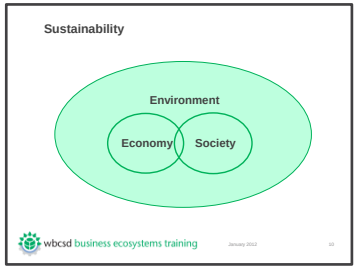
Facilitators' notes	Media/activity/handout guidance
Time Slides 5-7: 10-15 minutes (depending on number of delegates) Icebreaker (Facilitator to vary the use of these activities in accordance with the mix of delegates) **[Option 1 slide 5: Interactive]** Module facilitator will put delegates into pairs, who are then given 5 minutes to discuss the following three questions: - Current scope of work - Knowledge of how to measure ecosystem impact; and - What they want out of the course Delegates then report back to the group, introducing their partner using the information they have learned. **[Option 2 slide 6: Catch the Ball]** Throw a soft ball to one of the delegates who then introduces themselves by answering the three questions below: - Current scope of work - Knowledge of how to measure ecosystem impact; and - What they want out of the course The delegate then throws the ball to someone else (who has not yet answered).	   **[Option 3 slide 7: What would delegate like to get out of this module]** Ask delegates what they would like to get out of this course specifically. **Instructions:** The facilitator will take note of expectations and specific learning objectives, including indicators/measures on a flip chart. This will be referenced throughout the day and items checked off. It could also be referred back to at the end of the day ensuring that the training has addressed the expectations and needs of the delegates.

Icebreaker and Introduction (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 8: 1 minute **Instructions:** - Explain where Module 2 sits within the broader training available, - Facilitator to talk through the slide, introduce the later topics, i.e., modules 3 and 4. Facilitator to explain where Module 2 sits within the broader training course. Module 2 introduces the measuring and assessing impacts and dependencies between ecosystem services and business. Module 2 of this course is the second of four modules covering specific topics, including: - Module 1: Understanding the links between ecosystems and business (which delegates should have an understanding of); - Module 3: An introduction to valuing ecosystem services; and - Module 4: Managing and mitigating impacts. The modules are independent of each other and can be taken independently or in succession. This training is designed to be facilitator led but the material is available on the WBCSD website, and is therefore accessible to individual learners. This module includes a recap of Module 1. **[Optional: recaps of previous modules or days, depending on training structure: if modules are being prepared in one block then daily recaps suffice]** This module is a primer to help delegates understand how impact/dependency assessment can aid business decision making.	

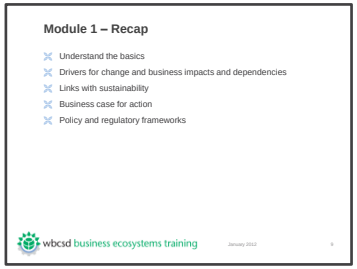
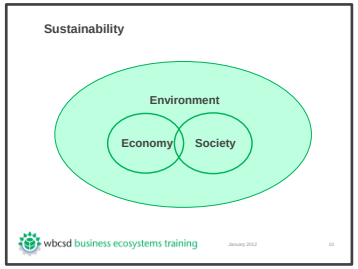
Session 1

Icebreaker and Introduction (cont.)

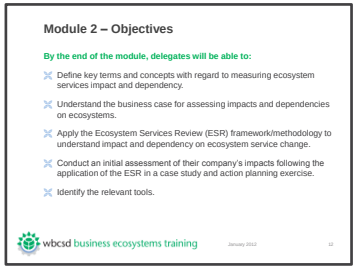
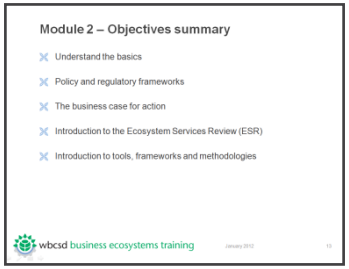
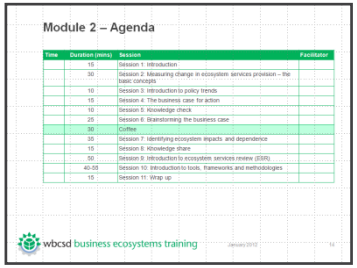
Facilitators' notes	Media/activity/handout guidance
Slides 9,10 & 11: 10 minutes + [optional 5 minutes Q&A] **[Optional: recap of previous modules or days, depending on training structure: if modules are being prepared in one block then daily recaps suffice]** **Instructions:** Facilitator to **recap specific concepts** from module 1, asking delegates to give a definition of: - Biodiversity - Ecosystems, and - Ecosystem services, i.e. Provisioning, regulating, cultural and supporting This module will look more closely at how these concepts can be measured and assessed. **Answers** **Biodiversity** is the variability among living organisms within species, between species, and between ecosystems. It is this genetic variability (phenotype, genotype and environment) which gives organisms within ecosystems the ability to respond to stress. By having a range of organisms adapted to thrive in different circumstances, the ecosystem is more resilient. **Ecosystem** is a dynamic complex of plant, animal, and micro-organism communities and their nonliving 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.	   **Answers (cont.)** **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.

Session 1

Icebreaker and Introduction (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 9,10 & 11: 10 minutes + [optional 5 minutes Q&A] **[Optional: recaps of previous modules or days, depending on training structure: if modules are being prepared in one block then daily recaps suffice]** **Instructions:** Facilitator to **ask delegates:** - The main challenges facing business were described in module 1: can anybody name them? **Answers** - Water scarcity - Climate change - Habitat change - Biodiversity loss and invasive species - Overexploitation of the ocean - Nutrient overloading leading to pollution Can anyone name some of the drivers of these changes? **Answers** - Population growth - Lifestyle changes - Governance issues In session 1 we also discussed links with general sustainability issues and introduced some political / regulatory frameworks. We will revisit this in session 3.	   Finally, we looked at the business case for action, can anyone tell me some of the risks associated with ecosystem dependency? These will be fully re-capped in session 2. **Answers** - Operational (e.g. Increased scarcity and cost of raw materials) - Regulatory and legal (e.g. Public policies like taxes and moratoria on extractive activities) - Reputational (e.g. Relationships and image from media and NGOs) - Market and product (e.g. Consumer preferences) - Financing (e.g. Availability of capital)

Icebreaker and Introduction (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 12-13: 2 minutes **Instructions:** The facilitator will describe the objectives and the objective summary of this training module and provide linkages between these and the learning objectives described by the delegates. **Slide 14: 1 minute** **Instructions:** The facilitator will briefly go through the agenda for the sections that will be covered in this training module and provide linkages with the above objectives and the learning objectives described by the delegates. The facilitator will leave the course timetable displayed throughout the course as a poster.	  

Icebreaker and Introduction (cont.)

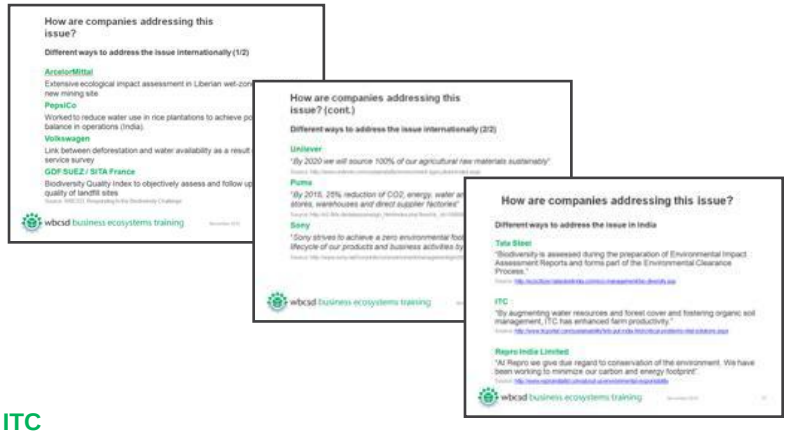
Facilitators' notes	Media/activity/handout guidance
Slides 15-17: 2-5 minutes **Source:** WBCSD, *Responding to the Biodiversity Challenge* (2010). Available online, *http://www.wbcsd.org/web/nagoya/RespondingtotheBiodiversityChallenge.pdf* **Instructions:** Facilitator to select examples to talk through in order to establish the business context and give the audience a representation of how companies are responding to the need to measure and assess impacts and dependencies on ecosystems internationally or in India (depending on the audience). **[Customize – company to provide a quote of specific relevance to their company]** **ArcelorMittal** ArcelorMittal are a leading steel manufacturer. Whilst developing plans to mine for iron ore in the remote Nimba mountain range of Liberia, they carried out an extensive ecological impact assessment, involving NGOs and local and international specialists. This survey was the first of its kind in the region, and helped to identify a large range of vulnerable species and ecosystems. The project added value to ArcelorMittal's operations by building relationships with local stakeholders and strengthening their license to operate. **PepsiCo** Committed to conserving more water than it uses in its operations in India, PepsiCo has engaged in a water use reduction program in agriculture, a sector that accounts for over 85% of the country's water consumption, and which offers significant water saving opportunities. The implementation of direct seeding of rice extended to 2630 hectares throughout India in 2009, resulting in a saving of 5.5 billion liters of Water. This significant reduction of water use has allowed PepsiCo India to achieve positive water balance – giving back more water than its business consumed.	 **Volkswagen** Operated a factory in an area of Mexico where water was scarce and local populations were growing. Ecological surveys showed significant risks associated with water consumption. Assessment of the water-related ecosystem services showed a link between water availability and deforestation. This led to Volkswagen undertaking an extensive reforestation programme in the area, thus adding security to the availability of water and their factory's operations. **GDF Suez / SITA France** SITA France (GDF Suez Group) manages a great number of sites in France for recycling, waste treatment and landfill operations. They are therefore exposed to social / reputational risks surrounding the negative imagery of landfills etc. In response, GDF Suez developed a Biodiversity Quality Index in collaboration with the French Natural History Museum to measure and manage the impacts of their landfill operations, creating an objective standard for assessment. This helped them secure a license to operate and aided the development of restoration measures.

Icebreaker and Introduction (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 15-17 (cont.): 2-5 minutes **Instructions (cont.):** Facilitator to talk through the examples in order to establish the business context and give the audience a representation of how companies are responding to the need to measure and assess impacts and dependencies on ecosystems internationally or in India (depending on the audience). **Unilever (do not repeat if used in module 1)** **Source:** *http://www.unilever.com/sustainability/environment/agriculture/index.aspx* In November 2010 Unilever announced its commitment to source 100% of its agricultural raw materials sustainably by 2020. It also committed to link more than 500 000 smallholder farmers and small-scale distributors into its supply chain. Sourcing sustainably means that farmers and farm workers can improve their living conditions and earn an income they can live on. It also helps to maintain and improve soil fertility, enhance water quality and availability and protect biodiversity. The approach is to work closely with suppliers to help them improve their farming practices and minimize their environmental impacts. **Puma** **Source:** *http://ir2.flife.de/data/puma/igb_html/index.php?bericht_id=1000004&index=&lang=ENG* In 2010, after more than 10 years of successful implementation of social and environmental standards, PUMA launched and ambitious long term sustainability program, with targets that it aims to achieve by 2015 based on a 2010 baseline. To monitor these objectives, PUMA has also established an external Advisory Board of experts in sustainability to consult on its mission and PUMA's sustainability program.	 **Sony** **Source:** *http://www.sony.net/SonyInfo/csr/environment/management/gm2015/index.html* "Zero environmental footprint" means the reduction of the environmental footprint of our corporate activities and of every Sony product throughout its life cycle to zero, and we continue to pursue a wide range of related initiatives. We will strive to achieve this by 2050; our goals for the first phase, which continues through 2015, are outlined in Green Management 2015." Examples of targets, at operation level: - Achieve an absolute reduction in waste from sites of 50% from the fiscal 2000 level - Increase the waste recycling rate group wide to more than 99% - Achieve a 30% absolute reduction in the total volume of water used from the fiscal 2000 level

Session 1

Icebreaker and Introduction (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 15-17 (cont.): 2-5 minutes **Instructions (cont.):** Facilitator to talk through the examples in order to establish the business context and give the audience a representation of how companies are responding to the need to measure and assess impacts and dependencies on ecosystems internationally or in India (depending on the audience). **Tata Steel** **Source:** *http://ecocitizen.tatasteelindia.com/eco-management/bio-diversity.asp* Through its Environmental Policy, Tata Steel is committed to: - Identifying, assessing and managing environmental impacts. - Developing and rehabilitating abandoned sites through afforestation and landscaping. - Protecting and preserving biodiversity in the areas of operation. At Tata Steel, Bio-diversity is assessed during the preparation of Environmental Impact Assessment Reports and forms part of the Environmental Clearance Process. Tata Steel has extensive reclamation and afforestation programmes in place, which forms part of their endeavour to maintain bio-diversity along with Implementation of new programmes.	 **ITC** **Source:** *http://www.itcportal.com/sustainability/lets-put-india-first/critical-problems-vital-solutions.aspx* ITC targets four problems, which it believes are the fundamental obstacles to productivity and growth in the farm sector : 1. Loss of productivity through soil erosion caused by intensification of land use and decline of water tables and forest resources. 2. Dependence on out-moded farm practices and inferior inputs. 3. Loss and disruption of farm incomes and non-availability of alternative livelihoods. 4. Inadequate access to primary education and healthcare. The delivery model mobilises a four-way partnership between village communities, specialist NGOs, the Government and ITC, bringing to every initiative the best relevant management and technical expertise. By augmenting water resources and forest cover and fostering organic soil management, ITC has enhanced farm productivity. It has simultaneously opened up new avenues of non-farm income and employment to reduce pressure on land.

Icebreaker and Introduction (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 15-17 (cont.): 2-5 minutes **Instructions (cont.):** Facilitator to talk through the examples in order to establish the business context and give the audience a representation of how companies are responding to the need to measure and assess impacts and dependencies on ecosystems internationally or in India (depending on the audience). **Repro India Limited** **Source:** *http://ecocitizen.tatasteelindia.com/eco-management/bio-diversity.asp* Repro India Limited provides content, print & fulfillment solutions to publishers (includes digitization, conversion, management of content, printing and binding of books, warehousing, delivery) - We pay due attention to the soil, water, air use and effluent quality at our plants. - We either recycle our waste or disposed it off as per the ISO 14001 : 2000 environmental management system standards. - We contribute to the sustainable management of the world's forests. We are certified for use of FSC COC and PEFC paper. - Repro earlier pioneered the use of recycled paper among India's corporates. Today several of our corporate customer's Annual reports are printed using such paper. - Repro has helped develop the short run print market in India. Short run printing uses digital technology, which results in a lower consumption of chemicals, waste paper and other consumables. It also cuts down books returns. With short runs, books are now printed on a just-in-time basis, all leading to a lower carbon and energy use.	

Time guidelines

Time guidelines	Time
Define key terms and concepts – presentation	**35 mins**

Session objective

Clarify key words and themes. This presentation will set the base-language for the rest of the module.

Session format

This session will be run by one course facilitator, who will talk through key concepts and definitions with delegates.

Handouts

Delegates course material desk pack – hardcopies will be laid out on delegate desks in advance of their arrival at the course. This pack contains copies of all of the slides used throughout this course together with relevant handout materials required for each session.

A glossary of terms used during the module will also be available in the course material desk pack.

Session overview

The primary focus of this session should be to provide delegates with the base language and terminology they will use for the rest of the module.

It will allow delegates to learn the basic concepts or clarify/strengthen any previous knowledge.

Measuring change in Ecosystem Service provision – the basic concepts

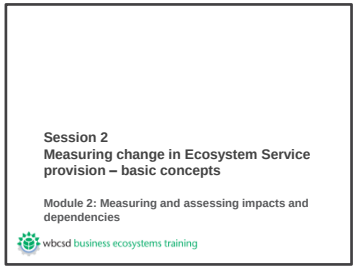
Facilitators' notes	Media/activity/handout guidance

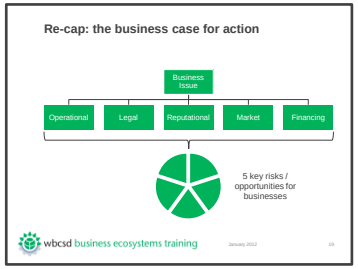
Slide 18: 1 minute

Instructions:

Facilitator to introduce the objectives of this session, i.e., to clarify key words and themes. This presentation will set the base-language for the rest of the module.

Source: WBCSD, *Guide to Corporate Ecosystem Valuation – Detailed Presentation (April 2011)* *http://www.wbcsd.org/work-program/ecosystems/cev/downloads.aspx*



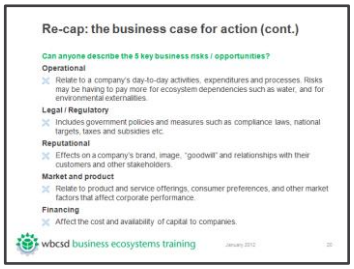


Slide 19-20: 5 minutes

Recap: the business case for action

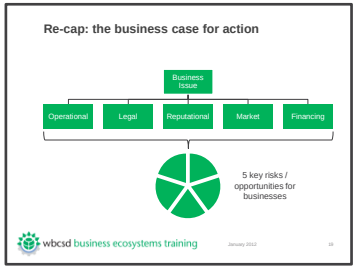
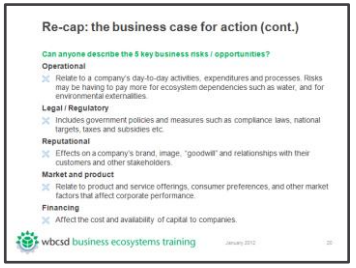
Facilitator briefly recap the 5 key business risks / opportunities.

If following Module 1, read only the bold content as a quick recap. Facilitator may wish to make the session interactive, asking delegates to describe risks / opportunities.

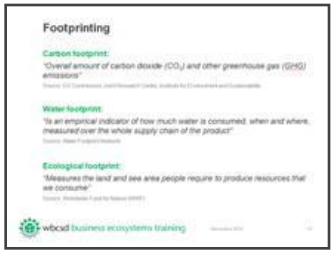


- **Operational: relate to a company's day-to-day activities, expenditures and processes. Risks may be having to pay more for ecosystem dependencies such as water, or for environmental externalities such as pollution.** For example, Dow uses household wastewater on its Terneuzen industrial site in The Netherlands, which not only allows water to be re-used three times but also saves energy and chemicals previously used for water treatment.
- **Regulatory: include government policies, laws, and court actions.** For example Mondi, an integrated paper and packaging producer, is leading a multi-stakeholder program in South Africa to help restore wetlands, incl. by lobbying for policy changes. Even if this means the loss of commercial forests, it helps preserve all of Mondi's operations that are highly dependent on water availability.
- **Market: relate to product and service offerings, consumer preferences, and other market factors that affect corporate performance.** For example, Henkel's eco-friendly "Terra" cleaners and detergents use active ingredients that are based predominantly on plant-derived raw materials rather than petrochemicals. Car manufacturers developing hybrid cars are another example. US organic food sales are growing at 3 times the rate of the food sector as a whole (ref. TEEB for Business).

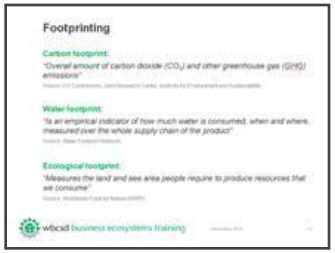
Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 19-20 (cont.): 5 minutes **Recap: the business case for action** Facilitator briefly recap the 5 key business risks / opportunities. **If following Module 1, read only the bold content as a quick recap. Facilitator may wish to make the session interactive, asking delegates to describe risks / opportunities.** • **Reputational: affect a company's brand, image, "goodwill" and relationships with their customers and other stakeholders**. For example, in 2008, Unilever's CEO announced that all Unilever's palm oil will be certified sustainable by 2015. Before this announcement, Unilever had been targeted by pressure group Greenpeace as part of a campaign to highlight the environmental impact of the global increase in demand for palm oil. Unilever buys about 1.6 million tons of palm oil each year so this is a significant commitment. • **Financing: affect the cost and availability of capital to companies.** For example, project finance loans can only be received if the company complies with the 'Equator Principles' and the underlying IFC biodiversity performance standards or a bank's own biodiversity policies. ChevronTexaco received approval in 2005 to convert a tapped-out drilling site in Louisiana into a 2,800-hectare wetland to generate credits for the U.S. wetland mitigation banking market - the company could earn more than $150 million selling the credits to developers. Rabobank has specific requirements regarding impacts on biodiversity for palm oil and soya (ref. TEEB for Business).	 

Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 21: 4 minutes **Instructions** Facilitator to briefly explain key terminology to audience. Facilitator should highlight the fact that there is still considerable debate regarding the most accurate definitions of these concepts. This slide presents some introductory examples. **Carbon footprint** *"Carbon footprint (CF) – also named Carbon profile – is the overall amount of carbon dioxide (CO2) and other greenhouse gas (GHG) emissions (e.g. methane, etc.) associated with a product, along its supply-chain and sometimes including from use and end-of-life recovery and disposal. Causes of these emissions are, for example, electricity production in power plants, heating with fossil fuels, transport operations and other industrial and agricultural processes.* *The carbon footprint is quantified using indicators such as the Global Warming Potential (GWP). As defined by the Intergovernmental Panel on Climate Change (IPCC), a GWP is an indicator that reflects the relative effect of a greenhouse gas in terms of climate change considering a fixed time period, such as 100 years (GWP100). The GWPs for different emissions can then be added together to give one single indicator that expresses the overall contribution to climate change of these emissions."* **Source**: Carbon Footprint: JRC EU Commission – *http://lct.jrc.ec.europa.eu/pdf-directory/Carbon-footprint.pdf*	 **Water footprint** *"The water footprint shows human appropriation of the world's limited freshwater resources and thus provides a basis for assessing the impacts of goods and services on freshwater systems and formulating strategies to reduce those impacts."* **Source**: Water Footprint: Water Footprint Org – *http://www.waterfootprint.org/?page=files/FAQ_Technical_questions* **Note: the definition of 'water footprint' is particularly debated. It is expected that future definitions more adequately account for impacts / dependencies on both quality as well as quantity of water resources. The definition that follows is from the Water Footprint Network.**

Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 21 (cont.): 4 minutes **Water footprint (cont.)** *"The water footprint is an indicator of freshwater use that looks at both direct and indirect water use of a consumer or producer. The water footprint of an individual, community or business is defined as the total volume of freshwater that is used to produce the goods and services consumed by the individual or community or produced by the business. Water use is measured in terms of water volumes consumed (evaporated) and/or polluted per unit of time. A water footprint can be calculated for a particular product, for any well-defined group of consumers (e.g. an individual, family, village, city, province, state or nation) or producers (e.g. a public organization, private enterprise or economic sector). The water footprint is a geographically explicit indicator, not only showing volumes of water use and pollution, but also the locations."* **Water footprint of a business** "*The water footprint of a business – which can also be called alternatively corporate or organizational water footprint – is defined as the total volume of freshwater that is used directly and indirectly to run and support a business. The water footprint of a business consists of two components: the direct water use by the producer (for producing/manufacturing or for supporting activities) and the indirect water use (the water use in the producer's supply chain). The 'water footprint of a business' is the same as the total 'water footprint of the business output products'.*" **Source:** Water Footprint Network *http://www.waterfootprint.org/?page=files/Glossary* **Note: Another definition is currently under development by ISO (ISO 14046) and should be released in the next few years**	 **Ecological footprint** *"An **ecological footprint** measures the land and sea area people require to produce resources that we consume. This includes our food, our clothes, fuel we use for our cars and building materials for our homes. It also measures how much land and water is required to deal with the waste products of our consumption, such as carbon dioxide and rubbish.* *This is useful as it allows us to directly compare how much land and water is required to sustain our lifestyles compared with how much there actually is."* **Source:** WWF – *http://footprint.wwf.org.uk/static/faq*

Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 22: 2 minutes **[Option 1 Interactive: Facilitator to ask 'what are the factors that impact the water footprint?' and use a flipchart to record examples]** **[Option 2 Interactive: Facilitator to ask delegates if they have experience using environmental footprints and tally numbers on a chart (see example flip chart layout opposite)]**	**Option 2 flipchart layout:** 

Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 23: 4 minutes **Sources:** WBCSD & WRI, *ESR* (2012)– *http://www.wri.org/publication/corporate-ecosystem-services-review* WBCSD, *Connecting the dots* (2005) *http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=23* (link to connecting the dots at the bottom of the webpage). **Instructions:** Facilitator to re-cap terminology, ask the delegates to give examples of the ecosystem service types listed following the introduction of the four different ecosystem service categories. Facilitator to move to slide 23 following the introduction of the four ecosystem service categories, i.e., provisioning, regulating, cultural and supporting **Background:** In some instances, business performance and the bottom line are heavily influenced by a company's interaction with 'ecosystem services', the variety of benefits ecosystems provide. Provisioning services - **Examples**, all companies depend on these services to some degree or other, while many companies impact them as well. - Nearly every industry sector relies on freshwater. - Many others utilize wood, genetic resources, biomass fuels, wild fish, and biochemicals, to name a few.	 Regulating services - **Examples**, agribusiness which relies on natural pollination and erosion control will depend on these services. - The insurance industry and anyone located in floodplains benefit from the storm protection provided by wetlands and barrier reefs. - Others benefit from the carbon sequestration services forests provide. Cultural services - **Examples**, the tourism industry, for example, relies on these services to attract vacationers. - Many companies face risks due to the impacts they have on iconic species and ecosystems on which people place high ethical or religious value. Supporting services - Soil formation - Nutrient cycling

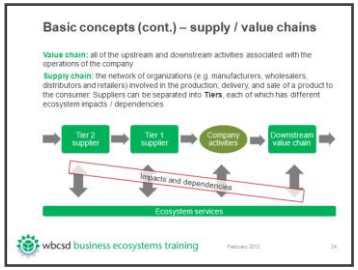
Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 24: 3 minutes **Sources:** *WBCSD* & WRI, *Corporate Ecosystem Services Review V2.0 (2012)* [online]. [Accessed 2 August 2011]. Available from: *http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=28* *GRI, Approach for reporting on ecosystem services (Oct. 2011)* *https://www.globalreporting.org/resourcelibrary/Approach-for-reporting-on-ecosystem-services.pdf* **Instructions:** Facilitator to briefly explain key terminology to audience. Facilitator to link each definition below to an ecosystem service impact. **Background:** ***Re-cap from Module 1 – interactive, or read through if stand alone*** *"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.* *A company's **priority ecosystem services** are those services on which the company has a high dependence and/or impact and thereby are the most likely sources of business risk or opportunity to the company.* ***Drivers** are factors—natural or man-made—that cause changes in an ecosystem and its ability to supply ecosystem services."*	 **Impacts, more specifically regarding ecosystem services:** Impacts result from pressures exerted on ecosystem services by operational activities. They refer to either a positive or negative change in the supply of services and can occur through changes to the stock and/or flow of ecosystem services. The impact of a specific organization can be defined when such a change can be attributed to activities of the organization in question or as part of cumulative effects with other stakeholders. *Source: GRI, Approach for reporting on ecosystem services, Oct. 2011*

Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 24 (cont.): 3 minutes **Direct vs. Indirect impacts** **Direct impacts** - Impacts largely within a company's control. These impacts can be inputs or outputs that arise from the day-to-day activities of a company. Examples include: creation of jobs within a firm, the sale of a product or the adherence to a certain code or standard. **Indirect impacts** - Impacts not in the company's control but within the company's influence. They can also be characterized as "knock-on effects" of the direct impacts. They may include the creation of jobs within the supply chain or a change in the quality of life for the consumers who buy a product or service. It can also be seen as the additional value derived by other firms (small and large) that deal with the company.	

Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 25: 3 minutes **Source:** WBCSD & WRI, *GHG- Corporate Value Chain (Scope 3) Accounting and Reporting Standard,* (Oct. 2011). *http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=13757&NoSearchContextKey=true* **Instructions:** Facilitator to talk through basic concepts associated with supply / value chains. Facilitator to explain the diagram and definition. The diagram shows how each stage of value chain, upstream and downstream, impacts and depends on ecosystem services, and thus the reporting company can have indirect impacts / dependencies. **Value chain:** Refers to "all of the upstream and downstream activities associated with the operations of the reporting companies, including the use of sold products by consumers and the end-of-life treatment of sold products after consumer use". **Supply chain:** A network of organizations (e.g., manufacturers, wholesalers, distributors and retailers) involved in the production, delivery, and sale of a product to the consumer. Suppliers can be separated into : **Tier 1 supplier**: A supplier that provides or sells products directly to the reporting company. A tier 1 supplier is a company with which the reporting company has a purchase order for goods or services. **Tier 2 supplier**: A supplier that provides or sells products directly to the reporting company's tier 1 supplier. A tier 2 supplier is a company with which the reporting company's tier 1 supplier has a purchase order for goods and services. As the following example of Puma will show there can be a number of tiers within the supply chain.	

Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance

Slides 26-27: 3 minutes

Basic concepts - supply / value chains (cont.)

Sources:

Puma: *http://about.puma.com/wp-content/themes/aboutPUMA_theme/financial-report/pdf/EPL080212final.pdf* and *http://www.ppr.com/en/press/press-releases/ppr-commits-group-environmental-profit-loss-account-2015*
Unilever:
http://www.unilever.com/sustainability/environment/climate/carbon/index.aspx
http://www.unilever.com/sustainability/environment/water/footprint/index.aspx
http://www.unilever.com/images/OurFootprint2tcm13261424.png

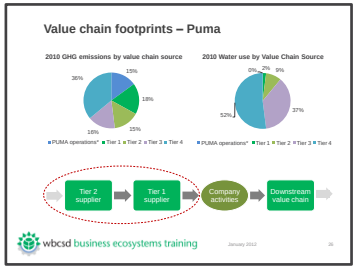
Instructions:

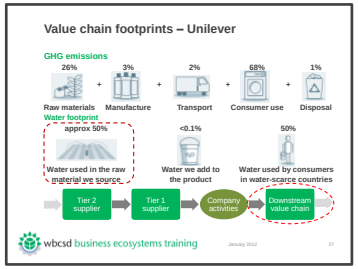
Facilitator to use Puma and Unilever as examples of reporting on upstream/downstream value chain environmental footprints.

Background

Puma

In 2009 PUMA started to develop an E P&L that measured and assessed the impacts of greenhouse gas emissions, water use, land conversion, air pollution and waste resulting from PUMA's core operations and supply chain by putting a financial value on them. The environmental impacts were valued at € 145 million for 2010. The analysis revealed that 94% of the environmental impacts occur among PUMA's external suppliers further down the supply chain. 57% of all environmental impacts are associated with the production of raw materials such as leather or cotton in the company's supply chain. PUMA's focus on using more sustainable materials will help to mitigate the impacts.



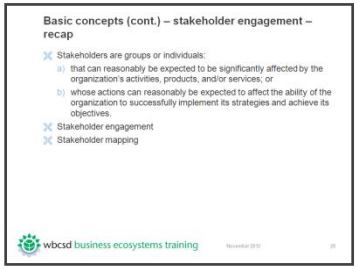


Unilever

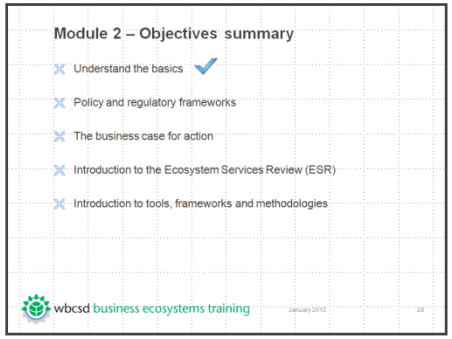
The Unilever Carbon footprint indicates that most of their GHG emissions and water use occur downstream, i.e. during consumer use of the products.

The GHG footprint covers 70% of Unilever's volumes and Unilever's water footprint relates to a 2008 baseline study conducted across 7 countries.

Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 28: 3 minutes **Basic Concepts – Stakeholder engagement** **Sources:** Global Reporting Initiative, *www.globalreporting.org* WBCSD, Measuring Impact Framework (2008). *http://www.wbcsd.org/work-program/development/measuring-impact.aspx* **Instructions:** Facilitator to talk through basic concepts associated with stakeholder engagement. **[Option: recap from Module 1, or go through in full if running as a separate module]** Stakeholders are defined broadly as those groups or individuals: (a) that can reasonably be expected to be significantly affected by the organization's activities, products, and/or services; or (b) whose actions can reasonably be expected to affect the ability of the organization to successfully implement its strategies and achieve its objectives. **Stakeholder engagement** A process whereby a company interacts with a stakeholder, either actively or passively. Active stakeholder engagement can occur through interviews, discussions and/or some form of direct communication where the stakeholder is aware the company is carrying out an assessment.	 **Stakeholder engagement (cont.)** In passive stakeholder engagement, a company interacts with stakeholders by accessing information provided by stakeholders. An example of this could include the collection of data and statistics from local government offices and development agencies to build a local socio-economic profile. No direct communication occurs between the company and stakeholders related to the assessment. **Stakeholder mapping** A process whereby all the stakeholders who are interested in, impacted by, or who have an impact upon the company's operations are identified.

Measuring change in Ecosystem Service provision – the basic concepts (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 29: 1 minute Facilitator to recap what has been covered in the module so far.	

Time guidelines

Time guidelines	Time
Optional session to introduce delegates to broader policy trends and examples of regulations. If following module 1, this session may be removed or modified to ensure no repetition between the modules.	**10 mins**

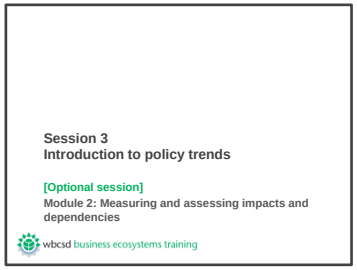
Session overview
The session will be presentation based. The session will use the examples of international conventions to walk through how decisions from an international perspective can filter through to impact on companies.

Session objective
To give delegates a simple overview of the process of addressing global environmental concerns.

Session format
This session will be run by one course facilitator, who will talk through key concepts with delegates.

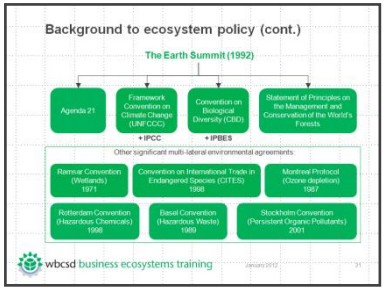
Handouts
Delegates course material desk pack – hardcopies will be laid out on delegate desks in advance of their arrival at the course. This pack contains copies of all of the slides used throughout this course together with relevant handout materials required for each session. A glossary of terms used during the module will also be available in the course material desk pack.

Introduction to policy trends

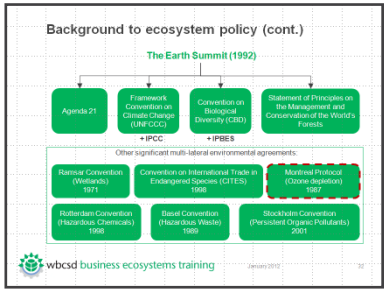
Facilitators' notes	Media/activity/handout guidance
Session 2: Introduction to Policy Trends **Total Time: 10 minutes** **Slide 30: <1 minute** In this session, trainees will be introduced to the policy background, general trends and processes by which issues are passed into legislation (and thus impact on businesses), with specific regard to biodiversity and ecosystem based policies. **Slide 31: 2 minutes** **Long history of environmental policy** A. **Option: ask delegates to guess the year the UK introduced environmental restrictions relating to fresh water–** 1388 UK water pollution restrictions. This was one of the earliest environmental restrictions outlawing the dumping of animal waste, dung or litter into rivers. Please refer to: *http://www.environmentlaw.org.uk/rte.asp?id=108* B. 1973 EU Action Programme on Environment. Please refer to: *http://www.environmentlaw.org.uk/rte.asp?id=108* **The limits to growth (1972)** Limits to Growth is a study about the future of our planet. It involved designing a computing model which took into account the relations between various global developments and produced computer simulations for alternative scenarios. Part of the modelling were different amounts of possibly available resources, different levels of agricultural productivity, birth control or environmental protection. **Source:** *http://www.clubofrome.org/?p=326*	 

Optional Session 3

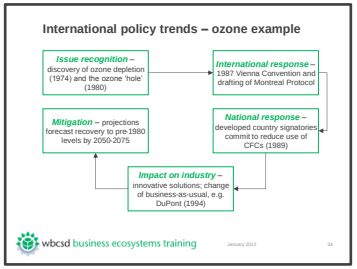
Introduction to policy trends

Facilitators' notes	Media/activity/handout guidance
Slide 31 (cont.): 2 minutes **Brundtland Report (1987): original** **Source:** United Nations, *http://www.un.org/esa/sustdev/csd/csd15/media/backgrounder_brundtland.pdf* Updated 20 years on, the Brundtland Report defined sustainable development and called for increased international cooperation. **Conventions, treaties, protocols, agreements…** Over 250 multilateral environmental agreements exist – slide 3 shows just a few as examples. **The Earth Summit (1992) – start of 'The Rio Process'** **Source:** United Nations, *http://www.un.org/geninfo/bp/enviro.html* **Customize to India: Include slide from Module 1 Session 3 on "Background to ecosystem policy in India"** **Slide 32: <1 minute** **Instructions:** Facilitator to show some of the policies that have been put in place since the Rio Earth Summit.	 

Introduction to policy trends (cont.)

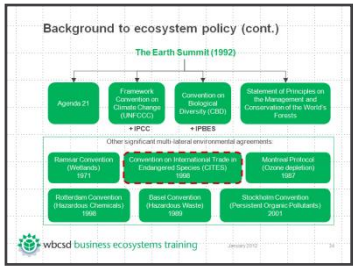
Facilitators' notes	Media/activity/handout guidance
Slide 33: 1 minute **[Option 1&2 facilitator to choose either ozone or CITES as examples of a policy trend from issue recognition to mitigation, depending on audience.]** **Note: though the following facilitator notes begin with Issue Recognition and move forwards through to Mitigation, the animation in the main presentation slides begin with Mitigation and moves backwards through to Issue Recognition. The facilitator should choose which direction they feel is more appropriate.** Both examples show how issues are mitigated on an international policy basis. **Option 1: Ozone** **Source**: UNEP, *The Montreal Protocol on Substances that Deplete the Ozone Layer, Progress Report 1987-2007*, *http://ozone.unep.org/Publications/MP_Acheivements-E.pdf* **Issue recognition: "**In 1974, scientists discovered that emissions of chlorofluorocarbons (CFCs)were depleting ozone in the stratosphere. CFCs were a common aerosol propellant in spray cans and were also used as refrigerants, solvents, and foam-blowing agents. In the 1980s, scientists observed a thinning of the ozone layer over Antarctica, and people began thinking of it as an 'ozone hole.' Additional research has shown that ozone depletion occurs over every continent." **International response: "**As our scientific knowledge about ozone depletion grew, so too did the response to the issue. In 1987, leaders from many countries came together to sign a landmark environmental treaty, the Montreal Protocol on Substances That Deplete the Ozone Layer. Today, more than 190 Parties have ratified the treaty. These countries are committed to taking action to reduce the production and use of CFCs and other ozone-depleting substances to protect the ozone layer."	

Introduction to policy trends (cont.)

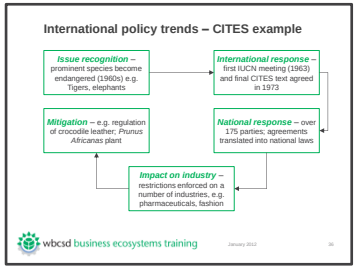
Facilitators' notes	Media/activity/handout guidance
Slide 34: 2 minutes **Source**: UNEP, *The Montreal Protocol on Substances that Deplete the Ozone Layer, Progress Report 1987-2007*, *http://ozone.unep.org/Publications/MP_Acheivements-E.pdf* **Instructions:** Facilitator to describe the process by which issues are mitigated on an international policy basis, using the ozone layer as an example. **Background:** **National response:** In 1989, all developed countries that are parties to the Montreal Protocol freeze production and consumption of CFCs at 1986 levels. All developing countries that are parties to the Montreal Protocol were scheduled to begin phase-out of CFCs, halons and carbon Tetrachloride by 2010. **Impact on industry:** CFCs were key components of products such as aerosols and polystyrenes, and were used in cleaning and industrial processes and for refrigeration and air-conditioning. Companies had to develop innovative solutions to reduce the use of these chemicals. For example: in 1993, DuPont committed to phasing out CFCs by the end of 1994. **Mitigation:** The ozone layer has shown signs of recovery, in line with reduced CFC emissions, and some projections estimate it may return to pre-1980s levels by 2050-2075.	

Optional Session 3

Introduction to policy trends (cont.)

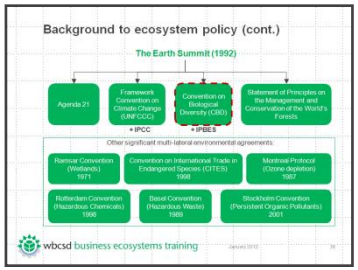
Facilitators' notes	Media/activity/handout guidance
Slide 35: 1 minute **Option 1&2 facilitator to choose either ozone or CITES as examples of a policy trend from issue recognition to mitigation, depending on audience.** **Note: though the following facilitator notes begin with Issue Recognition and move forwards through to Mitigation, the animation in the main presentation slides begin with Mitigation and moves backwards through to Issue Recognition. The facilitator should choose which direction they feel is more appropriate.** Both examples show how issues are mitigated on an international policy basis. **Option 2: Convention on International Trade in Endangered Species (CITES)** **Sources**: CITES, *http://www.cites.org/* **Issue recognition:** "Widespread information nowadays about the endangered status of many prominent species, such as the tiger and elephants, might make the need for such a convention seem obvious. But at the time when the ideas for CITES were first formed, in the 1960s, international discussion of the regulation of wildlife trade for conservation purposes was something relatively new. With hindsight, the need for CITES is clear. Annually, international wildlife trade is estimated to be worth billions of dollars and to include hundreds of millions of plant and animal specimens." **International response: "**CITES was drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN (The International Union for the Conservation of Nature). The text of the Convention was finally agreed at a meeting of representatives of 80 countries in Washington DC., United States of America, on 3 March 1973, and on 1 July 1975 CITES entered in force." Countries (states) enter into the agreement voluntarily.	

Introduction to policy trends (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 36: 1 minute **Instructions:** Facilitator to describe the process by which issues are mitigated on an international policy basis, using CITES as an example. **Source:** CITES, *http://www.cites.org/* **National response:** Signatory states translate the agreement into national laws. CITES subjects international trade in specimens of selected species to import, export and re-export controls. The species covered by CITES are listed according to the degree of protection they need, covering over 30,000 species of animal and plant. **Impact on industry:** **Pharmaceutical industry:** *Prunus Africana*: A unique African plant species with a wide range of benefits to local people, including medicinal. It came under pressure after it began being used for commercial purposes. Under CITES, governments in range countries effectively fostered implementation of management plans for sustainable harvesting and population monitoring. **Source:** CITES, *http://www.cites.org/common/prog/african-cherry/11-CUNNINGHAM.pdf* **Fashion industry:** Crocodiles and alligators: all species of the order *Crocodylia* are protected by CITES. Crocodilian leather has been a desirable commodity for many years, and has been under increasing pressure from increases in technology. Whilst some commercial ranch-farmed products are produced sustainably, with little impact on wild populations, some species are prohibited from trade due to population numbers being unable support any trade levels. **Source:** CITES, *http://www.doc.govt.nz/upload/documents/about-doc/role/international/cites-crocs.pdf*	 **Mitigation:** Management and monitoring of plant and animal trade is an ongoing issue that requires continued international-level attention.

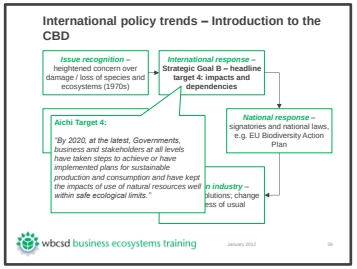
Optional Session 3

Introduction to policy trends (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 37 : 1-2 minutes **Source:** United Nations, *http://www.un.org.geninfo/bp/envirp2/html* Introduction to the Convention on Biological Diversity (CBD) **Instructions:** Facilitator to skip this slide if covered in module 1 – if CBD has already been introduced, facilitator should skip to discussion of strategic goal A and headline target 4 and example of India National Biodiversity Action Plan . **Facilitator to refer to source and broadly present the CBD and its 3 objectives –mentioning the Aichi targets.** The Convention on Biological Diversity (CBD) states that the ecosystem approach is a strategy for the integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way. This approach recognizes that humans, with their cultural diversity, are an integral component of many ecosystems. In order to implement the ecosystem approach, decision-makers need to understand the multiple effects on an ecosystem of any management or policy change. By way of analogy, decision-makers would not make a decision about financial policy in a country without examining the condition of the economic system, since information on the economy of a single sector such as manufacturing would be insufficient. The same need to examine the consequences of changes for multiple sectors applies to ecosystems. For instance, subsidies for fertilizer use may increase food production, but sound decisions also require information on whether the potential reduction in the harvests of downstream fisheries as a result of water quality degradation from the fertilizer runoff might outweigh those benefits.	

Optional Session 3

Introduction to policy trends (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 38: 2 minutes **Instructions:** Facilitator to discuss strategic goal A and headline target 4. **Background:** **Issue recognition:** heightened concern over damage / loss of species and ecosystems (1970s) **Source**: WBCSD, *CEV Helpdesk presentation* (2011) (WBCSD members only: http://www.wbcsd.org/work-program/focus-areas/ecosystems/members-pages/conf-call-archives.aspx) **International response:** Convention on Biological Diversity established at UN 'Earth Summit' (Rio 1992); the 10th Conference of the Parties (COP 10) in **Nagoya 2010** set out the key objectives: 1. The conservation of biological diversity 2. The sustainable use of the components of biological diversity 3. The fair and equitable sharing of the benefits arising from the utilization of genetic resources These objectives are part of the 5 strategic goals, which dictate the 20 headline targets (so called **Aichi targets** for 2020).	 Example of Target relevant to this Module: **A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society** **Target 4** – By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits. This target specifically relates to impacts and dependencies on biodiversity and ecosystem services. **National response:** signatories translate these targets into national laws, e.g. India National Biodiversity Action Plan Facilitator to vary discussion of examples depending on audience. See list: https://www.cbd.int/doc/nbsap/2010-and-post-2010-national-targets.pdf

Optional Session 3

Introduction to policy trends (cont.)

Facilitators' notes	Media/activity/handout guidance

Slide 38 (cont.): 2 minutes

Sources:

Government of India, Ministry of Environment and Forests, National Biodiversity Action Plan (2008) *http://envfor.nic.in/downloads/public-information/NBAP-iyb.pdf*

National Biodiversity Authority, *Draft National Targets for Biodiversity 2012-2020*, *http://nbaindia.org/uploaded/pdf/Strategic_Vison_tar.pdf*

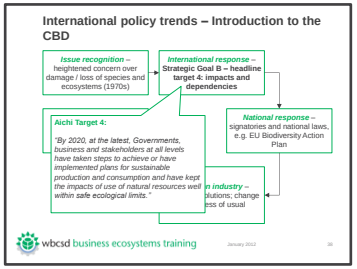
Example of National Biodiversity Strategy and Action Plan – India

MoEF, the nodal agency for implementing the provisions under Convention on Biological Diversity (CBD) in India, has developed a strategy for biodiversity conservation at macro-level in 1999 and enacted the Biological Diversity Act in 2002, followed by the Rules there under in 2004, then developed the National Biodiversity Action Plan in 2008.

India National Biodiversity Action Plan – Nov.2008

Contains the following sections:

- Strengthening and integration of in situ, on-farm and ex situ conservation
- Augmentation of natural resource base and its sustainable utilization : Ensuring inter and intra-generational equity
- Regulation of introduction of invasive alien species and their management
- Assessment of vulnerability and adaptation to climate change, and desertification
- Integration of biodiversity concerns in economic and social development (see module 3 session 3 for more information)
- Pollution impacts
- Development and integration of biodiversity databases



- Strengthening implementation of policy, legislative and administrative measures for biodiversity conservation and management
- Building of national capacities for biodiversity conservation and appropriate use of new technologies
- Valuation of goods and services provided by biodiversity and use of economic instruments in decision making processes
- International cooperation

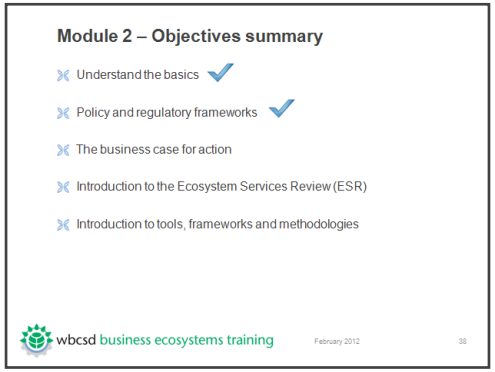
National Targets for Biodiversity 2012-2020

The National Targets (in development in 2012) will provide a national framework for better management, use and sharing of benefits of the ecosystem goods and services for every citizen of India.
10 national targets currently being considered:

Impact on Industry: innovative solutions; change of business of usual.

Mitigation: management and conservation of the impact of human activity on damage or loss of ecosystems / biodiversity is an ongoing issue.

Introduction to policy trends (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 39: 1 minute Facilitator to recap what has been covered in the module so far.	

Time guidelines

Time guidelines	Time
Business case for action	**15 mins**

Session objective

Focus on why this matters to business. Delegates to understand the importance of building a business case for using tools to assess impact and/or dependency on ecosystem services.

Session format

This session will be run by the two course facilitators – it is delivered as a presentation to the group.

Handouts

Delegates course material desk pack – hardcopies will be laid out on delegate desks in advance of their arrival at the course. This pack contains copies of all of the slides used throughout this course together with relevant handout materials required for each session.

A glossary of terms used during the module will also be available in the course material desk pack.

Session overview

This session focuses on why measuring ecosystem impacts / dependencies is relevant for business.

The session reviews a range of drivers that will determine the business case for measuring ecosystem impacts/dependency, providing the basis for a group exercise in the following session.

The business case for action

Facilitators' notes	Media/activity/handout guidance

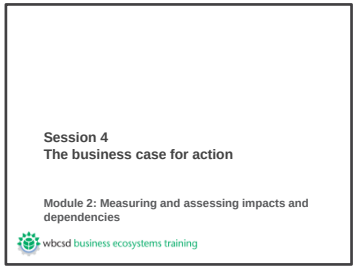
Slide 40: <1 minute

Instructions:

Facilitator 1 to explain the objectives of this session:

For delegates to understand the importance of building a robust business case for using tools to assess impact/dependency on ecosystem services.

The aim is to focus on the key business benefits (including risk management) that drive companies to use ecosystem service assessments, rather than the risks/opportunities associated with ecosystems which is covered in detail during the business case sessions within other modules of the course.



Optional exercise: Slide 41: 5 minutes

Total time for exercise: 5 minutes

Instructions:

Facilitator to ask delegates to consider if their:

1. Company operations are vulnerable to changes in the quality and quantity of ecosystem service inputs – e.g., water
2. Company license to operate is challenged by new stricter environmental policies and legislation – e.g., Green house gas (GHG) emissions
3. Company reputation, brand or image is sensitive to public opinion and Non-governmental organizations (NGO) actions about nature conservation – e.g., boycotts & campaigns
4. Company can respond to increased demand for green products from customers – e.g., eco-labeled & certified
5. Company faces biodiversity impact assessments when seeking external finance

Once the audience has finish answering the question, facilitator will explain that by answering YES to these questions, the case for why ecosystems and ecosystem services are relevant to business has been made.

The business case for action (cont.)

Facilitators' notes	Media/activity/handout guidance

Slides 42-45: 6 minutes, (1.5 per case study)

Source: WRI, *Ecosystem Services Review Standard Presentation*, slides 2-5, *http://www.wri.org/project/ecosystem-services-review/training*

Instructions:

Facilitator 1 – to set the business context for this session by briefly reviewing 4 case studies that demonstrate real business drivers for action. The information for the case studies is outlined in the background notes below and a question for the group is presented in slide 6.

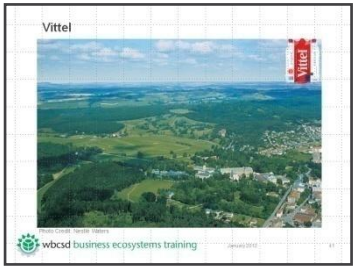
Starting point: 'I am now going to take you through four case studies, as I do this you may wish to listen out for examples of business drivers to action...'

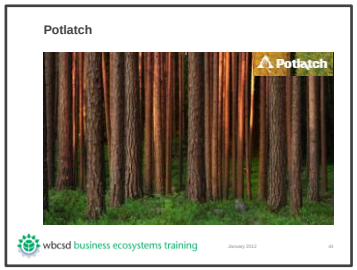
Background:

Vittel

In the 1980s, mineral water company Vittel (now a brand of Nestlé Waters) faced a critical problem. Nitrates and pesticides were entering the company's springs in northeastern France. Local farmers had intensified agricultural practices and cleared native vegetation that previously had filtered water before it seeped into the aquifer used by Vittel. This contamination threatened the company's right to use the 'natural mineral water' label under French law. The Vittel brand and business were at stake.

Source: Perrot-Maître, D. 2006. The Vittel Payments for Ecosystem Services: A 'Perfect' PES Case? London: International Institute for Environment and Development.





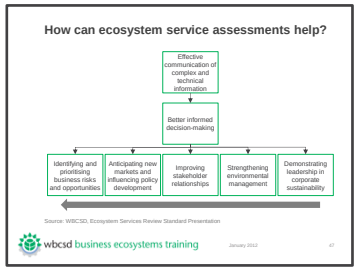
The business case for action (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 42-45 (cont.): 6 minutes **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slides 2-5, *http://www.wri.org/project/ecosystem-services-review/training* **Background (cont.)** ***Facilitator 1 continued*** ***Energia Global*** Costa Rican hydropower company Energia Global (now Enel Latin America) faced a different crisis. In the 1990s, it was literally losing its source of power. Landowners were clearing the forested slopes upstream of the company's dams for livestock and agriculture. With the trees gone, heavy rains were causing increased soil erosion and river sedimentation, lowering dam reservoir capacity and power output. **Source:** Malavasi, E.O. and J. Kellenberg. 2003. Program for Payments for Ecological Services in Costa Rica. Available at: http://www2.gsu.edu/~wwwcec/special/lr_ortiz_kellenberg_ext.pdf ***Facilitator 2*** ***Potlach*** Potlatch, a U.S.-based wood products company, did not encounter a threat but rather an opportunity. For years, the company had managed its forests for timber. However, its 270,000 hectares of forest in Idaho were a popular destination for hikers, campers, birdwatchers, and hunters, drawing approximately 200,000 visitor-use-days per year. Recognizing an opportunity for a complementary source of revenue, the company introduced user fees in 2007 to capture the recreational value its forests provide. **Source:** Maughan, R. 'Potlatch Corp. to Charge Fees for Access to N. Idaho Forests' Seattle Post-Intelligencer. October 4, 2006.	***Facilitator 2 continued*** ***Allegheny Power*** Allegheny Power had its own kind of opportunity. Earlier this decade, the U.S.-based electric utility wanted to divest its 4,800-hectare Canaan Valley property in West Virginia. Traditional approaches appraised the real estate at $16 million. Believing the property – with its pristine forests, marshes, and abundant wildlife – was worth more, the company commissioned an economic valuation of the marketable environmental benefits provided by the site, including its ability to sequester carbon and its wetlands. The eco-assessment boosted the total value to nearly $33 million. Allegheny Power subsequently sold Canaan Valley to the U.S. government – which merged it with an existing wildlife refuge – for the traditional appraisal price of $16 million. Using 'bargain sale' provisions in the federal tax code, however, the company was able to claim a charitable contribution of $17 million for the property's environmental value, yielding several million dollars in tax-related savings. **Source:** Bayon, R. 'Making Money in Environmental Derivatives' The Milken Institute Review, Q1 2002; Powicki, C.R. 'Eco-Solutions Plays Key Role in Landmark Conservation Deal.' EPRI Journal Online. February 25, 2002; Lashley, D. 2003. Market Based Case Studies Involving Eco-Asset Management On Non-Mined Lands. GreenVest LLC.

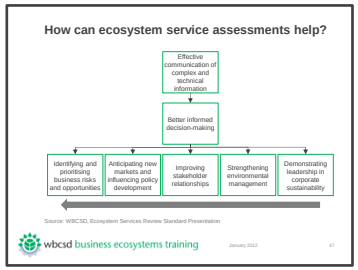
The business case for action (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 47: 2 minutes **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slide 6, *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator to talk through material provided in the background notes below. **Background:** Facilitator 2 to ask what do these four stories – which cross a number of continents and industries – have in common? **Answer** They highlight companies facing unexpected risks or novel opportunities arising from their dependence and impact on ecosystems. Vittel and Energia Global faced risks to their bottom lines due to the deterioration of an ecosystem upon which their businesses depended. Potlatch and Allegheny Power seized new business opportunities by tapping into the value of ecosystems. But these examples are not isolated cases. Other companies face similar risks and opportunities as the world's ecosystems undergo rapid change due to human pressures. However, many companies are not fully aware of the business implications of their dependence and impact on ecosystems and the services they provide.	

The business case for action (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 47: 6 minutes **Sources:** WRI, *Ecosystem Services Review Standard Presentation*, slides 10, *http://www.wri.org/project/ecosystem-services-review/training* BSR, *'Tools for Identifying, Assessing, and Valuing Ecosystem Services' (2011),* p34 http://www.bsr.org/reports/BSR_ESTM_WG_Comp_ES_Tools_Synthesis3.pdf **Instructions:** Facilitator to talk through the slide using the background notes. The facilitator may wish to refer back to the module 1 recap on the 5 key business risks and opportunities, and explain that this slide builds on those, specifically regarding measuring and assessing impacts and dependencies. The facilitator should review the outcomes from right to left, emphasising that demonstrating leadership in corporate sustainability underpins all of these benefits. **Background:** There are a wide range of business benefits which can be derived from effectively using ecosystem service assessments to understand a company's impacts and dependency on ecosystem services. Decision makers increasingly have to consider complex and technical information related to ecosystem services (e.g. Carbon emissions, water availability, biodiversity etc). Ecosystem service assessments can help by providing a standardised and **effective communication** system for this information. This enables **better informed decision making** to capture a wide range of tangible business benefits, such as:	 - **Identifying new business risks and opportunities** arising from a company's dependence and impact on ecosystems and the services they provide. Because the framework of ecosystem services is a new approach for assessing the inter-relationship between business and the environment, ecosystem service assessments can uncover sources of risk and opportunity that traditional strategy development processes miss. - **Anticipating new markets and influencing policy development** that will emerge as a result of ecosystem degradation. Ecosystem service assessments can help managers identify opportunities to participate in emerging ecosystem service-related markets such as payments for carbon sequestration, mitigation banking, and eco-labeling systems. It also can help managers prepare for new government regulations and participate in the development of new public policies.

The business case for action (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 47 (cont.): 6 minutes **Sources:** WRI, *Ecosystem Services Review Standard Presentation*, slides 10, *http://www.wri.org/project/ecosystem-services-review/training* BSR, *'Tools for Identifying, Assessing, and Valuing Ecosystem Services' (2011),* p34 http://www.bsr.org/reports/BSR_ESTM_WG_Comp_ES_Tools_Synthesis3.pdf **Background (cont.)** Ecosystem service assessments provide a wide range of business benefits available to companies that measure: • **Improving stakeholder relationships**. Many natural resource conflicts that companies face relate to the fact that stakeholders – communities, indigenous people, other industry sectors, nongovernmental organizations – value different services coming from the same ecosystem. Ecosystem service assessments can improve a company's understanding of these issues and identify options for better managing trade-offs. • **Strengthening existing approaches to environmental management** in a number of ways. Firstly, ecosystem service assessments can fills gaps that traditional processes and tools do not address. Secondly, many assessments can be directly integrated into a company's existing environmental due diligence tools. Thirdly, managers can use these assessments to screen or prioritize which environmental issues to evaluate with existing tools.	 • **Demonstrating leadership in corporate sustainability** by proactively addressing the degradation of ecosystem services. Several corporate and environment observers have identified this issue as the next big 'global environmental problem' that may garner political attention and impact business. This issue now has a similar level of maturity as climate change 10 years ago and similarly may grow to become a preeminent concern.

Time guidelines

Time guidelines	Time
Knowledge check – activity	**10 mins**

Session objective

Reinforce the explicit or implicit learning of the course, and provide an overview of the learning gaps in the group.

Session format

This session will be run by two course facilitators, who will talk through key concepts and definitions with delegates.

Handouts

Delegates course material desk pack – hardcopies will be laid out on delegate desks in advance of their arrival at the course. This pack contains copies of all of the slides used throughout this course together with relevant handout materials required for each session.

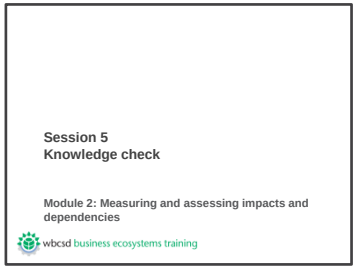
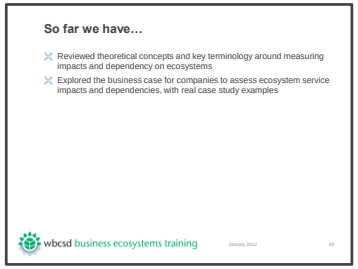
A glossary of terms used during the module will also be available in the course material desk pack.

Session overview

The session will run by reminding the delegates of the session previously seen, followed by a quick quiz of key concepts and terminology.

Session 5

Knowledge check

Facilitators' notes	Media/activity/handout guidance
Slide 48: <1 minute **Objective:** Knowledge check **Total time for exercise:** 10 minutes **Slide 49: 1 minutes** **Instructions:** Facilitator 1 – to quickly review the key knowledge gained through the previous sessions (slide 49) then move to the next slide (50). Note to facilitator: do not stop to explain a specific concept, only list the sessions and the overall objective of each one. Gaps in knowledge should be identified after the delegates have responded to the 'knowledge check' questions.	 

Knowledge check (cont.)

Facilitators' notes	Media/activity/handout
Slide 50: 8 minutes **Objective:** Knowledge check **Instructions:** Facilitator 2 will explain to delegates the purpose and approach used within the session. They will be asked a series of questions and individuals will write down their answers. Delegates should be asked to individually answer the questions on a piece of paper and discuss with the group during debrief. 1. Delegates will have a couple of minutes to answer the questions on a piece of paper 2. Facilitator to ask delegates to share their answers 3. Facilitator will debrief and answer questions from delegates, if there are any gaps in knowledge facilitator to revisit definition slides if necessary, and key topics of the course. **Answers:** The facilitator should explore different types of answers and respond to question from delegates below. 1. **Which Aichi target considers measurements and impacts?** (target 4) 2. **What is stakeholder engagement?** A process whereby a company interacts with a stakeholder, either actively or passively. Active stakeholder engagement can occur through interviews, discussions and/or some form of direct communication where the stakeholder is aware the company is carrying out an assessment. In passive stakeholder engagement, a company interacts with stakeholders by accessing information provided by stakeholders.	 3. **Describe 2 of the main benefits that can arise from using ecosystem service assessments (any of the following list)** - Identifying new business risks and opportunities - Anticipating new markets and influencing policy development - Strengthening existing approaches to environmental management - Improving stakeholder relationships - Demonstrating leadership in corporate sustainability

Time guidelines

Time guidelines	Time
Brainstorming the business case – presentation	**10-25 mins**

Session overview

This session will re-cap the main business case arguments for actions around biodiversity and ecosystem services.

Session objective

Focus on why this matters to business.

Delegates to understand the importance of building a business case for using tools to assess impact and/or dependency on ecosystem services.

Session format

This session will be run by two course facilitators, who will talk through key concepts and definitions with delegates.

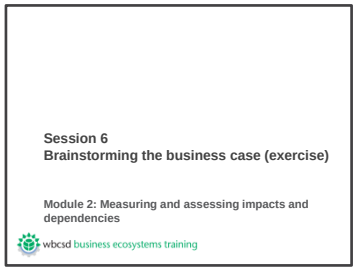
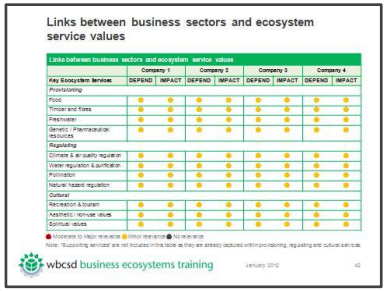
Handouts

Delegates course material desk pack – hardcopies will be laid out on delegate desks in advance of their arrival at the course. This pack contains copies of all of the slides used throughout this course together with relevant handout materials required for each session.

A glossary of terms used during the module will also be available in the course material desk pack.

Session 6

Brainstorming the business case (exercise)

Facilitators' notes	Media/activity/handout guidance
Slide 51: <1 minute **Objective:** Create awareness amongst delegates of why biodiversity and ecosystem services are relevant to their current organisation. **Total time for exercise: 10-25 minutes** **Background:** The BET Score Card was developed based on the Dilemma Assessment Card that the WBCSD's Future Leaders Team created in 2007. The Card (as illustrated on the slide) was designed as a discussion tool. **Source:** WBCSD's Future Leaders Team program http://www.wbcsd.org/work-program/capacity-building/sdmi/future-leaders-team.aspx There are 6 questions exploring the key ecosystem challenges facing business, the most relevant ecosystem services, key drivers for addressing ecosystems and questions on how these dilemmas are being managed inside a company. To use the card successfully, the interviewer will need a strong understanding of ecosystems, their services and their impact on business.	 **NOTE: In case this exercise has already been used in Module 1, skip and replace by Module 1 Session 4 Option 3, i.e.:** 

Session 6

Brainstorming the business case (exercise)

Facilitators' notes	Media/activity/handout guidance

OPTION 1

Slides 52-53: 5 minutes + 5 minutes feedback

Instructions:

1. The facilitators will set the BET Score Card as pre-work for the course, delegates will be asked to answer the questions from the perspective of the company they work for.
2. The facilitators will ask delegates to identify the top three most common challenges at their table and discuss their answers. Allow 5 minutes.
3. **Optional: delegates to consider supply / value chain issues**

Slide 54: 5 minutes

Instructions

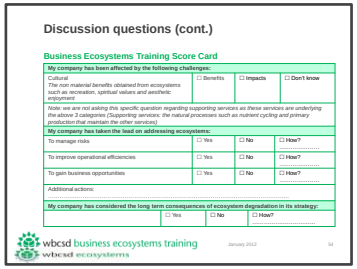
Both facilitators to walk around groups and answer questions during discussion time.

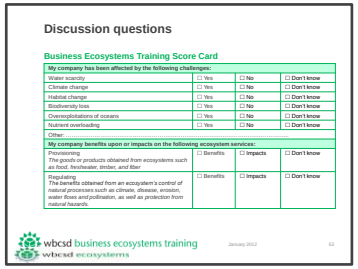
Facilitator 1 to ask groups to provide feedback to the overall audience (5 minutes) and to capture key points on a flip chart. Then compare and contrast the thoughts gathered on the flip chart.

Summary guidance:

Key points for the facilitator to look for include:

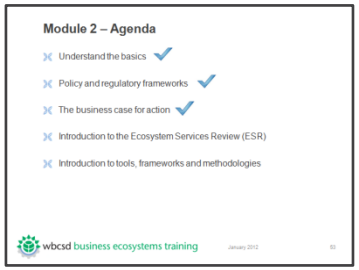
- Risk to operations, supply chain from decreased access to resources,
- Commodity price shocks,
- Problems/new conditions for licenses to operate,
- Problems relating to reputation,
- Environmental liability issues.





Session 6

Brainstorming the business case (exercise)

Facilitators' notes	Media/activity/handout guidance
Slide 55: 1 minute Facilitator to recap what has been covered in the module so far.	

Coffee break

30 minutes

Time guidelines

Time guidelines	Time
OPTIONAL session: Identifying ecosystem impacts and dependence, this should be run in a different way i.e. In terms of a case study or alternative company, if option 3, session 4 Module 1 has already been completed.	**35 mins**

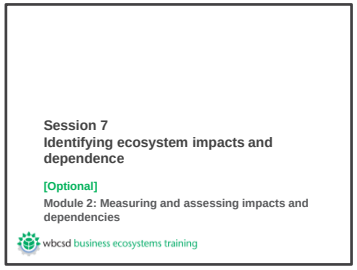
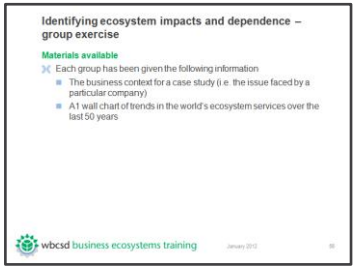
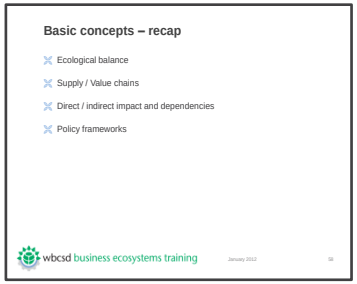
Session objective
Allow delegates to identify the ecosystem impacts and dependence of companies in case study examples.

Session format
This session will be run by the two course facilitators – the outline of the session will be presented and the nature of the exercise explained. The delegates will then be asked to work in groups, the facilitators will be on hand to answer any questions.

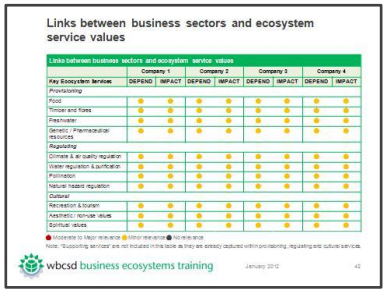
Handouts
Delegates course material desk pack – hardcopies will be laid out on delegate desks in advance of their arrival at the course. This pack contains copies of all of the slides used throughout this course together with relevant handout materials required for each session. Print outs: A1 wall chart of trends in the world's ecosystem services over the last 50 years

Session overview
The session is a practical exercise that will help delegates to see how ecosystem impacts and dependence can apply to real world case study examples. The delegates will be asked to analyse a case study through a series of structured group discussions.

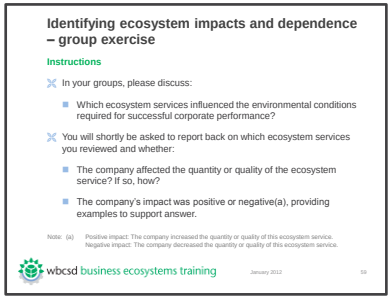
Identifying ecosystem impacts and dependencies

Facilitators' notes	Media/activity/handout guidance
Slide 57: <1 minute **Slide 58: 1 minute** **Objective:** Allow delegates to identify the ecosystem impacts and dependence of companies in case study examples. **Total time for exercise:** 35 minutes **Instructions** Facilitator to split delegates into small groups of 4-5, asking them to move seats to sit together. Facilitator to explain the objectives of the session and run through the materials provided (slide 2). **Slide 59: 2 minutes** Facilitator to recap some of the basic concepts before beginning this session. • **Supply / Value chains** A network of organizations (e.g., manufacturers, wholesalers, distributors and retailers) involved in the production, delivery, and sale of a product to the consumer. • **Direct / indirect impact and dependencies** **Direct impacts** - Impacts largely within a company's control. These impacts can be inputs or outputs that arise from the day-to-day activities of a company. **Indirect impacts** - Impacts not in the company's control but within the company's influence. • **Policy frameworks** – recap the CITES or ozone example as a reason for companies to consider their impacts and dependencies	  

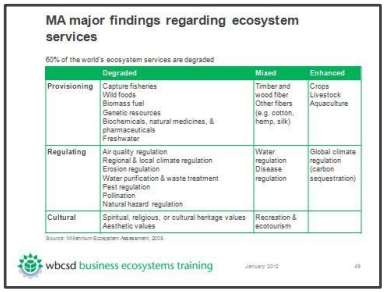
Identifying ecosystem impacts and dependencies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 60 **Instructions** If following module 1, facilitator to refer back to session 4 in module 1 and remind delegates of the services they considered of relevance to their employers. **[Alternatives: consider using a supply chain option.]**	

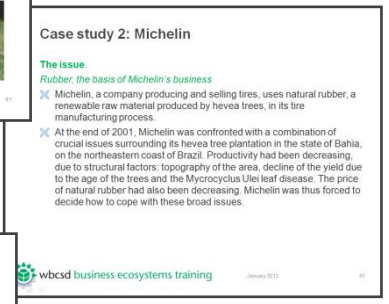
Identifying ecosystem impacts and dependencies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 61: 20 minutes to read and discuss the case study context **Objective:** Allow delegates to identify the ecosystem impacts and dependence of companies in case study examples. **Instructions:** Facilitator to explain the instructions to the group, highlighting that they have 20 minutes to read the case study (handout to be distributed) and consider the questions outlined on this slide. Each group will be asked to have one member give feedback on the results of the discussion to the facilitator and the wider group. The facilitator will be on hand throughout to help answer questions and facilitate discussion. - Which ecosystem services may be affected? - Would this be in terms of quality or quantity? - Are the impacts positive or negative ? Note: Positive impact: The company increased the quantity or quality of this ecosystem service. Negative impact: The company decreased the quantity or quality of this ecosystem service.	

Identifying ecosystem impacts and dependencies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 62: 1 minute if following Module 1 (3 minutes if stand alone training) **Sources:** WBCSD, *Connecting the dots* (2005),Slide 24 http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=23&nosearchcontextkey=true (link to connecting the dots at the bottom of the page). Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Well-being: Opportunities and Challenges for Business and Industry [online].* Pp.6-9. Available from: http://www.maweb.org/documents/document.353.aspx.pdf **Instructions:** **I**f following module 1, the facilitator should recap this slide rather than walk through it. Each group will have a wall chart of this to help them with the exercise. The facilitator should talk through the 50 year trends slide. The slide shows how different ecosystem services have changed, as assessed by the Millennium Ecosystem Assessment 2005. The ecosystem services are classified as either Provisioning, Regulating or Cultural and the change is defined as either Degraded, Mixed or Enhanced. **Background:** The harmful consequences of ecosystem change will grow during the first half of this century. Most of the direct drivers of degradation in ecosystem services are currently remaining constant or growing in intensity, and they reflect various indirect drivers such as population growth, increasing per capita consumption, economic arrangements, socio-political and cultural factors, and technological change.	 Approximately 60% (15 out of 24) of the ecosystem services examined in this assessment are being degraded or used unsustainably—including 70% of provisioning and regulating services. While 15 services have been degraded, only 4 have been enhanced in the past 50 years, 3 of which involve food production: crops, livestock, and aquaculture.

Identifying ecosystem impacts and dependencies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 61-63: 1 minute if following Module 1 (3 minutes if standalone training) **Instructions:** Each delegate should receive a copy of the handout, with a WBCSD case study. The case studies are: - **ArcelorMittal: Conserving indigenous forests in Liberia** - **Michelin: Sustainable Rubber Sourcing** - **OHL Development: Maykoba Ecotourism complex** Facilitator will distribute case studies, giving each group 20 minutes to read and discuss their responses to the issue. This is a quick introduction to case study material. **[Customize:** **Facilitator may give each group a different case study, or may choose to give groups the same case study (to allow for comparison), or may allow groups to choose their preferred case study** **Facilitator can also pick up India specific case studies from Module 1: Tata Chemicals, Rio Tinto or Ambuja Cement]**	  

Identifying ecosystem impacts and dependencies (cont.)

Facilitators' notes	Media/activity/handout guidance

Slide 66: Feedback 5 minutes

Objective: Allow delegates to identify the ecosystem impacts and dependence of companies in case study examples.

Instructions

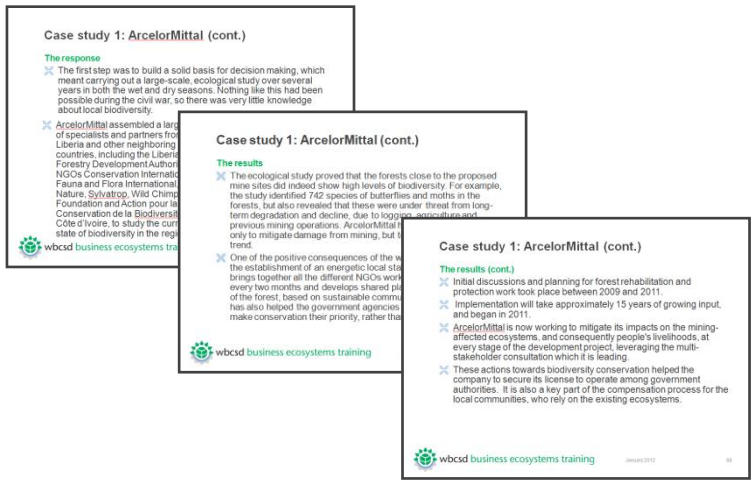
Facilitator to ask one member of each group to feedback on their discussions in terms of:

- Which ecosystem services may be affected?
  - Would this be in terms of quality or quantity?
- Are the impacts positive or negative?

Facilitator to gather points on a flip chart. Once all of the feedback is gathered, the facilitator should wrap up by highlighting if there have been differences in the identification of services and their assessment between the groups.

The facilitator should then walk through what the company actually did and distribute a handout to the delegates showing the response and results (see handouts annex). The case study response and results are also available as main presentation slides for the facilitator to present briefly if desired.

Several "results" and "response" slides/handouts are included for each case study, the ArcelorMittal example is presented here:



Refer to slides 67-75 of the main presentation document for the materials relating to the other case studies.

Time guidelines

Time guidelines	Time
Knowledge share – activity	**15 mins**

Session objective

Reinforce the explicit or implicit learning of the course, and provide an opportunity to address questions relating to specific experiences with measuring ecosystem impacts and dependencies in the group.

Session format

This session will be run by one course facilitator, who will chair the questions and help to facilitate discussion.

Handouts

Delegates course material desk pack – hardcopies will be laid out on delegate desks in advance of their arrival at the course. This pack contains copies of all of the slides used throughout this course together with relevant handout materials required for each session.

A glossary of terms used during the module will also be available in the course material desk pack.

Print outs: A1 Wall Chart “Barriers to measuring ecosystem impacts”

Session overview

The session will draw on the previous sessions and aim to build on delegates previous experience within the field (this is expected to be limited –hence the short timeframe for this activity).

Knowledge share – measuring ecosystem impacts and dependencies

Facilitators' notes	Media/activity/handout guidance
Slide 76: <1 minute **Objective:** knowledge share Q & A session to provide delegates with the opportunity to share knowledge and experiences **Total time for exercise:** 15 minutes **Introduction** This section of the module explores the challenges and realities of actually measuring ecosystem impacts and dependencies within a company. The aim is to share experiences between the delegates and translate the theory that was covered in the previous module into a more tangible situation to help absorb the information. The session is designed to be an interactive Question & Answer group, with delegates sharing their questions and answering under the guidance of the facilitator over 10 minutes. **Instructions** The facilitator should explain the aims of the session to the group and highlight that this is a facilitated Q&A session. **The facilitator should highlight that the knowledge shared during this session will be useful in planning next steps for the company during the Wrap Up at the end of the module.**	

Knowledge share – measuring ecosystem impacts and dependencies (cont.)

Facilitators' notes	Media/activity/handout guidance

Slides 77-78: 4 minutes presentation, 8 minutes discussion

Source: WRI, *Ecosystem Services Review Standard Presentation*, slide 11, http://www.wri.org/project/ecosystem-services-review/training

Instructions

Slide 1 presents a number of different reasons why companies might measure their ecosystem impacts and dependency. Given these prompts, the facilitator should encourage the delegates to consider their own experiences of why companies want to measure ecosystem impacts and dependencies and what potential barriers they have experienced.

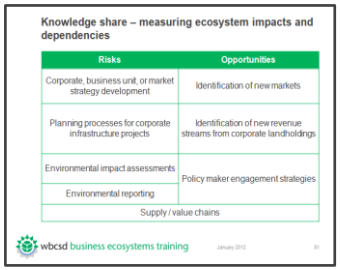
Slide 2 is a recap slide from Module 1 that should remind delegates of the overall context for the discussion.

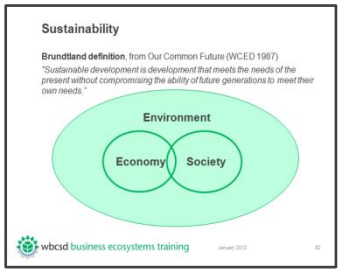
The facilitator should talk through the slides and use them to prompt delegates to share their experiences.

Example questions to start the group discussion:

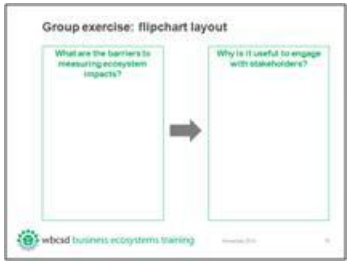
- Take a vote (raise hands) for which purpose is measuring ecosystem impacts and dependencies most relevant to the delegates companies?
- For what types of companies is it most important to measure ecosystem impacts and dependencies when developing their strategies? Do they currently do this effectively? If not, what are the barriers?

Slide 1 of this section should be left on the overhead projector to guide the conversation.





Knowledge share – measuring ecosystem impacts and dependencies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 79: 10 minutes discussion in groups **Instructions** The group discussion should be captured on the wallchart provided in the handout annex and shown in the screenshot opposite. Facilitator to identify additional reading material of interest (from main reference list). Delegates will be asked to discuss the following questions in groups: - What are the barriers to measuring ecosystem impacts? And - Why is it useful to engage with stakeholders? **If questions overrun, take further discussions offline until the end of the session.**	

Time guidelines

Time guidelines	Time
Introduction to Ecosystem Services Review	**50 mins**

Session objective

For delegates to understand how to measure impacts & dependencies on ecosystems and apply the Ecosystems Services Review (ESR) methodology.

Session format

This session will be run by the two course facilitators. The session is split into two halves: a presentation to the group followed by an interactive group exercise.

Handouts

Delegates course material desk pack – hardcopies will be laid out on delegate desks in advance of their arrival at the course. This pack contains copies of all of the slides used throughout this course together with relevant handout materials required for each session.

A glossary of terms used during the module will also be available in the course material desk pack.

Print Outs: A1 Wall Chart “Impact on ecosystem services table” slides

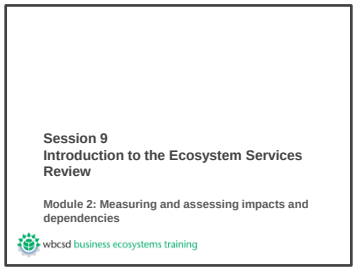
Session overview

This session provides an introduction to Ecosystem Services Review (ESR).

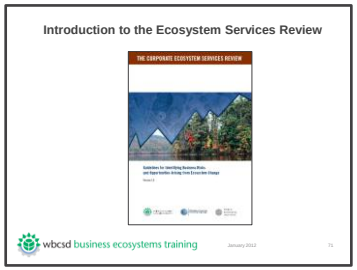
The first half is a presentation that explores ESR as a tool to proactively develop strategies to manage business risks and opportunities, then reviews the key steps involved in the methodology.

Delegates then have the opportunity to implement some of their learning through a group exercise, using a simplified version of the Ecosystem Services Dependence and Impact Questionnaire.

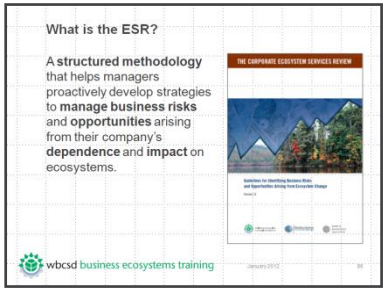
Introduction to Ecosystem Services Review (ESR)

Facilitators' notes	Media/activity/handout guidance
Slide 80: <1 minute **Objectives** This section of the module provides an introduction to Ecosystem Services Review (ESR). The main aim is for delegates to understand how to measure impacts and dependencies on ecosystems and apply the corporate ESR methodology. **Instructions** Facilitator 1 to explain the objectives and structure of this session: - For delegates to understand how to measure impacts & dependencies on ecosystems and apply the Ecosystems Services Review (ESR) methodology. - 2 halves: a presentation that explores ESR as a tool followed by a group exercise	

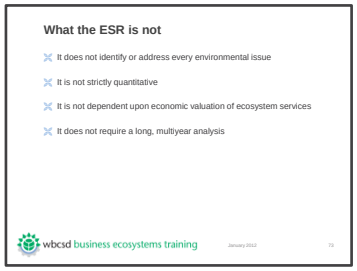
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 81: <1 minute **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slide 1, *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator 1 to explain that this presentation is designed to complement The Corporate Ecosystem Services Review guidelines, which are available at www.wri.org/ecosystems/esr These guidelines provide detailed information on the implementation of ESR and are recommended reading following this presentation.	

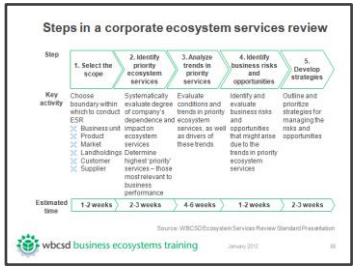
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 82: 1 minute **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slide 9, *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator 1 to explain what Corporate ESR is used for. **Background** The Corporate Ecosystem Services Review (ESR) is designed to help managers make the connection between the health of ecosystems and corporate performance. The ESR consists of a structured methodology that helps managers proactively develop strategies to manage business risks and opportunities arising from their company's dependence and impact on ecosystems. It is a tool for strategy development, not just for environmental assessment.	

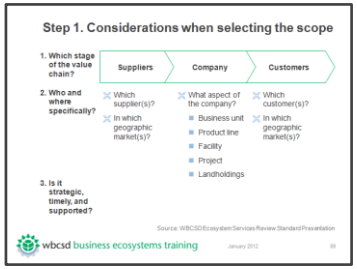
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 83: 4 minutes **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slide 18, *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** To set appropriate expectations and help delegates to maximize value of conducting an ESR in future, it is important that the facilitator 1 highlights what the methodology is not. Facilitator 1 should spend some time conveying these messages and take questions from the audience if any of these points are unclear. **Background:** **It does not identify or address every environmental issue**. For instance, it does not provide an exhaustive inventory or quantification of a company's total environmental footprint, greenhouse gas emissions, water effluents, or toxic releases. Nor does it track a company's mineral or energy consumption. **It is not strictly quantitative**. Quantitative information about a company's dependence and impact on ecosystem services or about trends in ecosystem services can be very useful when conducting a corporate ESR. However, quantitative information for some services is often sparse or nonexistent. Nevertheless, this shortcoming does not preclude a successful review. The road tests proved that qualitative analyses can be sufficient input for identifying many potential business risks and opportunities. **It is not dependent upon economic valuation of ecosystem services**. The ESR does not require managers to estimate the economic value of each ecosystem service.	 Risks and opportunities arising from a company's dependence and impact on ecosystems can be identified through other approaches. Likewise, many strategies for addressing these risks and opportunities – such as making internal operational changes, launching new products, working with governments to develop new policies – do not require economic valuation of ecosystem services. Nevertheless, some companies may find that conducting an economic valuation of selected ecosystem services may be a valuable input to strategy development – as with the Allegheny Energy example covered earlier in the course. (for more background on ecosystem valuation please refer to Module 3) **It does not require a long, multiyear analysis**. The time required to conduct an ESR will vary among companies and is a function of the scope chosen, the availability of data and the amount of staff involved in the review.

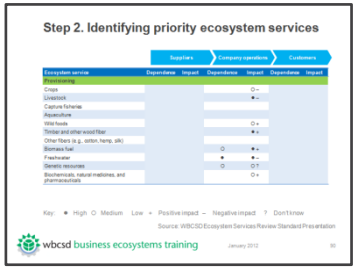
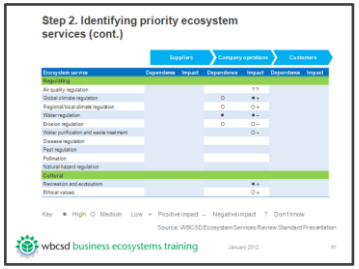
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 84: 3 minutes **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slide 12, *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator 1 to outline the 5 key steps of the ESR supported by background notes below. **The facilitator should make sure to go through the steps thoroughly, spending at least 5-10 minutes on this slide.** Interactive (options): Facilitator 2 may add questions during the presentation of the next few slides (marked as **Interactive**) combined with use of flipcharts and/or small group discussions to ensure that the delegates are engaged. Example questions include: 'Why do you think this is important?' or 'What are the most relevant factors for your organisation?' **Background:** The ESR methodology consists of five steps: 1. **Select the scope.** Choose the 'scope' or boundary within which to conduct the ESR. Candidates include a business unit, product, market, corporate landholdings, infrastructure project, major supplier, or major customer segment, among others. 2. **Identify priority ecosystem services.** Systematically evaluate the company's dependence and impact on the ecosystem services included in the tool (companies can add to this list). Determine which of these are 'priority' services – the ones most relevant to corporate performance. 3. **Analyze trends in priority services**. Research and evaluate the condition and overall trends in the priority ecosystem services as well as the drivers of these trends to help understand of impact and dependency within their company.	 4. **Identify business risks and opportunities.** Identify and evaluate the business risks and opportunities that might arise due to trends in the priority ecosystem services. 5. **Develop strategies.** Outline strategies for managing the risks and opportunities. The ESR bridges ecosystem and business considerations by starting with an evaluation of a company's interaction with ecosystems and finishing with an assessment of implications for business performance.

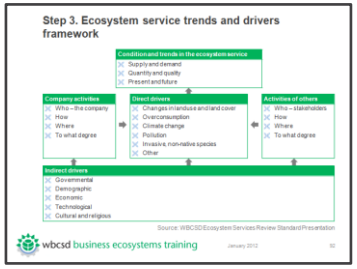
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 85: 2 minutes **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slide 13, *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator 1 to talk through the scoping step of the ESR supported by background notes below, referring delegates to pages 13-14 in the ESR Guidelines for more information. **Background:** The first step is to select the 'scope' of the ESR. The purpose of this step is to define clear boundaries within which to conduct the analysis in order to keep the process manageable and yield more actionable results. Three questions can help managers select an ESR scope: **Which stage of the value chain?** An ESR could focus on a company's own operations, providing insight into the direct implications that trends in ecosystem services would pose for the company. One alternative is to look 'upstream' in the value chain to shed light on the implications of ecosystem service trends for key suppliers and the business risks and opportunities that these, in turn, may pose to the company conducting the ESR. Another alternative is to look 'downstream' at a major customer segment. **Who and where specifically?** If conducting the ESR on the company itself, then select a certain aspect of the business. Options include a particular business unit, product line, facility, project, or natural asset owned by the company. **[Interactive option, facilitator 2 to add delegate questions and note answers on a flip chart]**	 If the ESR is focused on key suppliers, then choose a specific supplier or category of suppliers and perhaps further narrow the scope by selecting a particular geographic market in which these suppliers operate. Do likewise if focused on major customers. **Is the candidate scope strategic, timely, and supported?** The scope should be of high strategic importance to the company. Examples include the company's fastest growing market, an upcoming major product line, or the business unit with the greatest market share. The scope should offer a window of opportunity for the ESR to influence upcoming important business decisions. In addition, there should be sufficient internal management support for conducting an ESR within the selected scope.

Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 86-87: 3 minutes **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slide 14, *http://www.wri.org/project/ecosystem-services-review/training* **Instructions** Facilitator 1 to talk through the second step of the ESR (identifying priority ecosystem services) supported by background notes below, referring delegates to pages 14-20 in the ESR for more information. Facilitator 1 to state 'shown here is an example of how to identify priority ecosystem services', facilitator 1 to draw out 2-3 of the high impact/dependency services listed. **[Interactive option – delegates to call out main services, before they are revealed on the slide]** **Background** The second step is to evaluate in a structured yet rapid manner the company's dependence and impact on more than 20 ecosystem services. This evaluation will help identify which of these are 'priority' services – the ones most likely to be a source of risk or opportunity for the company. These priority ecosystem services are the focus of analysis in subsequent steps; the other services are screened out. To identify its priority services, a company needs to understand its level of dependence and impact on each ecosystem service. This is because the ecosystem services that are sources of business risk or opportunity typically are those that the company highly depends upon and/or highly impacts. For instance, if a company highly depends upon an ecosystem service and that service becomes scarce or degrades, then the company may face business risk in the form of higher input costs or disruption to its operations.	  If a company negatively impacts an ecosystem service by depleting or degrading it, then the company's actions may pose regulatory or reputational business risks. Conversely, if a company positively impacts an ecosystem service by supplying or enhancing it, then the company's actions may give rise to possible new business opportunities or reputational benefits. The ESR has a spreadsheet tool that asks users 5 questions per ecosystem service in order to determine the degree to which a company depends upon and impacts each service. The tool then translates the answers into a simple summary matrix (example shown) that helps managers identify which 5-7 services are the priority services. **Link to the spreadsheet tool:** http://docs.wri.org/esr_dependence_impact_assessment_tool.xls

Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 88: 2 minutes **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slide 15, *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator 1 to talk through the third step of the ESR supported by background notes below, referring delegates to pages 20-23 in the Guidelines for more information. Facilitator to link back to how drivers and trends may influence the identification of priority ecosystem services in step 2. **Background:** The third step is to research and analyze the status and trends in the priority ecosystem services that were identified in step 2. The purpose of this research is to provide managers with a sufficient amount of relevant information and insights so that they can later identify business risks and opportunities that may arise from these trends. For the trends analysis, managers should conduct research to answer the following five questions for each of the ecosystem services identified as a priority: - What are the conditions and trends in the supply and demand for the ecosystem service? - What direct drivers underlie these trends? - What is the company's contribution to these drivers? - What is the contribution of others to these drivers? - What indirect divers underlie these trends?	 **[Interactive – the questions listed here can be used to create more interaction in this content, e.g. asking the group to call out ideas/examples to answer some of the drivers/trends before displaying the slide]**

Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 89-90: 2 minutes **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slide 16, *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator 1 to talk through the fourth step of the ESR supported by background notes below, referring delegates to pages 24-30 in the Guidelines for more information. **Background:** The fourth step is to evaluate the implications for the company arising from trends in their priority ecosystem services. The purpose of this step is to identify the business risks and opportunities that might develop from these trends. Start by holding a structured brainstorming session to identify the business risks and opportunities that the trends identified in step 3 might pose for the company. To help trigger ideas, systematically consider each of the five types of risk and opportunity against each priority service. Once completed, move on to the next priority ecosystem service and go through the same process, continuing until all priority services have been covered. Desk research can supplement the results of the brainstorming session.	 Step 4. Types of risks and opportunities arising from trends in ecosystem services Not Exhaustive Type / Risk / Opportunity Operational Increased scarcity or cost of inputs Reduced output or productivity Disruption to business operations Increased efficiency Low-impact industrial processes Regulatory and legal Extraction moratoria Lower quotas Fines User fees Permit or license suspension Permit denial Lawsuits Formal license to expand operations New products to meet new regulations Opportunity to shape government policy Source: WBCSD Ecosystem Services Review Standard Presentation wbcsd business ecosystems training  Step 4. Types of risks and opportunities arising from trends in ecosystem services (cont.) Not Exhaustive Type / Risk / Opportunity Reputational Damage to brand or image Challenge to social 'license to operate' Improved or differentiated brand Market and product Changes in customer preferences (public sector, private sector) New products or services Markets for certified products Markets for ecosystem services New revenue streams from company-owned or managed ecosystems Financing Higher cost of capital More rigorous lending requirements Increased investment by progressive lenders and socially responsible investment funds Source: WBCSD Ecosystem Services Review Standard Presentation wbcsd business ecosystems training

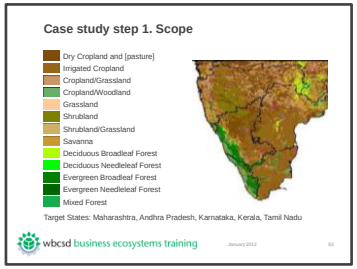
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 91: 2 minutes **Source:** WRI, *Ecosystem Services Review Standard Presentation*, slide 17, *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator to talk through the fifth step of the ESR supported by background notes below, referring delegates to pages 30-32 in the Guidelines for more information **Background:** The fifth step is to develop and prioritize strategies for minimizing the risks and maximizing the opportunities identified during step 4. Once the fifth step has been completed, managers will have a prioritized set of strategies to implement. Strategies for responding to ecosystem service-related risk and opportunities fall into three broad categories: - **Internal changes**. Companies can address many of the risks and opportunities through changes in operations, product/market strategies, and other internal activities. Potlatch, for instance, developed a strategy to establish a new revenue stream from its forests through visitor user fees. - **Sector or stakeholder engagement**. Companies can also address some of these risks and opportunities by partnering with industry peers, collaborating with other sectors, or structuring transactions with stakeholders.	 Vittel, for instance, addressed its water contamination problem by paying farmers in the watershed to switch to more sustainable land use practices and restoring the ecosystems surrounding the springs. - **Policy-maker engagement**. Another productive corporate strategy for addressing some ecosystem service-related issues can be to engage policy-makers and government agencies to establish good policies. Companies can voice support for (or provide input to) incentives or effective rules for sustainable management of ecosystem services.

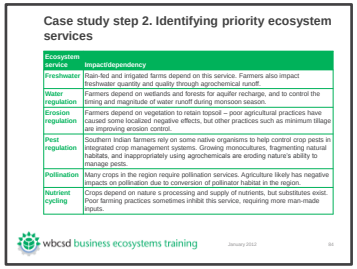
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 92: 1 minute **Source:** Corporate ESR Case Study: Syngenta, available from WRI's website *http://www.wri.org/project/ecosystem-services-review/training* **[Customize: additional ESR case studies are available on the WRI website and can be used in this section as an alternative to the Syngenta one]** **Instructions:** Facilitator 2 to walk through the case study by talking through this slide and the next two. This case study provides an example of how a company identifies key ecosystem services (steps 1 and 2 of the ESR). **[Note: we encourage facilitators to familiarize themselves with the details of the Syngenta case study, using the 3 pages summary available on the WRI website: http://pdf.wri.org/esr_case_study_syngenta.pdf]** **Additional background:** **Setting the scene (this is not described on the slide)** Before starting the review, Syngenta formed an ESR team that included experts from its strategic department, external relations, sustainability, finance, research, and external experts. This was an important first step in to ensure that the right blend of skills was available for an effective project.	

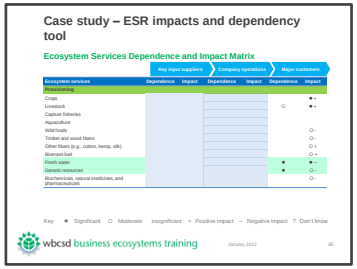
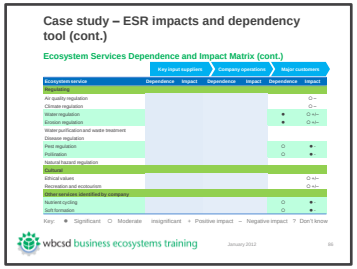
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 93: 1 minute **Source:** Corporate ESR Case Study: Syngenta, available from WRI's website *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator 2 to talk through the slide supported by the background notes below. **Background:** Step 1 of the ESR involves selecting the scope, or boundary, within which to conduct the assessment. Candidates include a business unit, product, market, corporate landholdings, infrastructure project, major supplier, or major customer segment, among others. The scope should be strategic, timely, and supported within the company. The Syngenta team focused the ESR on one of Syngenta's customer segments, farmers in southern India. They chose their customers because ecosystem services are the basis for agriculture and therefore crucial to their market. India is a growing market base for crop protection and seed supply. To keep the geographic scope of the ESR manageable, the company focused on the southern states of Andhra Pradesh, Karnataka, Kerala, Maharashtra, and Tamil Nadu.	

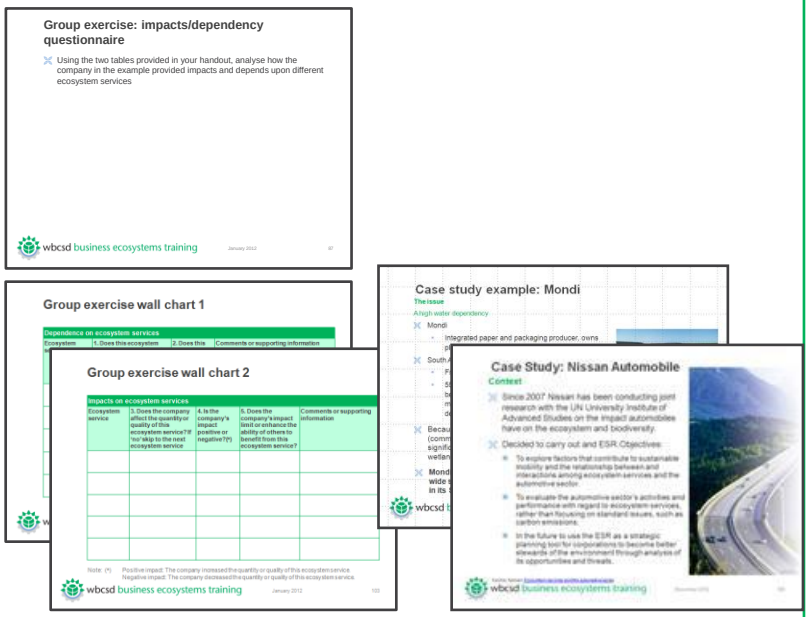
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 94: 4 minutes **Source:** Corporate ESR Case Study: Syngenta, available from WRI's website *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator 2 to talk through the slide in detail supported by the background notes below. **Background:** Step 2 of the ESR involves identifying priority ecosystem services, systematically evaluating the condition and trends in the priority ecosystem services, as well as the drivers of these trends. While all ecosystem services are related and important to business, typically 5-7 ecosystem services can be identified as critical to business operations. To identify priority ecosystem services, the Syngenta ESR team gathered information from its own Indian agronomists and regional agricultural scientists from universities and nongovernmental organizations. The team used these interviews, secondary research, and corporate data to fill out the ESR Dependence & Impact Assessment Tool. Based on this assessment, the ESR team selected six priority ecosystem services which are displayed in this slide. **Priority ecosystems services:** **Freshwater:** Rain-fed and irrigated farms depend on this service. Farmers also impact freshwater quantity and quality through agrochemical runoff. **Water regulation:** Farmers depend on wetlands and forests for aquifer recharge, and to control the timing and magnitude of water runoff during monsoon season.	 **Erosion regulation.** Farmers depend on vegetation to retain topsoil. Poor agricultural practices have caused some localized negative effects, but other practices such as minimum tillage are improving erosion control. **Pest regulation.** Southern Indian farmers rely on some native organisms to help control crop pests in integrated crop management systems. Growing monocultures, fragmenting natural habitats, and inappropriately using agrochemicals are eroding nature's ability to manage pests. **Pollination.** Many crops in the region require pollination services. Agriculture likely has negative impacts on pollination due to conversion of pollinator habitat in the region. **Nutrient cycling**. Crops depend on nature's processing and supply of nutrients, but substitutes exist. Poor farming practices sometimes inhibit this service, requiring more man-made inputs.

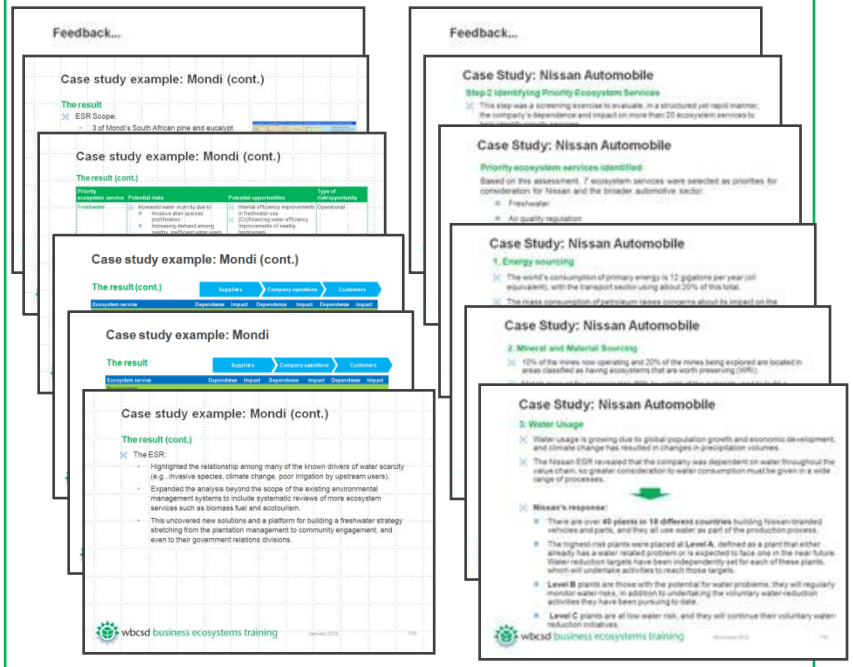
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 95-96: 2 minutes **Source:** Corporate ESR Case Study: Syngenta, available from WRI's website *http://www.wri.org/project/ecosystem-services-review/training* **Instructions:** Facilitator to talk through the slides supported by the background notes below. **Background:** The Dependence & Impact Assessment Tool of Step 2 helps managers identify the most important ecosystem services for their company. The outputs of the tool, which were used to support Syngenta's ESR, are shown in these slides. The excel-based tool is available at http://docs.wri.org/esr_dependence_impact_assessment_tool.xls, which is referenced within packs to allow delegates to research this tool later. A simplified version of the tool will be considered in the group exercise next.	 Case study – ESR impacts and dependency tool Ecosystem Services Dependence and Impact Matrix wbcsd business ecosystems training  Case study – ESR impacts and dependency tool (cont.) Ecosystem Services Dependence and Impact Matrix (cont.) wbcsd business ecosystems training

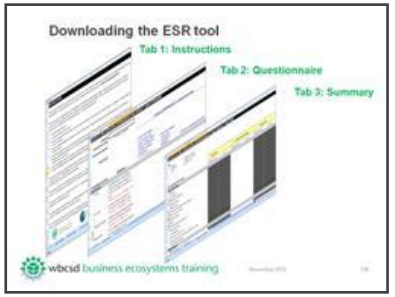
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Total time for the exercise = 10 minutes **Introduction to slides 97-99: 5 minutes** **Group discussion: 10 minutes** **Instructions:** Facilitator to explain the structure of the group exercise to delegates: - Split the delegates into groups of 4-5 - Each group will examine the same company example, considering the evidence given on the next slides and filling out the two tables provided as wall charts (shown opposite) . These tables reflect the Questionnaire from the excel-based Dependence and Impact Assessment Tool, available at http://docs.wri.org/esr_dependence_impact_assessment_tool.xls - Slides 98 & 99 show the wall charts which are available in the handouts annex, alongside the case study context. Each group of delegates should be asked to complete these wall charts for the case study company, discussing the issues as a team. - To start the exercise, the facilitator should present the case study context provided on slide 101 for Mondi, 109-110 for Nissan, then give delegate groups 10 minutes to complete the two tables for the case study. The facilitator should emphasise to delegates that not all the information to conduct a full ESR step 2 is necessarily provided - therefore there are no 'wrong' answers in this exercise. If there is sufficient time available, the facilitator may wish to print A4 handout copies of the case study "issue" slides for the delegate groups to review individually. **Case study 1: Mondi** **Case study 2: Nissan Automobile**	 **[Customize 1: additional ESR case studies are available on the WRI website (*http://www.wri.org/project/ecosystem-services-review/training)* and can be used in this section as an alternative to the Mondi case]** **[Customize 2: delegates could be asked to consider how their companies impact and depend upon ecosystems as pre-work in advance of the course. This session could then involve one delegate per group volunteering to provide the context for their own company and the group conduct this exercise using that company as the example.]**

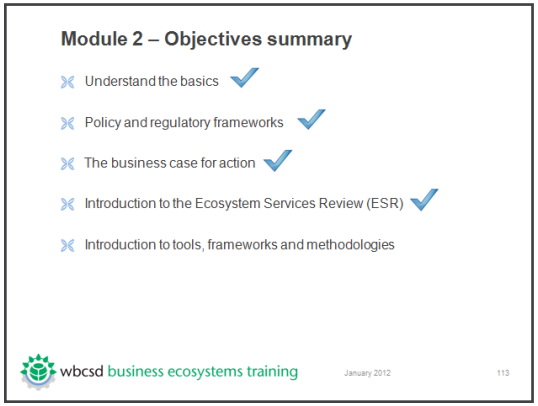
Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 103-107 for Mondi / 112-116 for Nissan Automobile: 5 minutes **Instructions** Facilitator to gather feedback from one member of each group on a flipchart, highlighting the group's consensus and disagreement on the key ecosystem service impacts and dependencies for the example provided. After the group work, one member of each group will feedback the results to the facilitator, who will collect the results on a flipchart: 1. Choose the boundary for the project 2. Does this ecosystem service serve as an input or does it enable/enhance conditions for successful company performance? 3. Does this ecosystem service have cost-effective substitutes? If "no" skip to question ? 4. Does the company affect the quantity or quality of this ecosystem service? 5. Is the company's impact positive or negative? 6. Does the company's impact limit or enhance the ability of others to benefit from this ecosystem service? After this the Facilitator should distribute the results handouts (see handouts annex and slides opposite), outlining the key ecosystem service impacts and dependencies for this example. The facilitator should note that these results for Mondi were presented earlier in the session as the generic example for stage 2 of the ESR.	

Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 117-118: 5 minutes **Source:** WRI Website, http://www.wri.org/project/ecosystem-services-review **Instructions** Following the exercise the facilitator is to demonstrate the downloading of the ESR Dependence and Impact Assessment Tool from the and how to use the tool. If internet is available download the tool directly from the web, and show the different Excel worksheets.	 

Introduction to Ecosystem Services Review (ESR) (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 119: < 1 minute Facilitator to recap what has been covered in the module so far.	

Time guidelines

Time guidelines	Time
Introduction to tools – Identifying, Assessing, and Valuing Ecosystem Services – overview	**35 mins**

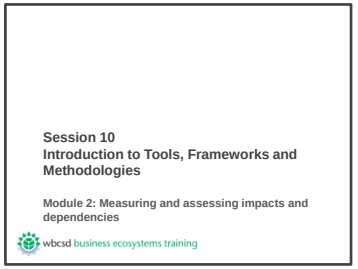
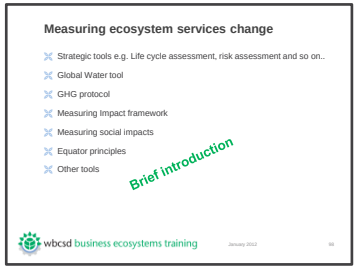
Session overview
This session presents three WBCSD tools with choice of presentation slides customised to the audience.

Session objective
Introduction of thee WBCSD tools, and other tools of specific relevance to the audience.

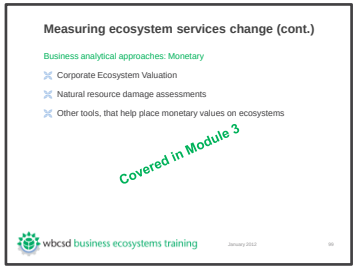
Session format
This session will be run by one course facilitator, who will talk through key concepts and definitions with delegates.

Handouts
Delegates course material desk pack – hardcopies will be laid out on delegate desks in advance of their arrival at the course. This pack contains copies of all of the slides used throughout this course together with relevant handout materials required for each session. A glossary of terms used during the module will also be available in the course material desk pack.

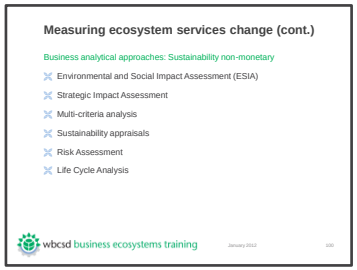
Introduction to Tools, Frameworks and Methodologies

Facilitators' notes	Media/activity/handout guidance
Slides 120-121: 1 minute **Session 10: Introduction to Tools, Frameworks and Methodologies** In this session, delegates are introduced to a sample of practical tools that can be employed to measure a company's impacts and dependencies on ecosystem services. **Instructions** Facilitator to introduce the various tools that are available for identifying, and assessing changes in ecosystems, a few of the 'optional' tools described also help value ecosystem services. Focus should vary depending on the needs of the audience. Further information on each of the tools can be found by reading the links following the brief introductions given here. **Customize** **OPTION 1: The tools chosen for this session will depend on the nature of the audience and choose tools accordingly.** **OPTION 2: Following on from the ESR activity, the facilitator may choose to focus discussion on the tools that address the particular impacts that have been discussed.** **Options include concentrating on:** - Water related tools - GHG related tools - Stakeholder engagement tools. - General life cycle tools may, or - 'Social Impact' tools	  **Slide 2: < 1 minute** The facilitator should state that this session will only provide a brief introduction to the tools shown on the slide. ***Note: some tools described in this session are freely available, whilst others are not. Facilitator to vary use depending on audience and scope.***

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 122: 1 minute **Source:** WBCSD, *Guide to Corporate Ecosystem Valuation* (long and detailed) (slide 55) available from *http://www.wbcsd.org/web/ecosystems/RTSummaries/PPT/WBCSD_CEV_long_final.ppt* **Instructions:** Facilitator to briefly explain some of the available frameworks measuring ecosystem change that adopt a monetary approach. **Background:** There are numerous financial, analytical approaches for corporate decision-making. Accounting processes include those from **financial** and **management accounting**, which assess costs and benefits that have a direct financial implication for a company's bottom line for external and internal uses respectively. For example, **Corporate Ecosystem Valuation** which is a framework approach to valuation. **Natural resource damage assessments** focus specifically on the costs and compensation for environmental damages. **Other tools include**: ARIES (Artificial Intelligence for Ecosystem Services), InVEST (Integrated Valuation of Ecosystem Services and Tradeoffs) and so on. Session 10 introduces some useful tools for measuring and assessing impacts, but specific tools for identifying, assessing and valuing ecosystem services are discussed in module 3.	

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 123: 2 minutes **Source:** WBCSD, *Guide to Corporate Ecosystem Valuation* (long and detailed). Available from http://www.wbcsd.org/web/ecosystems/RTSummaries/PPT/WBCSD_CEV_long_final.ppt **Instructions:** Facilitator to briefly explain some of the available frameworks measuring ecosystem change with a sustainability non-monetary approach. **Background:** **Environmental and Social Impact Assessment (ESIA)** and **Strategic Impact Assessments (SIAs)** provide systematic approaches for evaluating and minimizing the potential environmental and social impacts of developments, programs, and policies. There are also a number of approaches for evaluating the longer-term social and environmental risks and impacts of company products or operations, including **risk assessment and life-cycle assessment.** There are also decision-making tools for assessing trade-offs, such as **multi-criteria analysis**, which compares alternative options using a quantitative scoring and weighting system, **cost-effectiveness analysis**, an approach that compares the outcomes and costs of several alternatives, and broader sustainability analyses.	

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 124 : 1 minute **Sources:** WBCSD, *Connecting the Dots* (2005) *http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=23* (link to connecting the dots at the bottom of the page). WBCSD, *Global Water Tool* *http://www.wbcsd.org/work-program/sector-projects/water/global-water-tool.aspx* **Instructions** Facilitator to introduce the WBCSD Global Water Tool. - The Global Water Tool was launched by WBCSD in 2007, intended as a free and easy to use tool for companies and organizations to map their water use and assess risks relative to their global operations and supply chains. The tool has been updated in 2009 and 2011 to incorporate more recent issues, such as relation to biodiversity 'hotspots'. - The tool is designed for companies and organisations operating in multiple countries/sites in order for them to better understand the issues associated with water use in their operations and extended supply chain. - The tool is downloadable from the WBCSD website, and users input their company data to generate an analysis of their company's profile in terms of dependence and impact on water resources. - Customized versions are currently available for oil and gas and power and utilities companies.	

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance

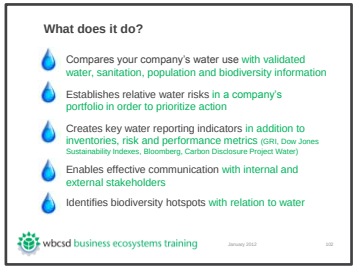
Slides 125-126: 2 minutes

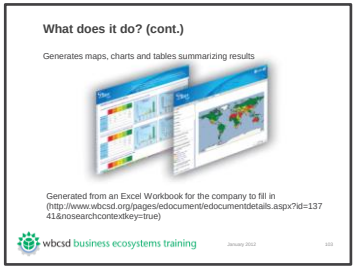
Sources:
WBCSD, *Connecting the Dots* (2005)
http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=23
(link to connecting the dots at the bottom of the page).
WBCSD, *Global Water Tool*
http://www.wbcsd.org/work-program/sector-projects/water/global-water-tool.aspx

Instructions

Facilitator to continue the introduction to the global water tool by stating what the tool can be used for i.e.

- Visualizations and high-level dashboard and geographical summaries make it an extensive and easy-to-use tool.
- Company information is not held online but securely by the company.
- Recent updates also include generation of reporting assessments: Dow Jones Sustainability Indexes, Bloomberg, CDP Water.
- It is a tool for measuring and assessing, but does not offer specific guidelines for mitigation in local instances.

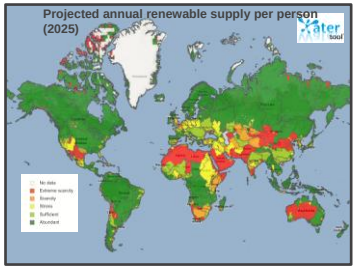
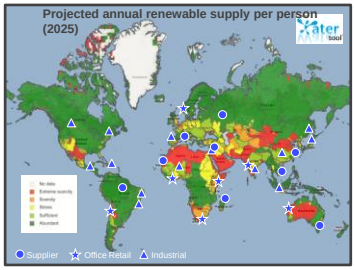




Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 127-129– Downloading the Global Water Tool: 5 minutes **SKIP THIS SLIDE IF ONLY PROVIDING A BRIEF INTRODUCTION** **Source:** WBCSD *http://www.wbcsd.org/web/gwt/WBCSD_How_to_use_GWT_for_Power_Utilities_Final.pdf* **Instructions** The facilitator is to demonstrate the downloading of the Global Water Tool from the web using the following steps. If internet is available the facilitator should complete these steps 'live'. Note: When downloading the Water Tool please save the tool to your computer and then double click the file to run it. Enable macros to be able to run the tool. Once the tool is downloaded, facilitator to go through what data is required through the input sheets and what the tool generates. Inputs needed in either the water inventory sheet or the data form sheet include: site location (lat/long) and water use information. Full details are provided in the pdf user guide available at the following link *http://www.wbcsd.org/web/gwt/WBCSD_How_to_use_GWT_for_Power_Utilities_Final.pdf* **[Customize – an example of the output of the global water tool could be generated, using company specific information, to show the use of this tool from an internal company perspective.]**	  

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 130-132 Completing the Global Water Tool: 5 minutes **SKIP THESE SLIDES IF ONLY PROVIDING A BRIEF INTRODUCTION** **Source:** WBCSD *http://www.wbcsd.org/web/gwt/WBCSD_How_to_use_GWT_for_Power_Utilities_Final.pdf* **Instructions** Facilitator to go through the types of outputs available to users of the Global Water Tool. After entering the company's water use figures, the sheet automatically provides outputs, including GRI water indicators, Bloomberg, CDP Water and Dow Jones Sustainability Index together with downloadable metrics charts combining company information with country and watershed data. Outputs available include: Output 1: Country report Output 2: Watershed report Output 3: Reporting metrics Output 4: Generate maps Output 5: Google Earth view of your sites The following maps show examples of some of the outputs available from the tool – those shown in the slides illustrate the outputs available from the generate maps feature and the different view options available. For further details please read the detailed user guide at: *http://www.wbcsd.org/web/gwt/WBCSD_How_to_use_GWT_for_Power_Utilities_Final.pdf*	   **[Customize – an example of the output of the global water tool could be generated, using company specific information, to show the use of this tool from an internal company perspective.]**

Session 10

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance

Slides 133-134 Completing the Global Water Tool: 5 minutes

SKIP THESE SLIDES IF ONLY PROVIDING A BRIEF INTRODUCTION

Source: WBCSD

Instructions

Facilitator to go through the slides.

Background:

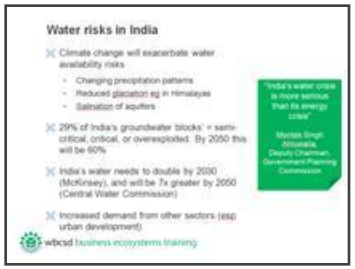
Water risks in India:

- Climate change will exacerbate water availability risks
  - Changing precipitation patterns
  - Reduced glaciation eg in Himalayas
  - Salination of aquifers
- 29% of India's groundwater blocks' = semi-critical, critical, or overexploited. By 2050 this will be 60%
- India's water needs to double by 2030 (McKinsey), and will be 7x greater by 2050 (Central Water Commission)
- Increased demand from other sectors (esp urban development)

Coming soon: an India-specific water tool developed by and for Indian companies to map their water use and assess risks relative to their national operations and supply chains.

- More accurate data to screen water-related risks in India
- Indian industry relevant maps and graphs
- Indian companies define parameters and specific outputs
- Led by ACC, Bayer and Infosys
- Broad consultations with the creation of an Advisory Group
- Free and easy to use building on the successful Global Water Tool

Get involved: contact indiawatertool@gmail.com or boffi@wbcsd.org



Session 10

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance

Slides 135-138: 5 minutes

Source: WBCSD *http://www.wbcsd.org/work-program/sector-projects/water/localwatertool.aspx*

Instructions

Facilitator to go through the features of the Gemi Local Water Tool and how it complements the Global Water tool.

Background

The GEMI Local Water Tool™ (LWT) is a free tool for companies and organizations to evaluate external impacts, business risks, opportunities and management plans related to water use and discharge at a specific site or operation. The information generated in the GEMI LWT™ may be used by companies for internal or external communication.

What does The GEMI LWT™ do?

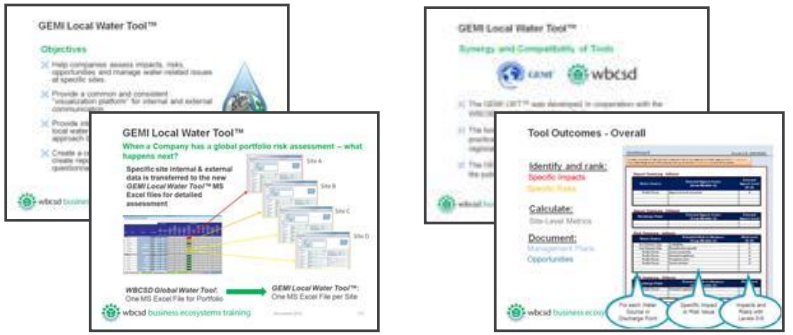
- Helps companies assess external impacts, business risks, opportunities and manage water-related issues at specific sites;
- Provides a common and consistent visualization platform for internal and external communication;
- Provides interconnectivity between global and local water risk assessments and a uniform approach between site assessments;
- Provides a central repository of information for the individual user to create reports for internal and external stakeholders.

Who is it for?

Companies and other organizations who wish to evaluate water-related external impacts, business risks and sufficiency of management plans at specific sites.

How does the GEMI LWT™ link with the WBCSD GWT?

The GEMI LWT™ was developed in cooperation with the WBCSD to link to the WBCSD Global Water Tool (GWT) and provide a set of tools that companies can use to sustainably manage water in their operations. These tools are designed to be compatible to enable users to achieve full value from use of both tools.



Companies can employ the WBCSD GWT to identify and prioritize high risk sites in their portfolios.

Framework / Dashboard

- Module 1. Site Data: User enters internal company data and defines internal Importance Level of Influent Sources and Receiving Waterbodies or Entities
- Module 2. Local External Conditions: User reviews external data to define External Stress Severity Levels for 20 Water Issues
- Module 3. External Impacts Assessment: User assesses company's external impacts on Influent Sources and Receiving Waterbodies and Entities
- Module 4. Risk Assessment: User assesses risks to company through combination of Modules 1 and 2
- Module 5. Management Plan: User identifies Current Management Methods, Opportunities, Assesses Sufficiency and Plans for Future
- Module 6. Reporting Customized to Internal and External Stakeholders: Optional reporting metrics are generated
- References, FAQs and Definitions

For more information: GEMI Local Water Tool *http://www.gemi.org/localwatertool/*

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes

Slides 139-140: 5 minutes

Source: WBCSD *http://www.wbcsd.org/work-program/sector-projects/water/aquagauge.aspx*

Instructions

Facilitator to go through the features of the Aqua Gauge.

Background

The Aqua Gauge is the outcome of a collaboration between Ceres, WBCSD, Irbaris and the IRRC Institute and provides a robust framework and methodology for corporate sustainability professionals to engage with institutional investors on water risk and opportunity management, and a resource to inform companies of their shareholders disclosure needs.

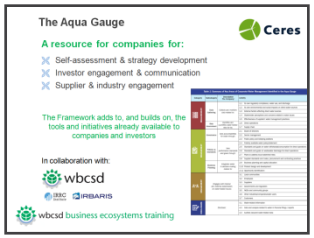
Backed by investors managing over $2 trillion in assets, the framework benefited from a wide consultation involving representatives from over 50 financial institutions, companies, conservation groups, and other organizations active on water-related issues.

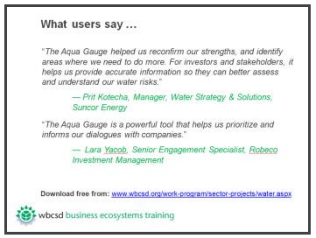
What is it?

The Aqua Gauge is a flexible Excel-based tool and associated methodology that provides companies with a complete picture of leading practice in water management, and a means to assess their own performance and progress. Leading practices are defined and grouped around four broad types of activity:

- Measurement
- Governance and management
- Stakeholder engagement
- Disclosure

Media/activity/handout guidance





Best practices are also distinguished by level of maturity from initial steps to leading practice through advanced progress helping companies communicate where they stand on the water stewardship journey.

The Aqua Gauge is neither a survey nor another channel of corporate disclosure. It adds to, and builds on, the tools and initiatives already available to companies and investors.

Who is it for?

- Corporations in water-intensive sectors seeking to engage the investment community and to develop more robust water management strategies.
- Portfolio managers and analysts seeking to better understand and mitigate potential exposure to water-related risks in their equity portfolios.
- Corporate governance specialists at pension funds and asset management firms interested in engaging portfolio companies on how they are managing water-related risks and opportunities.
- Investment advisors that provide services to asset owners seeking to integrate consideration of water and other sustainability risks and opportunities into their investment strategies.
- Financial & ESG data providers interested in providing their clients with more robust analytics related to corporate management of water risks and opportunities.

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance

Slides 139-140: 5 minutes

Source: WBCSD *http://www.wbcsd.org/work-program/sector-projects/water/aquagauge.aspx*

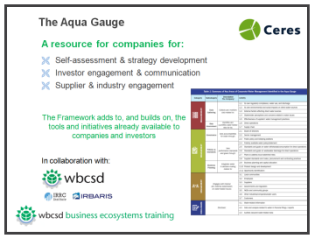
Instructions

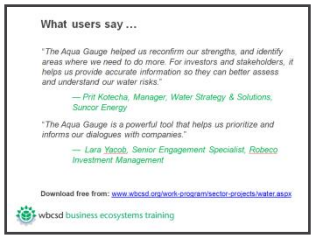
Facilitator to go through the features of the Aqua Gauge.

Background (cont.)

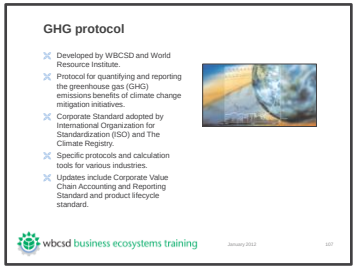
Structure of the report

- **Chapter 1** identifies key global water trends that may pose potentially material risks to the financial health of companies and investment portfolios, and discusses the state of both corporate and investor response to these issues to date.
- **Chapter 2** describes the Ceres Aqua Gauge tool and how it can be applied in assessing the water management of individual companies.
- **Chapter 3** identifies the key challenges facing corporate managers with respect to water, and details four categories of corporate activities – measurement, governance & management, stakeholder engagement and disclosure – comprising a comprehensive approach to addressing water risks and opportunities.
- **Chapter 4** lays out a process to help investors prioritize those holdings more likely to face water-related risk based on their sector and geographic exposure.
- **Appendix A** provides the complete details of the Aqua Gauge parameters for defining leading practice in water management.
- **Appendix B** details relevant third-party resources, data sets and tools for companies and investors and provides a short glossary of relevant water-related terms.

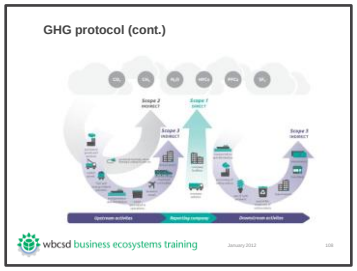




Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 141: 2 minutes **Sources***:* WBCSD, *Connecting the Dots* (2005) *http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=23* (link to connecting the dots at the bottom of the page). GHG protocol *http://www.ghgprotocol.org/files/ghgp/public/ghg-protocol-revised.pdf* **Instructions:** Facilitator to introduce the GHG Protocol. **Background** Developed by the World Resources Institute (WRI) and WBCSD, it was first published in 2001 as an attempt at creating an international standard for corporate GHG accounting and reporting, as was necessary in light of evolving climate change policy. It has come to be recognised as the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions, adopted by ISO (ISO 14064-I), and numerous carbon mitigation projects. Separate standards and protocols exist for different sectors/approaches: - Project protocol (for GHG project accounting) - Agricultural protocol - Public sector protocol - Land use/land use change protocol - Product Standard	 Calculation tools designed for the needs of different sectors, include metals, paper, wood, electronics etc. Follow this link to see full list of tools: http://www.ghgprotocol.org/calculation-tools The protocol acts as an accounting guide, creating a standard by which the mitigation benefits of projects/initiatives can be compared across companies an industries. The protocol has been updated to include an Accounting and Reporting Standard for Corporate Value Chain emissions, as well as for product lifecycle.

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 142: 2 minutes **Source***:* WBCSD&WRI *http://www.ghgprotocol.org/files/ghgp/public/ghg-protocol-revised.pdf* **Instructions:** Facilitator to explain the distinction between scope 1, 2 and 3 emissions, reminding delegates of the concepts of value and supply chains. **Background** Scope 1 emissions: Emissions from operations that are owned or controlled by the reporting company. Scope 2 emissions: Emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by the reporting company. Scope 3 emissions: All indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.	

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 143: 3 minutes **Sources**: Interorganizational Committee on Principles and Guidelines for Social Impact Assessment (2003). Vanclay, F., 2003. SIA principles: International Principles for Social Impact Assessment. Impact Assessment and Project Appraisal. Vol. 21, No. 1, pp. 5–11. Available online: http://www.iaia.org/publicdocuments/sections/sia/IAIA-SIA-International-Principles.pdf World Bank http://go.worldbank.org/8921B8K420 and http://siteresources.worldbank.org/SOCIALPROTECTION/Publications/20847129/SRMWBApproachtoSP.pdf **Instructions** Facilitator to briefly define Social Impacts to delegates. Social Impacts are intimately connected to ecosystem impacts, as local communities and livelihoods are often dependent on the services provided by those ecosystems. Measuring social impacts is therefore a way of understanding the effects of a company's ecosystem impacts. **Background** 'By Social Impacts we mean the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society.'	 **Social Impact Assessment (SIA)** includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment. SIA is best understood as an umbrella or overarching framework that embodies the evaluation of all impacts on humans and on all the ways in which people and communities interact with their socio-cultural, economic and biophysical surroundings. **Facilitator to read through the links in bold.**

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 143 (cont.): 3 minutes SIA thus has strong links with a wide range of specialist sub-fields involved in the assessment of areas such as: **aesthetic impacts** (landscape analysis), archaeological and cultural heritage impacts (both tangible and non-tangible), **community impacts, cultural impacts, demographic impacts**, development impacts, economic and fiscal impacts, gender impacts, health and mental health impacts, **impacts on indigenous rights**, infrastructural impacts, institutional impacts, leisure and tourism impacts, political impacts (human rights, governance, democratisation etc.), poverty, psychological impacts, resource issues (access and ownership of resources), **impacts on social and human capital**, and other impacts on societies. As such, a comprehensive SIA cannot formally be undertaken by a single person, but requires a team approach. **World Bank – PSIA** Poverty and social impact analysis (PSIA) involves the analysis of the distributional impact of policy reforms on the well-being of different stakeholder groups, with a particular focus on the poor and vulnerable. PSIA is a systematic analytic approach, not a separate product. The World Bank has also developed guidance on selected tools and techniques, through a Toolkit for Evaluating the Poverty and the Distributional Impact of Economic Policies and the Social Analysis Sourcebook, available on the World Bank website. **Facilitator to explain that the World Bank tool is only a possible resource and is relevant to those in need of an analytical tool for measuring social impacts.**	

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance

Slides 144-146: 3 minutes

Sources:

WBCSD, *Connecting the dots* (2005) *http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=23* (link to connecting the dots at the bottom of the page).

WBCSD and IFC, *Measuring Impact Framework Methodology,* (2008), *http://www.wbcsd.org/templates/TemplateWBCSD5/layout.asp?type=p&MenuId=MTU3Mw*

Instructions:

Facilitator to introduce delegates to the WBCSD Measuring Impact Framework and to remind delegates about the links between ecosystems and wellbeing.

Background

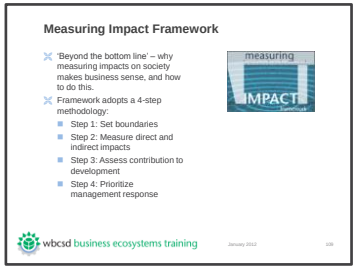
Developed between 2006-2008 by WBCSD, in conjunction with their members, and co-branded by the International Finance Corporation (IFC).

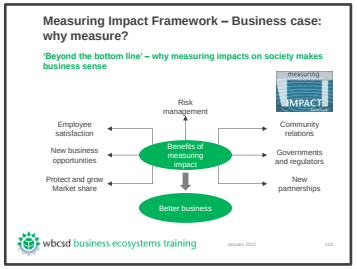
MIF was designed to help companies understand their contribution to society and use this understanding to inform their operational and long-term investment decisions, and have better-informed conversations with stakeholders.

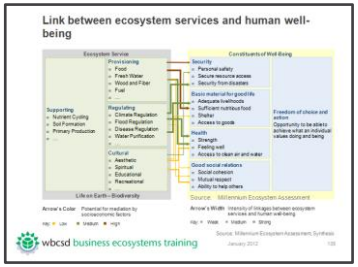
Unlike Environmental Impact Assessments (EIAs) or Environmental, Social and Health Impact Assessments (ESHIAs), which are employed to measure future or isolated impacts, this framework can be adapted at any stage of company or product/service development to understand their societal 'footprint'.

Tool use

Four-step methodology: (The entire process of these four steps is described in the methodology document available on the WBCSD website).







Step 1: SET BOUNDARIES – determine the scope and depth of the overall assessment in terms of geographical boundary (local vs. regional) and types of business activities to be assessed.

Step 2: MEASURE DIRECT AND INDIRECT IMPACTS – identify and measure the direct and indirect impacts arising from the company's activities, mapping out what impacts are within the control of the company and what it can influence through its business activities.

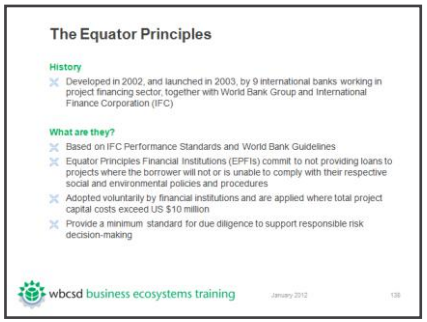
Step 3: ASSESS CONTRIBUTION TO DEVELOPMENT – assess to what extent the company's impacts contribute to the development priorities in the assessment areas.

Step 4: PRIORITIZE MANAGEMENT RESPONSE – based on steps 2 and 3, extract the key risks and opportunities relative to the company's societal impact and, based on this, develop an appropriate management response.

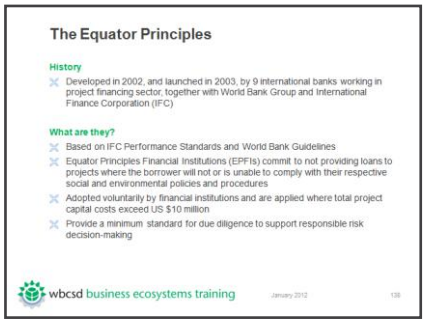
Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 147-148: 3 minutes **Examples about how companies have used the Framework:** - Measuring the impact of Nestlé's innovative distribution model for nutritional food in Peru *http://www.inclusivebusiness.org/2011/03/nestle-peru-measuring-impact-framework.html* - EcoSecurities: Measuring the development benefits of emissions reduction *http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=207&nosearchcontextkey=true* **Instructions:** Facilitator should choose an example of how a company has applied the Measuring Impact Framework. Full case studies are available by following the links above.	 

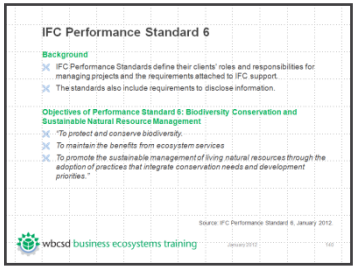
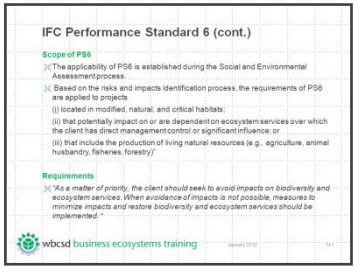
Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 149: 2 minutes (optional slide) **Source**: Equator Principles *http://equator-principles.com* Facilitator to describe the Equator Principles as a framework that was developed in response to the need to manage and mitigate social and environmental impacts. **History** In October 2002, 9 international banks, together with the World Bank Group's International Finance Corporation (IFC), met to develop a banking industry framework for addressing environmental and social risks in project financing that could be applied globally and across all industry sectors. **About** The Equator Principles (EPs) are a credit risk management framework for determining, assessing and managing environmental and social risks in project finance transactions. Project finance is often used to fund the development and construction of major infrastructure and industrial projects. The EPs are adopted voluntarily by financial institutions and are applied where total project capital costs exceed US$10 million. The EPs are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. The EPs, based on the International Finance Corporation (IFC) Performance Standards on social and environmental sustainability and on the World Bank Group Environmental, Health, and Safety Guidelines (EHS Guidelines), are intended to serve as a common baseline and framework for the implementation by each adopting institution of its own internal social and environmental policies, procedures and standards related to its project financing activities.	 The EPs have become the industry standard for environmental and social risk management and financial institutions. Clients/project sponsors, other financial institutions and industry bodies refer to the EPs as good practice. Currently 73 adopting financial institutions (71 EPFIs and 2 Associates) in 27 countries have officially adopted the EPs, covering over 70 percent of international project finance debt in emerging markets.

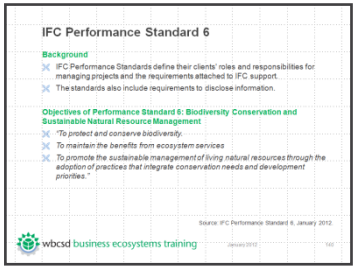
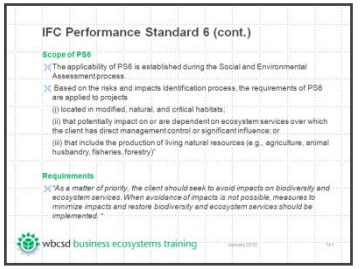
Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 149: 2 minutes (optional slide) (cont.) Equator Principles Financial Institutions (EPFIs) commit to not providing loans to projects where the borrower will not or is unable to comply with their respective social and environmental policies and procedures that implement the EPs. In addition, while the EPs are not intended to be applied retroactively, EPFIs will apply them to all project financings covering expansion or upgrade of an existing facility where changes in scale or scope may create significant environmental and/or social impacts, or significantly change the nature or degree of an existing impact. The EPs have greatly increased attention and focus on social/community standards and responsibility, including robust standards for indigenous peoples, labour standards, and consultation with locally affected communities within the project finance market. They have also promoted convergence around common environmental and social standards. Multilateral development banks, including the European Bank for Reconstruction & Development (EBRD), and export credit agencies through the OECD Common Approaches are increasingly drawing on the same standards as the EPs. The EPs have also helped spur the development of other responsible environmental and social management practices in the financial sector and banking industry (for example, Carbon Principles in the US and Climate Principles worldwide) and have provided a platform for engagement with a broad range of interested stakeholders, including NGOs, clients and industry bodies.	

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 150-151: 3 minutes (optional slides) **Sources:** International Finance Corporation (IFC) *www.ifc.org/ifcext/sustainability.nsf/Content/PerformanceStandards* IFC Standard 6 (Jan 2012) *http://www1.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability+framework/2012+edition/performancestandard6* Facilitator to describe the IFC Performance Standard 6 (PS6) as a model for applying biodiversity and ecosystem criteria to project financing as part of the decision making process. Facilitator should also mention some of the requirements described by the IFC for PS6. The process is supported by publicly available background information provided by the IFC below (2012 edition). **Background** **Principles:** *"Performance Standard 6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development. The requirements set out in this Performance Standard have been guided by the Convention on Biological Diversity, which defines biodiversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems."* *"Ecosystem services valued by humans are often underpinned by biodiversity. Impacts on biodiversity can therefore often adversely affect the delivery of ecosystem services. This Performance Standard addresses how clients can sustainably manage and mitigate impacts on biodiversity and ecosystem services throughout the project's lifecycle"*	  ***Scope of Application*** *"The applicability of this Performance Standard is established during the environmental and social risks and impacts identification process. The implementation of the actions necessary to meet the requirements of this Performance Standard is managed through the client's Environmental and Social Management System (ESMS), the elements of which are outlined in Performance Standard 1.* *Based on the risks and impacts identification process, the requirements of this Performance Standard are applied to projects (i) located in modified, natural, and critical habitats; (ii) that potentially impact on or are dependent on ecosystem services over which the client has direct management control or significant influence; or (iii) that include the production of living natural resources (e.g., agriculture, animal husbandry, fisheries, forestry)"* ***Objectives*** *"To protect and conserve biodiversity.* *To maintain the benefits from ecosystem services* *To promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities."*

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slides 150-151: 3 minutes (optional slides) (cont.) ***Requirements*** *"The risks and impacts identification process as set out in Performance Standard 1 should consider direct and indirect project-related impacts on biodiversity and ecosystem services and identify any significant residual impacts. This process will consider relevant threats to biodiversity and ecosystem services, especially focusing on habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological changes, nutrient loading, and pollution. It will also take into account the differing values attached to biodiversity and ecosystem services by Affected Communities and, where appropriate, other stakeholders. Where paragraphs 13–19 are applicable, the client should consider project-related impacts across the potentially affected landscape or seascape.* *.As a matter of priority, the client should seek to avoid impacts on biodiversity and ecosystem services. When avoidance of impacts is not possible, measures to minimize impacts and restore biodiversity and ecosystem services should be implemented. Given the complexity in predicting project impacts on biodiversity and ecosystem services over the long term, the client should adopt a practice of adaptive management in which the implementation of mitigation and management measures are responsive to changing conditions and the results of monitoring throughout the project's lifecycle.* *Where paragraphs 13–15 are applicable, the client will retain competent professionals to assist in conducting the risks and impacts identification process. Where paragraphs 16–19 are applicable the client should retain external experts with appropriate regional experience to assist in the development of a mitigation hierarchy that complies with this Performance Standard and to verify the implementation of those measures."*	  **More details on PS6 at:** *http://www1.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability+framework/2012+edition/performancestandard6* **Facilitators can also refer to Module 4 Session 6 for more background information on IFC PS6 and biodiversity offsets**

Introduction to Tools, Frameworks and Methodologies (cont.)

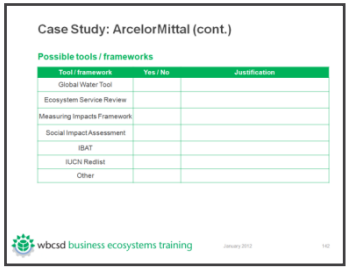
Facilitators' notes	Media/activity/handout guidance
Slide 152: 5 minutes **Source:** BSR ,*'Tools for Identifying, Assessing, and Valuing Ecosystem Services' (2011).* *http://www.bsr.org/reports/BSR_ESTM_WG_Comp_ES_Tools_Synthesis3.pdf* *Other links used are provided below.* **Instructions:** Based on relevance to the audience (sector, interests, state learning objectives etc.), the facilitator should select only 2 examples to talk through. Only a brief description is given here; facilitator should consult the references provided if the examples are of interest. ***Note: This list should not be seen as exhaustive: those described are not all-encompassing and there are many others in development. Some of these tools are used to measure impacts / dependencies, others merely for identifying. Companies often have to adapt these tools or use them in combination in order to meet their needs.*** - **EcoMetrix: '**an environmental measurement and modelling tool that supports sustainable infrastructure, restoration projects, and enterprise-level program decision-making. EcoMetrix models and quantifies changes within an ecosystem, enabling users to evaluate the positive or negative effects of different scenarios and alternative designs on ecosystem services.' (BSR, 2011) - **EcoAIM (Ecological Asset Inventory and Management):** A new tool to: '(1) inventory ecological services and help in making decisions regarding development, transactions, and ecological restoration; (2) develop specific estimates of ecosystem services in a geographically relevant context, and (3) offer the means for evaluating tradeoffs of ecosystem services resulting from different land or resource management decisions.' (BSR, 2011).	 - **InVEST:** Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST) is a software tool designed by the Natural Capital Project to help businesses reduce risks and seize opportunities by valuing nature's benefits. It quantifies nature's benefits in both biophysical terms, such as water flows, and economic terms, such as avoided cost or net present value. InVEST maps depict the ecosystem service returns of alternative business decisions and help companies manage trade-offs in operations, investments and management. *(http://www.naturalcapitalproject.org/pubs/Web_BusinessBrochure.pdf)* - **Living Planet Report**: 'the world's leading, science-based analysis on the health of our only planet and the impact of human activity. Its key finding? Humanity's demands exceed our planet's capacity to sustain us. That is, we ask for more than what we have.' *(http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/)* - **IUCN Redlist:** 'The IUCN Red List of Threatened Species™ provides taxonomic, conservation status and distribution information on plants and animals that have been globally evaluated using the IUCN Red List Categories and Criteria.' Can be used to measure the biodiversity footprint of an organization on endangered or at-risk species, as well as highlighting future ecosystem service risks. *(http://www.iucnredlist.org/about)*

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 152: 5 minutes (cont.) **IPIECA Ecosystem Services Guidance:** 'The aim of this guide is threefold. Firstly, it explains the relationship between biodiversity, ecosystem services and the oil and gas industry. Secondly, it provides a set of checklists to help identify the main ecosystem service dependencies and impacts of oil and gas developments. Thirdly, it highlights key associated risks and opportunities for oil and gas companies, and provides guidance on potential measures for managing them.' *(http://www.ipieca.org/news/20110603/new-ecosystem-services-guidance-released)* **KPMG Risk and Opportunities analysis within the pharmaceuticals sector: "**In 2010, the NVI undertook a study with KPMG, titled Biodiversity and ecosystem services: Risk and opportunity analysis within the pharmaceutical sector. Undertaken on behalf of asset manager Robeco with the view to create greater awareness among the investor community, the study reviewed the risk exposure of 10 leading global pharmaceutical companies, based on their impacts and dependencies on biodiversity and ecosystem services (BES)." *(http://www.naturalvalueinitiative.org/content/006/604.php)* **Rivers for Tomorrow Toolkit:** 'The toolkit is a suite of spatial tools and data designed to: help scientists and planners analyze their river basins; run what-if scenarios; and collaborate with colleagues to develop sustainable water resources policies. These tools combine rich graphics and dynamic mapping capabilities to enable users to visualize the effects of different management scenarios on the overall health of their river basin.' *(http://www.riversfortomorrow.org/wft/)*	 **IBAT** (Integrated Biodiversity Assessment Tool): 'IBAT for business is an innovative tool designed to facilitate access to accurate and up-to-date biodiversity information to support critical business decisions. The tool is the result of a ground-breaking conservation partnership among BirdLife International, Conservation International, IUCN and UNEP WCMC.' *(https://www.ibatforbusiness.org/)* **HydroSHEDs** (Hydrological data and maps based on SHuttle Elevation Derivatives at multiple Scales): 'allow scientists to create digital river and watershed maps. These maps can then be coupled with a variety of other geo-spatial datasets or applied in computer simulations, such as hydrologic models, in order to estimate flow regimes. HydroSHEDS thus allows scientists and managers to perform analyses ranging from basic watershed delineation to sophisticated flow modelling. researchers hope to use HydroSHEDS in the future to assess the possible impacts of climate change to freshwater ecosystems.' Can be used for modelling status and future risks of organizations with a reliance on water systems. *(http://www.worldwildlife.org/science/projects/freshwater/item1991.html)*

Introduction to Tools, Frameworks and Methodologies (cont.)

Facilitators' notes	Media/activity/handout guidance

Slides 153-158 & 159: 10-15 minutes
 	
Objective: enable delegates to describe a business situation and identify tools they would use in each case.
 	
Instructions:
 	
1. Facilitator to divide delegates in groups of 4 or 5
2. Facilitator will provide each group a flipchart to record their answers
3. Facilitator will refer back to the previously discussed case studies. The "issue" slides for each case study are presented and the delegates may refer to their handouts from session 7 for further information.
4. Then the facilitator will give each group 5-10 minutes to discuss and record on a flipchart(s):
   a) The tools to use to identify and assess the impacts and dependencies on ecosystems. Explain chosen selection.
   b) The key services (5 max.) and link these with the tools discussed.
5. Facilitator to collect group feedback on a flip chart (5 minutes).
6. Facilitator to debrief the delegates on the suitability of the tools selected and highlight any additional tools that have been missed.
	As in session 7, several "results" and "response" slides/handouts are included for each case study, the ArcelorMittal example is presented here:
	
	 
	 
	 
	
	Refer to the slides 153-158 of the main presentation document for the materials relating to the other case studies.

Time guidelines

Time guidelines	Time
Wrap up – interactive	**15 mins**

Session objective

Session will focus on reviewing the key points of the module, will compare it with the original needs of delegates (flip chart from icebreaker) and plan for next steps (delegates).

Session format

This session will be run by the two course facilitators – one will be leading the session and the second should facilitate material and/or address questions/queries from delegates/groups.

Handouts

Delegates course material desk pack – includes a handout with references for later study.

Session overview

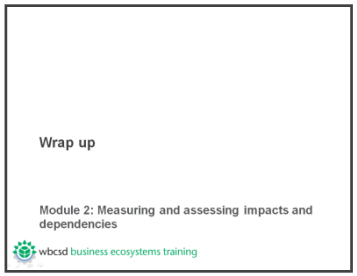
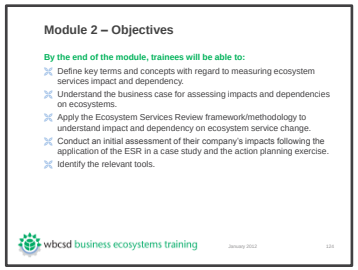
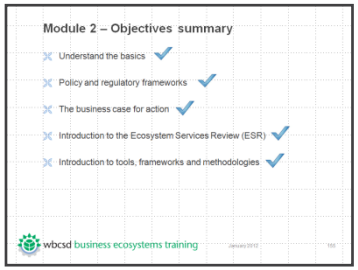
Delegates will be reminded of the module's agenda, which will enable them to recognise the knowledge acquired throughout the different sessions (set the scene).

The session will then continue with a high level evaluation of the module's objectives and whether they have been achieved.

Finally, the session will conclude with delegates developing steps going forward, considering actions needed by them and/or their company/business.

Session 11

Wrap up

Facilitators' notes	Media/activity/handout guidance
Slide 160: <1 minute **Slides 1161-162: 3 minutes** **Objective:** review the key points of the module, compare with original delegate needs (flip chart from icebreaker), plan for next steps **Total time for exercise:** 15 minutes **Instructions:** Facilitator to: - **Recap:** review the key learning points.	  

Session 11

Wrap up (cont.)

Facilitators' notes	Media/activity/handout guidance
Slide 163: 2 minutes **Slide 164: 5 minutes to write down ways delegate companies may benefit** **Instructions:** The facilitator should evaluate the extent to which learning objectives and outcomes have been achieved, referring back to the learning objectives captured on the flip chart at the beginning of the session. **Interactive session** Facilitator to ask delegates to document 3 actions which they could take in relation to the potential risks and opportunities relevant to their own organisation. These actions should be as specific and time bound as possible. For example: - Identify how ecosystem services relate to your own company's situation, - Arrange meetings with site managers from our three largest facilities over the next 2 months to discuss potential risks and opportunities, - Schedule a meeting this month with the Group Head of Risk to highlight impacts and dependencies on Ecosystems within our supply chain and review our management responses, - Review the WBCSD Responding to the Biodiversity Challenge report this week and prepare a briefing note for the team the following week *http://www.wbcsd.org/web/nagoya/RespondingtotheBiodiversityChallenge.pdf* The facilitator should gather responses from the delegates and consolidate them on a whiteboard/flipchart to share ideas for next steps.	 

Session 11

Wrap up (cont.)

Facilitators' notes	Media/activity/handout guidance

Slides 165-1168: 3 minutes

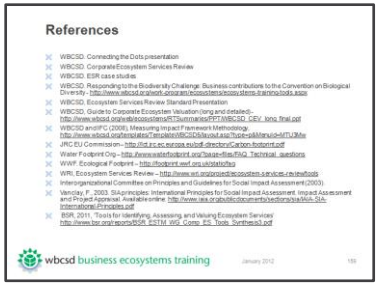
Instructions:

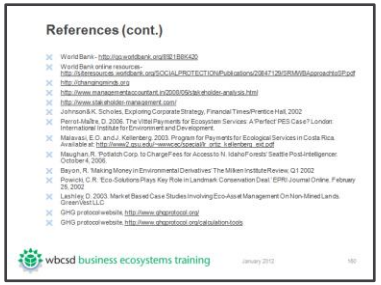
Facilitator to refer to references provided in the main presentation. The facilitator can also signpost to alternatives/other materials that will help continue their learning journey. This is supported by the action planning slides in the main presentation.

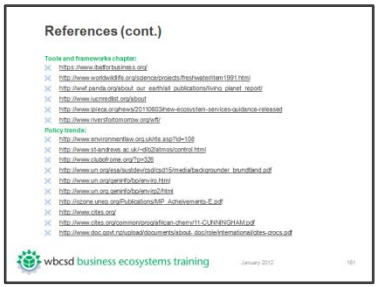
Facilitator to talk through what participants can do next to integrate biodiversity and ecosystem services thinking into their company and working life:

1. Build awareness within your company
2. Review WBCSD case study examples, publications and other publications
3. Consider joining the WBCSD's Ecosystems Focus Area and Water Project working groups and making use of the WRI's ecosystems experts directory,
4. Piloting the use of a specific tool e.g. the CEV and/or ESR for measuring impacts within a small project,
5. Contact the WBCSD's Ecosystems Work Program team for further information about implementing BET

Facilitator will refer to the Action Planning slides within the delegates slide packs (as shown opposite)







A4 HANDOUTS

Module 2: Measuring and Assessing Impacts and Dependencies

wbcsd business ecosystems training

Case study 1: ArcelorMittal

The issue

Mining in Liberia – an environmental and social challenge

- ArcelorMittal, the world's leading steel company, started new iron ore mining operations in Liberia at the end of 2011. Liberia has one of the richest seams of iron ore in Africa. However, some of the most accessible seams of ore are in the remote Nimba mountain range, which is one of the few remaining West African wet-zone forests, and home to many unique species and ecosystems. These forests are an important habitat for the smaller mammals that are an integral part of the diet for local people.
- Business impacts on the ecosystems can be profound if they are not managed with extreme care. ArcelorMittal's challenge, therefore, was to establish iron ore extracting operations without destroying these special habitats or fragile local livelihoods.

Photo Credit: ArcelorMittal

Case study 1: ArcelorMittal (cont.)

The response

- The first step was to build a solid basis for decision making, which meant carrying out a large-scale, ecological study over several years in both the wet and dry seasons. Nothing like this had been possible during the civil war, so there was very little knowledge about local biodiversity.
- ArcelorMittal assembled a large team of specialists and partners from Liberia and other neighboring countries, including the Liberian Forestry Development Authority, the NGOs Conservation International and Fauna and Flora International, Afrique Nature, Sylvatrop, Wild Chimpanzee Foundation and Action pour la Conservation de la Biodiversité en Côte d'Ivoire, to study the current state of biodiversity in the region.

Photo Credit: ArcelorMittal

Case study 1: ArcelorMittal (cont.)

The results

- The ecological study proved that the forests close to the proposed mine sites did indeed show high levels of biodiversity. For example, the study identified over 700 species of butterflies and moths in the forests, but also revealed that these and much other biodiversity were under threat from long-term degradation and decline, due to logging, agriculture and previous mining operations. ArcelorMittal had the opportunity not only to mitigate damage from mining, but to start reversing that trend.
- One of the positive consequences of the work was the establishment of an energetic local stakeholder group, which brought together the different agencies working in the area with the community representatives. The group has helped the government to make conservation its priority in this area, rather than commercial logging.
- It also helped ArcelorMittal to design an offset program to conserve biodiversity in compensation for the land lost to mining.

Case study 1: ArcelorMittal (cont.)

The results (cont.)

- Initial discussions and planning for forest rehabilitation and protection work took place between 2009 and 2011.
- Implementation will take approximately 15 years of growing input, and began in 2011.
- ArcelorMittal is now working to mitigate its impacts on the mining-affected ecosystems, and consequently people's livelihoods, at every stage of the development project, leveraging the multi-stakeholder consultation which it is leading.
- These actions towards biodiversity conservation helped the company to secure its license to operate among government authorities. It is also a key part of the compensation process for the local communities, who rely on the existing ecosystems.

Case study 2: Michelin

The issue

Rubber, the basis of Michelin's business

- Michelin, a company producing and selling tires, uses natural rubber, a renewable raw material produced by hevea trees, in its tire manufacturing process.
- At the end of 2001, Michelin was confronted with a combination of crucial issues surrounding its hevea tree plantation in the state of Bahia, on the north-eastern coast of Brazil.
  - Productivity had been decreasing, due to structural factors: topography of the area, decline of the yield due to the age of the trees and the Mycrocyclus Ulei leaf disease.
  - The price of natural rubber had also been decreasing. Michelin was thus forced to decide how to cope with these broad issues.

Photo Credit: Michelin

Case study 2: Michelin (cont.)

The response

- Michelin took the decision of staying in the area, but under different circumstances. To protect the health of the rubber tree crop in Brazil, Michelin is investing in a sustainable agriculture program, which will generate strategic social, environmental and economic results.
- The basic idea was to divide the original plantation in 12 medium-sized plantations of 400 hectares each and sell them to Brazilian Michelin managers, enabling them to replant with the new varieties of rubber tree resistant to Microcyclus, and to develop other types of culture between the lines of hevea, such as cocoa and banana. At the same time, it created the supporting infrastructure, governance and systems required for the rehabilitation of the local community and the management and sale of these farms' cocoa production.
- In effect, Michelin decided to maintain 1,800 hectares of land as well as the basic infrastructure (processing units, roads, logistics, etc.), the research laboratory looking into combating the Microcyclus Ulei leaf disease, and to buy the rubber from the 12 new plantations.
- The company also created "ecological corridors" that link the three patches of Atlantic forest in order to create continuity from the ocean coast to the inland areas covering some 3,000 hectares. Michelin is working closely with the local government and biodiversity groups to develop these corridors. The rubber tree plantations that flourish in this area will be temporarily exploited, while efforts of replanting forest in the corridor will be continuous.

Case study 2: Michelin (cont.)

The response

- In addition to these actions, the company has developed family-owned rubber plantations by providing small neighboring farms (1,000 families) with resistant varieties of hevea produced by the breeding research program led by Michelin and CIRAD (Centre International pour la Recherche Agronomique et le Développement). Michelin also decided to donate 18 hectares of land for the construction of a new village, named Nova Igrapiuna, mainly for the tappers and their families. The construction was financed by a federal loan organization and is managed as a partnership by Michelin and the municipal government. The village is equipped with modern water processing units and includes green open spaces, medical facilities and schools. In the plantation, more than 200 kilometers of paths and road infrastructure were renovated or constructed.
- These investments and projects were made possible by the many partnerships forged by Michelin with local officials, non-governmental organizations, regional associations, unions, banks and public authorities, such as the State of Bahia and Banco Nordeste do Brasil for the loans granted to the new owners to buy the land and invest in replanting.
- After a survey of the territory and its species, a re-forestation program was also initiated. The project has also reintroduced animals and encouraged eco-tourism in the area surrounding the waterfall to better protect the environment.

Case study 2: Michelin (cont.)

The results

- The 12 medium-sized plantations are in operation, there are 500 hectares of cocoa plantation, the original 600 employees are still working, and 150 new jobs have been created. Moreover, natural rubber production has increased by 11%.
- The plantation had a total turnover of US$ 3.1 million in 2006, beating the forecasted US$ 2.5 million. It aims to increase that to US$ 10 million in 2023, with US$ 8 million of that coming from rubber and the rest from cocoa. The project aims to bring in about US$ 40,000 a year for a medium-sized landowner.
- Michelin is continuing its research into Microcyclus ulei with CIRAD, which is now part of a research program led by the International Rubber Research and Development Board (IRRDB). Several Asian institutes are to receive 14 resistant varieties of rubber tree selected for testing on experimental plots of land in 2008. The station, which is still on site, continues to develop family-run rubber cultivation by supplying neighboring small-scale farmers with resistant young rubber trees. After having donated 20,000 plants in 2005, 200,000 plants per year have been supplied at cost since 2006.
- By empowering the people who depend on it for their livelihoods, the plantation is now in better condition than when Michelin was in charge. And with prices climbing along with other commodities, the local community sees that it makes sense to be a producer, giving a guaranteed source of supply.

Case study 2: Michelin (cont.)

The results

- Michelin expects to buy the rubber from the mid-sized plantations, but the project is under no obligation to sell its output back to the company.
- As well as helping to secure its future rubber requirements, the project serves to enhance its reputation with consumers and environmental stakeholders.

Michelin Plantation in Bahia, Brazil

Case study 3: OHL Development

The issue

Mayakoba Ecotourism Complex

- OHL Development is creating an ecotourism complex on the Mayan Riviera of the Mexican Caribbean. The financial viability of the overall complex and of each hotel depends directly on the quality, structure and functioning of the ecosystems existing on the property, adding to their value and guaranteeing the respect and protection that are necessary.
- The vision for this complex is to establish a new model for tourism development that differs from the traditional; one in which the search for compatibility between business and environmental conservation prevails. It is a question of rationally, intelligently and sustainably making the most of the environmental goods and services of the ecosystems involved in order to meet the demands of financially powerful tourists with the sensitivity to appreciate ecological quality.
- In the region where Mayakoba Tourism Complex is located, an area of 650 hectares to be developed in two phases, there are highly valuable, excellently preserved ecosystems: reefs, sea grasslands, dunes, mangrove swamps and jungle.

Case study 3: OHL Development (cont.)

The response

- The multidisciplinary work team, which has a markedly innovative character, bases its decisions on solid scientific grounds, and respects environmental legislation at all times.
- Mayakoba's management master plan is based on the maintenance of the ecosystems and the existing ecological processes in the field of action. It consists of different subprograms that allow for the integral management of vegetation, fauna, channels and lakes, waste, and environmental emergency security and support.
- The complex's innovative distribution, which has been technically reviewed, maintains the balance of the environmental units. Heavy infrastructure, lodging, services, commerce, etc. are located more than 500 meters from the coastline, removed from the most critical ecosystems, such as the mangrove swamp, dune and beach, thus protecting their natural functioning. In turn, light infrastructure located in the mangrove swamp facilitates the movement of water, tides and surface flows by means of pipes, bridges and overpasses.
- It has 20 hectares of channels and lagoons, which make up the main routes of transport within the complex, with more than 10 km that are Navigable. An 11-ha system of wetlands has been also been incorporated into the landscape of the golf course as a complement to the water treatment plant, in order to recover water quality and decrease the risk of polluting the water table and the adjacent marine area.

Case study 3: OHL Development (cont.)

The results

- The Mayakoba Ecotourism Complex is an environmentally innovative project, the first in Mexico's Caribbean coastal region to:
  - Fully meet the criteria for conserving the previously existing ecosystems (jungle and mangrove swamp).
  - Implement its largest infrastructure behind the mangrove swamp zone and an average of 500 m. away from the beach.
  - Create, before construction, an ecological structure on which hotels can later be built, incorporating these ecosystems into their design.
  - Plan and create a new ecosystem (lakes and channels), with environmental ends, in order to complete the aforementioned structure.
- It is an interdisciplinary project with highly complex implementation. Different stages of the project are currently ongoing simultaneously, which is challenging due to the logistics required. This includes the design and management of several hotels alongside the running of the Rosewood and Fairmont Hotels with 100% occupancy.

Session 9
Case study and exercise – Mondi

Module 2: Measuring and Assessing Impacts and Dependencies

wbcsd business ecosystems training

Case study example: Mondi

The issue

A high water dependency

- Mondi, an integrated paper and packaging producer, owns plantations in South Africa, a part of the world where fresh water is a scarce resource and where an estimated 6 million people do not have access to sufficient potable water to satisfy their needs.
- Furthermore, an estimated 55% of South Africa's wetlands to date have been significantly damaged due to poorly managed agriculture and commercial forestry; mining, urban development, pollution, dam building, erosion and fire.
- Because Mondi's commercial activities (commercial forests and processing plants) use significant volumes of water, it relies on healthy wetlands and riparian zones.
- Mondi used the ESR to develop a corporate-wide strategy for addressing water scarcity in its South African plantations.

Example of wetland rehabilitation carried out by Mondi in South Africa

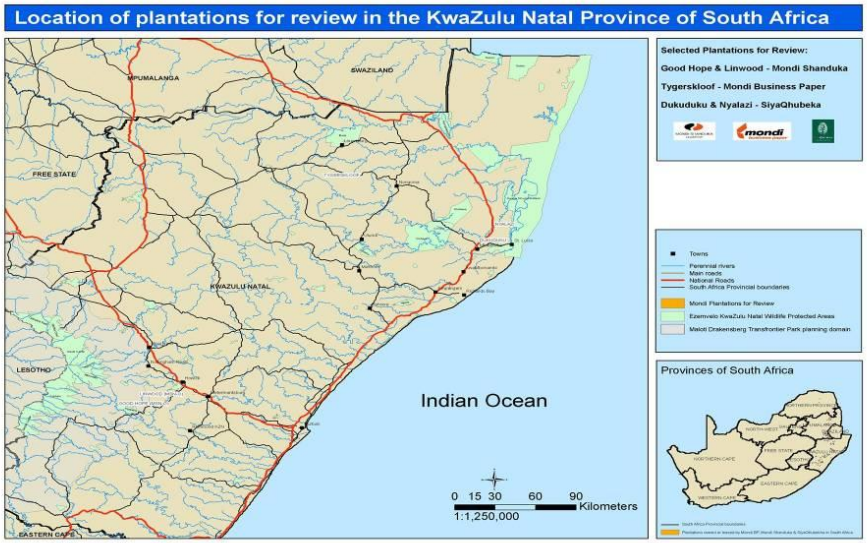
Case study example: Mondi (cont.)

The result

- The ESR Mondi conducted in 2008 highlighted the relationship among many of the known drivers of water scarcity (e.g., invasive species, climate change, poor irrigation by upstream users). It also expanded their analysis beyond the scope of their existing environmental management systems to include systematic reviews of more ecosystem services such as biomass fuel and ecotourism. This uncovered new solutions and a platform for building a freshwater strategy stretching from their plantation management to community engagement, and even to their government relations divisions.

- Scope: The ESR team selected three of Mondi's South African pine and eucalypt plantation areas—Shanduka, SiyaQhubeka, and Tygerskloof—for the scope.

  They are located in the same region and have common management teams. One plantation, SiyaQhubeka, is adjacent to a UNESCO World Heritage site, and the company wanted to explore opportunities for biodiversity enhancement and ecotourism.



Case study example: Mondi (cont.)

The result (cont.)

Mondi's ESR Team used the Dependence & Impact Assessment Tool to select six priority ecosystem services:

- *Freshwater*. Pine and eucalypt plantations significantly depend upon and impact the quantity of freshwater.
- *Water regulation*. The plantation depends upon the ability of the surrounding ecosystems to help regulate the timing of water flows.
- *Biomass fuel*. As a byproduct, the plantation generates biomass residues that can be a source of energy.
- *Global climate regulation*. The plantation impacts the carbon cycle since trees sequester carbon dioxide.
- *Recreation and ecotourism*. Given its proximity to the Greater St. Lucia Wetland Park, a World Heritage Site, the plantation has the potential to provide recreational or ecotourism benefits.
- *Livestock*. The plantation impacts livestock in that, by being a dedicated industrial tree farm, the site precludes surrounding villagers from using the landscape for large-scale livestock grazing. Selective controlled grazing on the wetlands and remnant grasslands on Mondi's property is, however, widely practiced.

Case study example: Mondi (cont.)

The result (cont.)

Priority ecosystem service	Potential risks	Potential opportunities	Type of risk/opportunity
Freshwater	Increased water scarcity due to: ▪ Invasive alien species proliferation ▪ Increasing demand among nearby, inefficient water users (farmers) ▪ Climate change	Internal efficiency improvements in freshwater use (Co)financing water efficiency improvements of nearby landowners	Operational
Water regulation	See above		
Biomass fuel		New biomass-to-energy markets for plantation residues	Market and product
Global climate regulation		Emerging markets for carbon sequestration	Market and product
Recreation and ecotourism		Ecotourism or recreation-based revenue streams from company-managed wetlands/grasslands	Market and product
Livestock	Reduced plantation productivity due to increasing grazing pressures Increases scrutiny fro nearby stakeholders for perceived "under-utilization" of Mondi land set aside as wetlands/grasslands		Operational Reputational

Case study example: Mondi

The result

	Suppliers		Company operations		Customers	
Ecosystem service	**Dependence**	**Impact**	**Dependence**	**Impact**	**Dependence**	**Impact**
Provisioning						
Crops				○ –		
Livestock				● –		
Capture fisheries						
Aquaculture						
Wild foods				○ +		
Timber and other wood fiber				● +		
Other fibers (e.g., cotton, hemp, silk)						
Biomass fuel			○	● +		
Freshwater			●	● –		
Genetic resources			○	○ ?		
Biochemicals, natural medicines, and pharmaceuticals				○ +		

Key: ● High ○ Medium Low + Positive impact – Negative impact ? Don't know

Case study example: Mondi (cont.)

The result (cont.)

Ecosystem service	Suppliers: Dependence	Suppliers: Impact	Company operations: Dependence	Company operations: Impact	Customers: Dependence	Customers: Impact
Regulating						
Air quality regulation				? ?		
Global climate regulation			○	● +		
Regional/local climate regulation			○	○ +		
Water regulation			●	● –		
Erosion regulation			○	○ –		
Water purification and waste treatment				○ –		
Disease regulation						
Pest regulation						
Pollination						
Natural hazard regulation						
Cultural						
Recreation and ecotourism				● +		
Ethical values				○ +		

Key: ● High ○ Medium Low + Positive impact – Negative impact ? Don't know

Session 9
Case study and exercise – Nissan Automobile

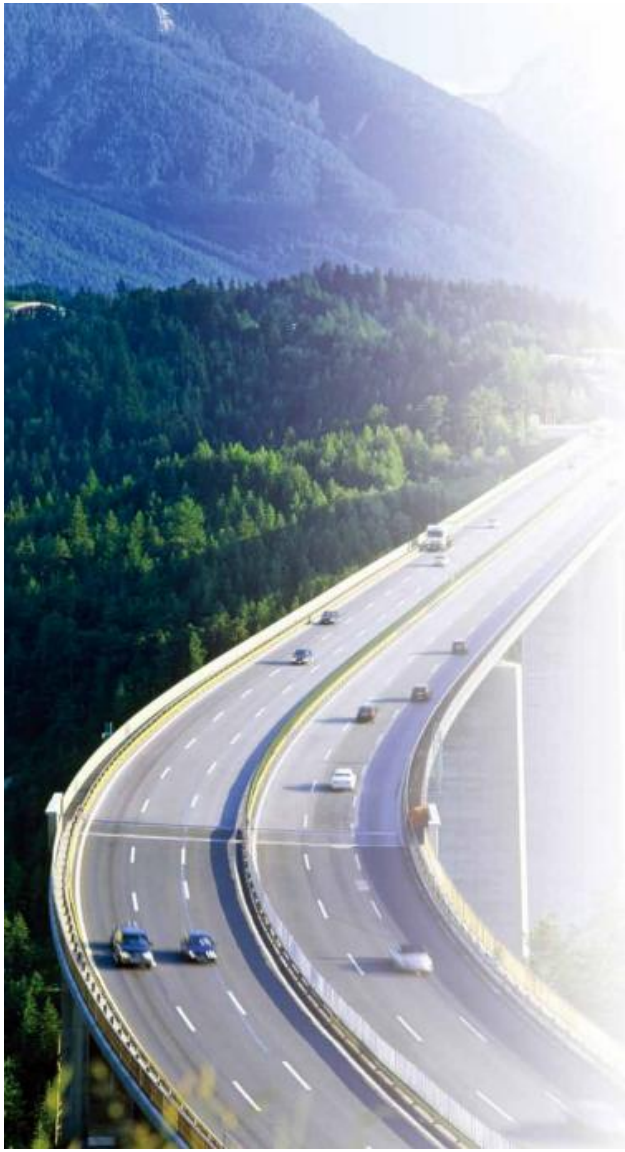
Module 2: Measuring and Assessing Impacts and Dependencies

wbcsd business ecosystems training

Case Study: Nissan Automobile

Context

- Since 2007 Nissan has been conducting joint research with the UN University Institute of Advanced Studies on the impact automobiles have on the ecosystem and biodiversity.
- Decided to carry out and ESR.Objectives:
  - To explore factors that contribute to sustainable mobility and the relationship between and interactions among ecosystem services and the automotive sector.
  - To evaluate the automotive sector's activities and performance with regard to ecosystem services, rather than focusing on standard issues, such as carbon emissions.
  - In the future to use the ESR as a strategic planning tool for corporations to become better stewards of the environment through analysis of its opportunities and threats.



Source: Nissan, Ecosystem services and the automotive sector

Case Study: Nissan Automobile

Step 1 - Scope of the ESR

- The scope of the Nissan ESR covered 10 areas of the value chain, including upstream and downstream aspects of business operations.
- The implications of ecosystem service trends for key suppliers were highlighted in the upstream analysis, while the downstream study sought insights into the implications of ecosystem service trends for Nissan's customers.

Upstream: Suppliers	Nissan Operations	Downstream: Customers
• Mineral mining • Materials sourcing (metals, chemicals) • Parts production • Logistics	• Manufacturing (fabrication, painting, thin-coating, assembly) • Logistics (ground and ocean transportation) • Office usage • Sales	• Customer use (driving) • Fuel consumption • Road construction and maintenance • Recycling, disposal, and exports of scrapped cars

Source: Nissan, Ecosystem services and the automotive sector

Case Study: Nissan Automobile

Step 2 Identifying Priority Ecosystem Services

- This step was a screening exercise to evaluate, in a structured yet rapid manner, the company's dependence and impact on more than 20 ecosystem services to help identify priority services.

		Upstream : Suppliers		Nissan Operations		Downstream : Customers	
Ecosystem Services		Dependence	Impact	Dependence	Impact	Dependence	Impact
Provisioning	Food		●				
	Fiber		●				
	Biomass fuel		●			●	
	Freshwater	●	●	●	●	●	●
	Genetic resources		●				
	Biochemicals, natural medicines and pharmaceuticals		●				
Regulating	Air quality regulation		●		●		●
	Climate regulation		●		●		●
	Water regulation		●				
	Erosion regulation		●			●	
	Water purification and waste treatment	●	●		●	●	●
	Disease regulation		●				●
	Pest regulation		●				●
	Pollination		●				
	Natural hazard regulation				●		●
Cultural	Recreation and Ecotourism		●		●		●
	Ethical values		●		●		●
Supporting	Nutrient cycling		●				
	Primary production						
	Water cycling						

Source: Compiled based on WBCSD, Meridian Institute, WRI, The Corporate Ecosystem Service Review, 2008.

Case Study: Nissan Automobile

Priority ecosystem services identified

Based on this assessment, 7 ecosystem services were selected as priorities for consideration for Nissan and the broader automotive sector:

- Freshwater
- Air quality regulation
- Climate regulation
- Water regulation
- Erosion regulation
- Water purification and treatment
- Natural hazard regulation

To understand the full implications of these seven priority ecosystem services for the sector, the following 3 business areas were analysed.

1) Energy sourcing
2) Mineral and material sourcing
3) Water usage

Case Study: Nissan Automobile

1. Energy sourcing

- The world's consumption of primary energy is 12 gigatons per year (oil equivalent), with the transport sector using about 20% of this total.
- The mass consumption of petroleum raises concerns about its impact on the ecosystem through the emission of greenhouse gases, which many scientists believe cause climate change, and the contamination of the soil and water in excavating and transporting oil.
- Ways to check this impact include enhancing energy efficiency and shifting to non-fossil-fuel alternatives, such as biofuel, hydrogen, and electricity.

- **Nissan's response:**
  - Research development efforts directed toward the successful development of fuel cell vehicles (hydrogen) that perform on a par with gasoline ones.

Case Study: Nissan Automobile

2. Mineral and Material Sourcing

- 10% of the mines now operating and 20% of the mines being explored are located in areas classified as having ecosystems that are worth preserving (WRI).
- Metals account for approximately 80% by weight of the materials used to build a vehicle, making automobiles highly dependent on mineral resources.
- The development of a mine requires enormous quantities of water, and large amounts of wastewater are returned to the watershed.
- Reducing the consumption of virgin materials through the conservation and recycling of resources should be considered among the first approaches for minimizing the impact on ecosystems caused by the use of mineral resources.

- **Nissan's response** - efforts on recycling activities to reduce the volume of mineral's extraction:
  - Nissan has introduced designs for new models that facilitate recycling and to properly dispose of end-oflife vehicles (ELVs).
  - The ultimate goal of resource recycling is 100% recovery of ELVs.
  - Nissan is shifting the focus of its activities to maximize the use of ELV materials.

Case Study: Nissan Automobile

3. Water Usage

- Water usage is growing due to global population growth and economic development, and climate change has resulted in changes in precipitation volumes.
- The Nissan ESR revealed that the company was dependent on water throughout the value chain, so greater consideration to water consumption must be given in a wide range of processes.

- **Nissan's response:**
  - There are over **40 plants in 18 different countries** building Nissan-branded vehicles and parts, and they all use water as part of the production process.
  - The highest-risk plants were placed at **Level A**, defined as a plant that either already has a water related problem or is expected to face one in the near future. Water reduction targets have been independently set for each of these plants, which will undertake activities to reach those targets.
  - **Level B** plants are those with the potential for water problems; they will regularly monitor water risks, in addition to undertaking the voluntary water-reduction activities they have been pursuing to date.
  - **Level C** plants are at low water risk, and they will continue their voluntary water-reduction initiatives.

A1 Wall charts

Module 2: Measuring and Assessing Impacts and Dependencies

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Timetable

Time	Duration (mins)	Session	Trainer
	15-45	Session1: Icebreaker and Introduction/Introduction	
	30	Session 2: Measuring change in ecosystem services provision – the basic concepts	
	10	Session 3: Introduction to policy trends	
	15	Session 4: The business case for action	
	10	Session 5: Knowledge check	
	10-25	Session 6: Brainstorming the business case	
	30	Coffee break	
	30	Session 7: Identifying ecosystem impacts and dependence	
	15	Session 8: Knowledge share	
	50	Session 9: Introduction to ecosystem services review (ESR)	
	40-55	Session 10: Introduction to tools, frameworks and methodologies	
	15	Session 11: Wrap up	

Key: Presentation
Exercise

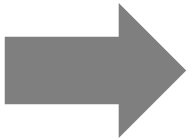
Trends in the world's ecosystem services over past 50 years

	Degraded	Mixed	Enhanced
Provisioning	Capture fisheries Wild foods Biomass fuel Freshwater Genetic resources Biochemicals, natural medicines, and pharmaceuticals	Timber and other wood fiber Other fibers (e.g., cotton, hemp, silk)	Crops Livestock Aquaculture
Regulating	Air quality regulation Regional and local climate regulation Erosion regulation Water purification and waste treatment Pest regulation Pollination Natural hazard regulation	Water regulation Disease regulation	Global climate regulation (carbon sequestration)
Cultural	Ethical values (spiritual, religious) Aesthetic values	Recreation and ecotourism	

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

Group exercise: flipchart layout

What are the barriers to measuring ecosystem impacts?



Why is it useful to engage with stakeholders?

Group exercise wall chart 1

Dependence on ecosystem services			
Ecosystem service	1. Does this ecosystem service serve as an input or does it enable/enhance conditions for successful company performance? If 'no' skip to question 3	2. Does this ecosystem service have cost-effective substitutes?	Comments or supporting information

Group exercise wall chart 2

Impacts on ecosystem services				
Ecosystem service	**3. Does the company affect the quantity or quality of this ecosystem service? If 'no' skip to the next ecosystem service**	**4. Is the company's impact positive or negative?([a])**	**5. Does the company's impact limit or enhance the ability of others to benefit from this ecosystem service?**	**Comments or supporting information**

Note: ([a]) Positive impact: The company increased the quantity or quality of this ecosystem service.
Negative impact: The company decreased the quantity or quality of this ecosystem service.

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