DG ENV

Study on how businesses take into account their risks related to biodiversity and ecosystem services: state of play and way forward

Under Framework Contract
ENV.G.1/FRA/206/0073
ANNEXES

September 2010






COWI

Annex 1 Interview Guide

Study for the European Commission, DG Environment:

How Businesses take into account Risks related to Biodiversity and Eco System Services (BES).

Interview Guide

Name/sector

Introduction to the study
Economies and businesses depend, directly or indirectly, on the ecosystem services attached to them. Businesses interact with ecosystem services in two important ways: they use the services, and they contribute to ecosystem change. Biodiversity loss and the decline in ecosystem services thereby pose major risks to business. At the same time, biodiversity conservation and business good governance offer significant opportunities for investors and entrepreneurs. For key definition of central terms, please see box below .

The loss or degradation of ecosystem services will profoundly affect businesses, and busi-nesses cannot assume that there will be ample warning of a change in the availability of key services or that a company's past responses to changes will be successful in the future. Ecosystems often change in abrupt, unpredictable ways. Most ecosystems are being altered by human actions in unprecedented ways. Consequently, it is difficult to predict the future state of an ecosystem or the availability of an ecosystem service.

The unsustainable use of the ecosystems affects businesses and industry in three principal ways: (2005)

(1) If current trends continue, ecosystem ser-vices that are freely available to-day will cease to be available or become more costly in the near future. Once internalized by primary industries, resulting additional costs will be passed downstream to secondary and tertiary industries - and consumers and communities - and will transform the operating environment of all businesses.

(2) Loss of ecosystem services will also affect the framework conditions under which busi-nesses operate influencing customer prefer-ences, stockholder expectations, regulatory re-gimes, governmental policies, employee well-being, and the availability of finance and insur-ance.

(3) New business opportunities will emerge as the demand grows for more efficient or different ways to use ecosystem services for mitigating impacts or to track or trade services.

Although important activities and studies are underway, and the business and biodiversity issue is gaining momentum and awareness, there remain significant challenges before busi-nesses recognise the risks they face because of losses and degradation of ecosystems services.

There is a need to explore in more detail how businesses perceive these risks and how they react to the related challenges. Indeed, in devel-oping their strategies and sufficient response to the problem, businesses have so far produced a great variety of solutions, varying due to the kind of business in question, the level of de-pendency on ecosystems, the quality of ecosystems in the area of operation and the different institutional and legal frameworks in which a company operates.

Biological diversity means *"the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems"* (Article 2, Convention on Biological Diversity (CBD)). The term covers all the variety of life that can be found on Earth (plants, animals, fungi and micro-organisms), the diversity of communities that they form and the habitats in which they live. It encompasses three levels: ecosystem diversity (i.e. variety of ecosystems); species diversity (i.e. variety of different species); and genetic diversity (i.e. variety of genes within species).

Ecosystem means *"a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit"* (Article 2, CBD). Each ecosystem contains complex relationships between living (biotic) and non-living (abiotic) components (resources), sunlight, air, water, minerals and nutrients. The quantity (e.g. biomass and productivity), quality and diversity of species (richness, rarity, and uniqueness) each play an important role in a given ecosystem. The functioning of an ecosystem often hinges on a number of species or groups of species that perform certain functions e.g. pollination, grazing, predation, nitrogen fixing.

Ecosystem services refer to the benefits that people obtain from ecosystems (Millennium Ecosystem Assessment 2005a). These include: ***provisioning services*** (e.g. food, fibre, fuel, water); ***regulating services*** (benefits obtained from ecosystem processes that regulate e.g. climate, floods, disease, waste and water quality); ***cultural services*** (e.g. recreation, aesthetic enjoyment, tourism, spiritual and ethical values); and ***supporting services*** necessary for the production of all other ecosystem services (e.g. soil formation, photosynthesis, nutrient cycling).

The role of business in halting the loss of bio-diversity is of high priority to the European Commission. Based on decision 8/17 of the Conference of the Parties (COP) of the Convention on Biological Diversity (CBD) on private-sector engagement, the EU Commission adopted in May 2006 a biodiversity communi-cation which included a commitment to engage the private sector in partnerships for biodiversity; this has been further taken up by establishing a Business and Biodiversity platform (Lisbon Business-Biodiversity, 2007.) The Commission, in its mid-term review of the biodiversity strategy and in its Biodiversity Action Plan stated that the

EU 2010 target for biodiversity loss will not be reached, thus there will be further effort to reinforce the Strategy in 2010, in parallel with agreeing a new EU biodiversity target.

This is the background against which the cur-rent study was initiated: to provide further in-sights into what businesses are currently doing to address the potential risks of biodiversity loss, what drives businesses to take action or what, if any, hinders them from taking action, and what could be done in terms of government policies to encourage or stimulate further action.

Introduction to the Interview Guide
The Interview Guide consists of two parts.

Part A provides an overview of the findings of an Ecosystem Service Benchmarking (ESB) made by COWI of <name of company> based on published material (from your CSR reports, articles, Company website, etc). Originally de-veloped by the Natural Value Initiative (NVI) together with United Nations Development Programme (UNEP), the ESB tool, aims at measuring the quality of a company's perform-ance and commitment to managing biodiversity and ecosystem services (BES) risk exposure. It is a difficult exercise, but we would like to use the results of our initial benchmarking as a basis for our talk. You might have more information than publicly available or you might interpret it differently than we have done that may add to the picture. Likewise, if you have performed similar assessments internal to the company we would also be interested in learning about your experience.

In Part B you will find a number of questions aimed at understanding the drivers of actions taken by your company, e.g. what might be your company's reasons for tackling the risks involved in degradation of biodiversity and ecosystem services (BES). We have identified likely reasons that might hinder companies from taking actions to tackle BES risks and reasons that might hinder companies in taking further action beyond current initiatives. We would appreciate if you would consider these questions. Further, we would like you to assess the possible impact of government policies on companies', motivation to step up efforts to tackle the risk of ecosystem degradation. Finally, we would also be interested in learning about examples of concrete actions taken by your company, such as projects or measures dealing with risks related to changes in biodiversity or protection of ecosystems.

Your input will be treated confidentially. Furthermore, participating companies will get ac-cess to the overall results of the study.

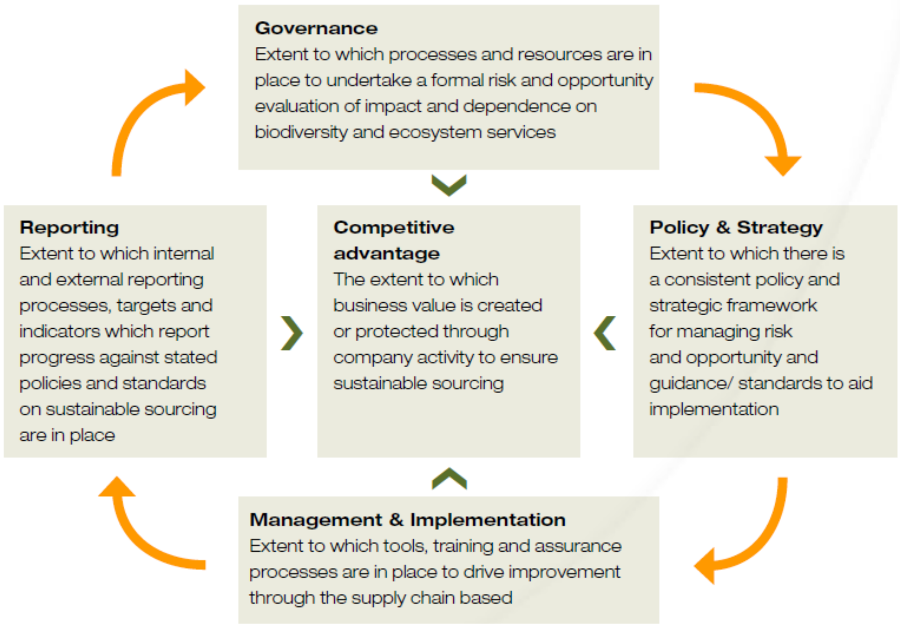
On behalf of the European Commission - we would like to thank you in advance for your participation. We are looking forward to a pleasant and informative meeting.

Part A Results of Ecosystem Service Benchmarking

The interviewer should provide an introduction to the components and methodology of the BES bench-marking tool, which is an UNEP and NVI initiative.

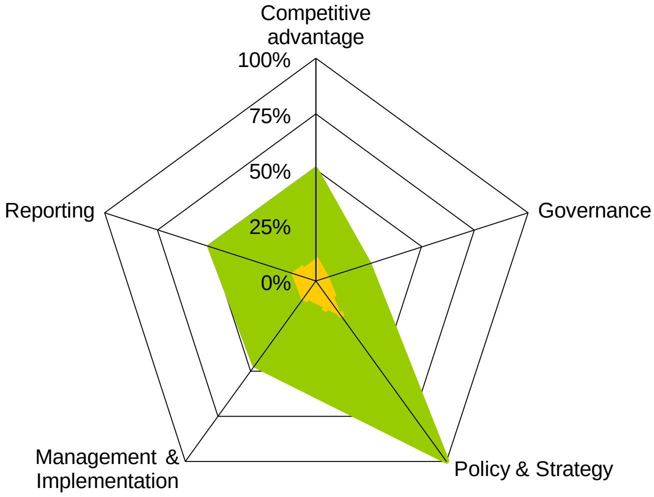
This should be done by using the figure below and accompanied by an explanation of how the scoring within each component has been carried out. It is important to emphasise that the benchmarking exercise was made based on freely available material from the company's CSR reports, website, etc.

The benchmark evaluates company performance against specific criteria, which represent the different categories of a strong management system. For each criterion, companies are evaluated against four performance 'levels' reflecting the spectrum of current practice, from *'no apparent activity to manage the issue'* (Level 1) through *'current strong performance'* to *'perceived best practice'* (Level 4).



Source: http://www.naturalvalueinitiative.org/content/005/501.php

The figure below presents the results of the benchmarking exercise made by COWI based on published information of Name of company.



Scores are provided as a percentage of total possible scores within each category

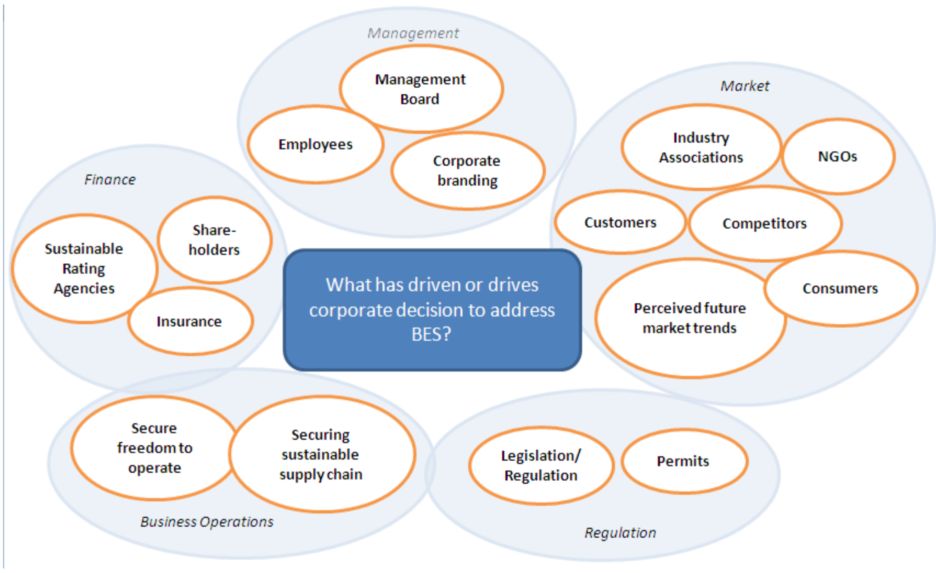
Question	Score	COWI assessment
1 Competitive advantage		
1.1 Value Creation Extent to which business value is created		
1.2 Ensuring sustainability of supply Measures are being put in place		
2. Governance		
2.1 Responsibility Responsibility for biodiversity and ecosystem services risk and opportunity management		
2.2 Risk assessment – nature of products Key areas of dependency and impact on ecosystem services		
2.3 Risk assessment – nature of supply base Supply base mapping: risk profile in relation to geography of sources and level of influence over supply chain to manage that risk		
2.4 Stakeholder engagement Engagement with external stakeholders: robustness of processes in place for engagement with external stakeholders to enhance understanding of potential risks and opportunities relating to impacts and dependence on biodiversity and ecosystems services.		
3. Policy & Strategy		
3.1 Policy and strategy framework Statement of policy and strategic objectives		
3.2 Standard setting Standards for resource and farm level		
4. Management & Implementation		
4.1 Supplier and grower engagement Driving improvements through supply chain and at site level.		
4.2 Capacity building Capacity building to support improvement: extent to which programmes are under way that identify gaps in capacity to deliver sustainable resource management in-house and within the supply chain and to address those gaps.		
4.3 Assurance Proof of implementation: extent to which processes are in place to ensure effective implementation of programmes.		
4.4. Coverage – breadth of implementation Breadth of implementation –product/ commodity coverage:		
4.5 Coverage – depth of implementation For companies that own land. For companies sourcing from third parties		
5. Reporting		
5.1 Farm level data collection/ supply chain monitoring For companies that own land. For companies sourcing from third parties		
5.2 Quantitative targets Improvement in practice		
5.3 Reporting Disclosure of appropriate Information		
5.4 Public affairs and lobbying Disclosure of relevant public affairs activity		

Part B Specific questions concerning BES drivers, barriers, recommendations to policy measures and concrete examples of company BES actions.

Name of company				
Address of HQ				
Type of business	Sector		Sub-sect	
Revenue - MEUR		Number of employees		
Number of industrial sites	EU		Non-EU	
Number of suppliers	EU		Non-EU	
Number of customers	EU		Non-EU	

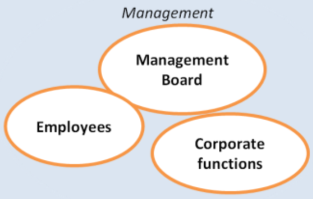
Company drivers for taking into account BES risks

The figure below should be used by the interviewer as a basis for discussion with the company representative. The interviewer can highlight the most important 'bubbles' representing possible main drivers by drawing a line or cross out the non-relevant 'bubbles'. For each of the categories, additional questions are included below. ONLY the relevant categories should be further addressed in the interview.



COWI

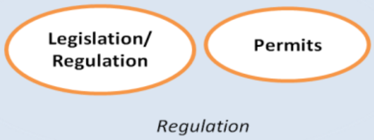
If <u>Corporate Management</u> is perceived to be one of the main drivers:



To which extend is environmental management an integral part of the corporate branding?	
Has the Management appointed a designated environmental manager and do his/her responsibilities include BES? Has the Management appointed a designated risk manager and do his/her responsibilities include environmental and more specifically BES risks ?	
What have been the main environmental concerns of the company in the past? Are these changing?	
Has mapping of the impacts on the environment, including BES, been carried out? If yes, has it been combined with a risk assessment of the risks from and towards the environment and BES in particular?	
To what extent are the risk of biodiversity loss and degradation of ecosystem services a Management concern? With which activities of the companies are these risks associated (supply of inputs, production, CSR…)? And how does it rate compared to concerns of climate change, and other environmental concerns?	
Please explain how the BES risk is perceived by corporate management and what has led to the current level of response in your company.	
To what extent can employees engage in integrating BES considerations into the business operation and development?	
Which functions in the organisation are most likely to cause your company to address BES (financial, operational, marketing…)? Why?	

If the <u>market</u> is perceived to be one of the main drivers to address BES: 	
Which actors in the market are in particular causing your company to address BES? How and why?	
Customers?	
End-users/consumers?	
Competitors?	
Business partners?	
Public procurement?	
Is BES governance and responsibility perceived to be an important future market trend? How is this evident (certification, label, standards...?).	
Are some geographic markets more concerned about BES than others?	
Is integration of BES risk management being promoted by business associations? If so, how is it being taken onboard among its member companies? Have requirements been set by the sector?	
What kind of requirements? Process driven (standards, certification), product driven (labels)?	-

Are there any factors external to the market, such as NGOs, that are having an influence on industry and/or on consumers behaviour? E.g. REDD[1] initiative, etc?	

If regulation is perceived to be one of the main drivers to address BES:	
What current legislation/regulations make your company address BES? E.g. water framework directive, land use, Natura2000 (Habitats and Birds Directive), product and/or environmental liability, Waste, EIA, SEA, other national or regional legislation/regulation? Please elaborate:	
Do you have ideas on how optimal policy initiatives aiming at preventing degradation in BES could be developed ?	
How could policy initiatives integrate best business concepts and risk aversion attitudes / responses,	

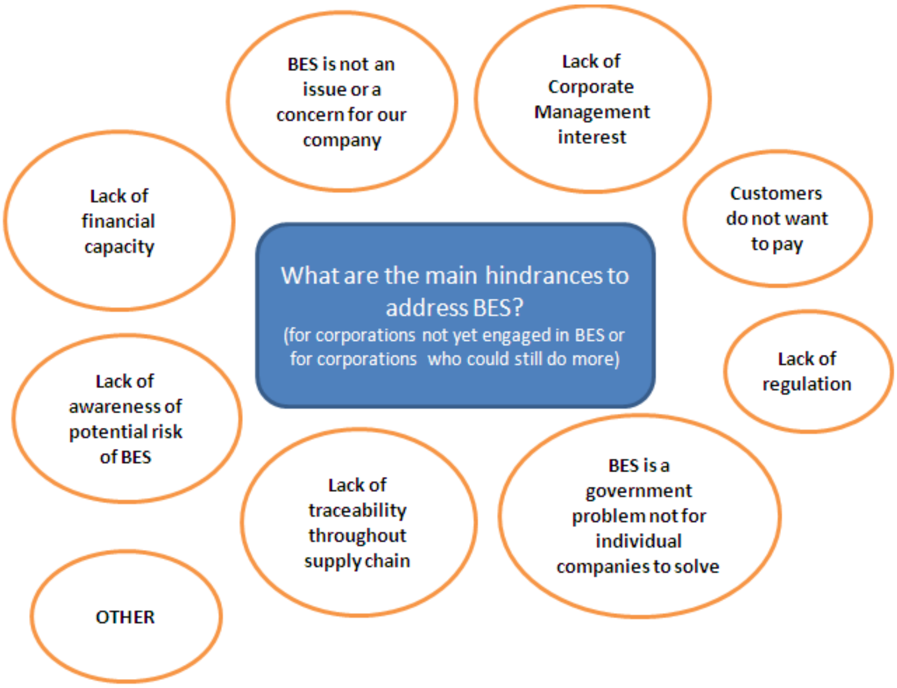
[1] Reduction of (CO2) Emissions from Deforestation and Degradation (of forests)

If <u>operational concerns</u> are one of the main drivers to address BES:	
Has a business risk assessment been performed on BES impact aspects for all the company's operations?	
Has a risk assessment been performed on BES dependencies - BES as input to the production process?	
Are environmental considerations including BES critical to the company's freedom to operate?	
Are BES considerations integrated into the purchase policies and practices? Are these considerations clearly communicated to suppliers? (in order to avoid interruptions) What form do these considerations take (Standards, guidelines?)	
Is profiling of environmental considerations, including BES, perceived as a requirement for qualifying as preferred supplier?	
What kind of compliance and enforcement policies are in place within your organisation to ensure BES throughout the supply chain?	

If <u>access to financial capital</u> is one of the main drivers to address BES: 	
Are capital providers actively pursuing environmental considerations, hereunder BES?	
Are shareholders actively pursuing environmental considerations, hereunder BES?	
Is the insurance premium a material product of environmental considerations, hereunder BES?	
Are other financial stakeholders pursuing environmental considerations, hereunder BES (e.g. sustainability rating agencies)?	
Is environmental performance hereunder BES integrated into the financial business reporting?	

Barriers to address BES

The figure below should be used by the interviewer as a basis for discussion with the company representative. The interviewer can highlight the most important 'bubbles' by drawing a line or cross out the non-relevant 'bubbles'. The figure is meant to facilitate more open-ended discussion on understanding the main barriers hindering companies from taking action or from taking further actions to address BES. Other bubbles can be added as appropriate. Further support questions for each bubble are included below.



Lack of Corporate Management interest	
Due to lack of knowledge and awareness	
It is not perceived as having impact on our possibilities in the market, e.g. branding	
We are already doing everything we are supposed to do in order to fulfil the environmental legislative requirements	
BES is simply not regarded as a risk factor to our company's operations	
Other reasons: How, why?	
Customers do not want to pay	
What might make customers want to pay?	
Is that the same in all markets and among all customer segments?	

Further in-depth questions:	
Do you think that 'attitude' might change in the coming years?	
Other reasons: why and how	
Lack of regulation	
Do we need more regulation, so that it would mean same conditions for all companies?	
Does regulation need to be designed differently in order to change the behaviour for the company and the consumers?	
Other, please elaborate	
BES is a government problem not for individual companies to solve	
Why do you think that?	
So what should governments do?	
Why do you think that companies should not assume environmental responsibilities?	
On what time frame should the BES benefits be monetised for you company in order for you to change behaviour? 2 years, 5 years or 10 years?	
Other reasons - please explain	
Lack of traceability through-out the supply chain	
Is the supply chain too long or too complex?	
You do not feel or do not think that your company can have any influence on how your suppliers operate?	
Do you only buy smaller quantities and often from different suppliers?	
Other reasons - please explain	
Lack of awareness of potential risk of BES	
Who lacks awareness? Customers, management, the market, suppliers?	
Do you think that might change in the	

future, and what constitutes the triggers of change?	
Would it be of interest to the company to obtain a mapping of dependency and pressure to BES?	
How serious a risk should BES be before your company would actually take action?	
Other reasons - please explain	
Lack of financial capacity/resources	
Who, why? Shareholders, company owners?	
Because other investments have higher priority?	
Because investing into BES risks reduction requires very specialized skills which are missing?	
Other reasons - please explain	
BES is not an issue or a concern for our company	
Is that because you do not see that the operations of your company have any impact on the degradation of biodiversity?	
Because the company is not directly dependent of BES as an input factor to production	
Other reasons - please explain	

Policy measures

The figure below can be used by the interviewer to explain the range of policy measures as examples of what might be feasible measures also for the current industry sector. The main purpose is to get a feeling of how companies perceive the usefulness of government policies and if they have had good/bad experiences with government policies in the past. Also the conditions for which policies should be implemented: voluntary/compulsory, reporting, compliance, enforcement, etc.

Regulatory	Economic	Education & Research	Cooperation	Information
Norms and standards Environmental liability Environmental control and enforcement Compulsory reporting	Environmental taxes Fees and user-charges Trading Certificates Environmental financing Green public procurement Subsidies	R&D Education and training Innovation	Voluntary agreements Technology transfer	Eco-labelling Sustainability reporting Consumer advice services Information centres Environmental quality targets Environmental monitoring Certification

	According to you:	
1	What could/should the government/the EU do to encourage more initiatives to minimise BES risk?	
2	What kind of policy measures should be implemented?	
3	Pricing of natural resources leading to internalisation of costs?	
4	Higher 'green' taxes? Higher pollution taxes?	
5	Forced sustainability reporting?	
6	Mandatory insurance? Mandatory certification? Regulatory certification standards?	
7	Empower existing legislation to include specific focus on BES (e.g. water/product liability/ etc.)?	
8	Customer awareness campaigns to encourage more green demand?	
9	Could you identify policy measures that could act as drivers for your company to address BES? Labels? Audits? Certifications? R&D?	

Annex 2 Examples of BES actions conducted by Nestle

Example 1	Partly owned Nestle brand Häagen-Dazs's Help the honeybees initiative
	Honey bee pollination is required to produce one-third of all the natural foods we eat, and honey bees play a critical role in ensuring we have enough food to feed our growing population. The Häagen-Dazs brand is stepping up for a second year and redoubling its Häagen-Dazs loves Honey Bees® campaign efforts. Elements of the campaign include: A second donation to UC Davis and Penn State Universities of $250,000. This brings the brand's total donation for honey bee research to a half million dollars over two years. Continuation of the Häagen-Dazs brand's public education efforts with: • A special flavour, Vanilla Honey Bee, and all "bee-built" flavours (flavours that use at least one honey bee-pollinated ingredient) of ice cream, sorbet, frozen yogurt and bars proudly carry a HD loves HB® symbol and message under the lid. • Part of the brand's donation to UC Davis is being used to create a Häagen-Dazs Honey Bee Haven – a one-half acre bee-friendly demonstration garden coordinated by the California Center for Urban Horticulture. Visitors to the garden will be able to glean ideas on how to establish their own bee-friendly gardens and help to improve the nutrition of bees in their own backyards. • An upgraded interactive website (www.helpthehoneybees.com) provides examples of how consumers have gotten involved in helping to save the hardworking honey bees.
Example 2	**Nestlé Cacao Plan**
	The vision is to help to professionalise cocoa farming, so that cocoa farmers run profitable farms, respect the environment, have a good quality of life and their children benefit from education. The Cocoa Plan is Nestlé's way of helping to tackle key issues facing cocoa farmers, their families and communities

to create a better future for cocoa farming.

The Cocoa Plan – already active in the world’s largest cocoa origin, Cote d’Ivoire, and the world’s largest fine cocoa origins, Ecuador and Venezuela – covers the following aspects:

Nestlé intends to invest CHF 110 million on cocoa creating shared value initiatives over the next decade, almost twice as much as was spent over the past 15 years (CHF 60 million).

As part of a wider remit, a new R&D Centre in Abidjan, Côte d’Ivoire (where more than 40% of the world’s cocoa originates) will provide farmers with 1 million high-potential cocoa trees each year from 2012.

The Centre’s programmes will focus on improving the quality and quantity of locally sourced raw materials, developing products that meet the nutritional needs and tastes of West African consumers, and helping to increase both agricultural productivity and food safety. Nestlé is also training plant scientists in accelerated propagation techniques in other cocoa-producing countries. Over the past 15 years, Nestlé has provided 17 million coffee and cocoa tree plantlets to producer countries, and over the next decade, will provide at least 38 million more. These develop into high-yield, disease-tolerant trees providing farmers with a foundation for increased farm productivity and potential income. Although results vary, studies show Nestlé-produced trees can achieve an increase in productivity of 50%–200%. The protection and propagation of superior “fine cocoa” varieties for use in our premium chocolate brands is also ongoing in Ecuador and Venezuela.

Example 3 | **Nestle to work to rid products of "deforestation footprint"**

Nestle, the food giant will partner with the Forest Trust, an international NGO, to rid its supply chain of any sources involved in the destruction of rainforests.

"*Nestlé's actions will focus on the systematic identification and exclusion of companies owning or managing high risk plantations or farms linked to deforestation,"* a press release from the company reads, adding that "*Nestle wants to ensure that its products have no deforestation footprint.*"

Nestle has stated that under new sourcing guidelines it will only use palm oil suppliers that do not break local laws, protect high conservation forests and any forests with 'high carbon' value, protect carbon-important peatlands, and support free prior and informed consent for indigenous and local communities.

Nestle has pledged that 100 percent of its palm oil will come from sustainable sources by 2015. Currently 18 percent of Nestle's palm oil is from sustainably certified sources, but the company hopes to reach 50 percent by the end of 2011.

"*As part of the agreement, the Forest Trust will audit Nestlé’s suppliers and will help identify and exclude those that are not doing the right thing," "And if there are suppliers that want to change the way they operate, our team on the ground will help them to improve their practices in order to comply with Nestlé’s purchasing requirements."*

Source: http://news.mongabay.com/2010/0517-hance_nestle.html 18th May 2010

Annex 3 Paper and Pulp Industry

Even though the Paper and Pulp industry is not part of the retail sector, some interesting information was gathered through interviews with CEPI, The Confederation of European Paper Industries, which has been found to support the results from the retail sector, reflecting the same drivers and barriers.

Industry Association	***CEPI***
1. Sector characteristics	The European pulp and paper industry is characterised by consisting of a relatively large amount of small of medium sized players; 750 companies and 1100 mills. 80% of the raw material comes from EU27, the remaining 20% is mainly imported from Russia. Upstream, the forest production segment is very fragmented as there are a total of 16 million forest owners in Europe of which many are family owned. This doesn't mean that they are badly managed but rather that it might be difficult to convince these forest owners to invest in certification schemes, etc. The demand for paper products has stabilized in Europe. At the global level it is growing rapidly as for many other commodity markets demand is closely coupled to growth in GDP, hence China is a rapid growing market. Increased demand for biofuels, likewise impact the demand for forest products and might eventually results in shortage and hence increasing prices of wood raw material. Increased competition for land use, not likely that reforestation is to increase in Europe. Actually deforestation is taking place in Sweden. 10% of world forest is certified. In EU however the number is 60%. It is mainly the small forest owners that are not certified. The two main global certification schemes are FSC (Forest Stewardship Council) and PEFC (Programme for the Endorsement of Forest Certification), despite being global they are mainly used in EU and North America. Recycling in Europe has been rather successful and is currently at a level of 66%. The technical limit is about 75%, as not all paper can be recycled, e.g. toilet paper and some paper is actually consumed or burned. The recycling rate to a large degree also depends on the effectiveness of the local collection schemes.
2. Industry Association level	Sustainability and biodiversity are mainly pushed by the Industry association (CEPI) to convince members that it pays of to be proactive. The paper industry has a bad image as they are seen as 'forest killers'. CEPI therefore is proactive in promoting sound forest management,. CEPI has recently produced a handbook: 'Sharing experiences - Promoting

	biodiversity' (http://www.cepi.org/docshare/docs/2/PKOHJNCDOBPNPMJAOAFOJNPO5LKG4NQHRT4LTAYD437E/CEPI/docs/DLS/CEPI_BioBrochure_FINAL-20091120-00014-01-E.pdf). The publication is a practical handbook meant for forest owners including a number of best practices examples from around Europe.
3. Drivers	The main drivers from addressing biodiversity derive primarily from the industry itself, indirectly though from consumers in response to the image of the industry being seen as a 'Forest killer'. Ironically, the labelling schemes FSC and PEFC are hardly recognised by the consumers, only a 14% market demand and little awareness of the scheme.
4. Barriers	• International competition • Lack of consumer demand • Lack of availability of certified forest products

The main driver identified in the paper and pulp industry as well as the retail sector derives from increased awareness and consumer demand for sustainable products.

Both sectors equally experience insufficient supply of certified timber and organic products as a barrier.

Annex 4 Pharmaceuticals sector

Sector description
With an estimated share in 2007 of 35.2 per cent of world pharmaceutical output, a global output of nearly EUR 182 billion, and sales of EUR 133 billion, the EU pharmaceutical industry is one of Europe's best performing sectors. The EU is the second largest global manufacturing location for pharmaceuticals behind the US and ahead of Japan:

- EU pharmaceutical exports in 2007: EUR 73.2 billion
- EU pharmaceutical imports in 2007: EUR 35.7 billion
- EU share of global pharmaceutical exports in 2007: 5.92 per cent

(Source: http://ec.europa.eu/trade/creating-opportunities/economic-sectors/industrial-goods/pharmaceuticals/index_en.htm)

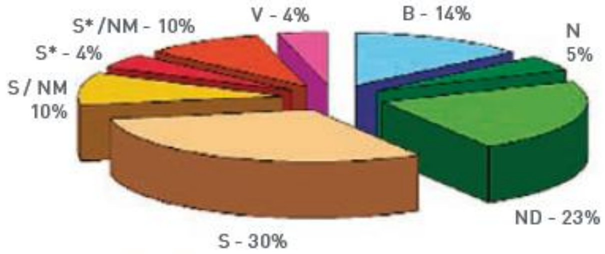
The European Federation of Pharmaceutical Industries and Associations (EFPIA) represents the pharmaceutical industry operating in Europe, which is the fifth largest sector in the European Union, accounting for 3.5 per cent of the total manufacturing production. Pharmaceutical companies in the EU employ more than 645,000 people.[2]

The pharmaceutical industry is characterised by relatively few very large and global companies dominated by European, American, and, increasingly, Indian, Chinese and Japanese companies.

Traditionally, pharmaceutical products were developed based on natural resources or genetic resources. However, these days most R&D in new medical compounds is based on synthetic drugs.

[2] http://ec.europa.eu/trade/creating-opportunities/economic-sectors/industrial-goods/pharmaceuticals/index_en.htm

All new chemical entities, 01/1981-06/2006, by source (N) 1184).



B ...... Biological
N ...... Natural product
ND .... Derived from a natural product and is usually a semisysnthetic modification
S ...... Totally synthetic drug, often found by random screening, modification of an existing agent
S* ..... Made by total synthesis, but the pharmacophore is/was from a natural product
V ...... Vaccine
NM .... Natural product mimic

There are a number of reasons why R&D into synthetic drugs is favourable to most pharmaceutical companies.

Comparison of biological and synthetic sources of pharmaceutical products: (really not clear what is being compared, sentences below should be completed to make them clearer

- Discovery timelines - typically slower than synthetic approaches
- Sourcing logistics - scientific or political hurdles make many species inaccessible
- Reproducibility - organisms change their chemistry with season, age, etc
- Identification - complex extracts containing many nuisance compounds
- Production - about 80 % of natural structures are intractable to synthesis, and large-scale production of most is impossible.

Of the around 45 member of EFPIA, only a handful of these companies are engaged in R&D into natural and genetic resources. The main pharmaceutical companies active in the search of natural resources for new medical compounds are Novartis, PharmaMar and AstraZeneca.

BES concerns at industry association level

The main issue concerning biodiversity at Industry Association level is ABS (Access and Benefit Sharing), which was established following the Convention on Biological Diversity (CBD) mandated during the Seventh Conference of CBD in 2004.

Since then, EFPIA has worked on the principles for which the pharmaceutical sector can contribute to the fulfilment of the aims of the Convention.

Although ABS seeks '--to elaborate and negotiate an international regime on access to genetic resources and benefit sharing with the aim of adopting an instrument to effectively implement of key provision of the CBD', is it more concerned with ensuring that the country owing or hosting the genetic resource in question also benefits from any future economic gains that particular genetic resources might provide either in terms of a royalty or IPR. In other words, to avoid 'Bio-pirating'.

EFPIA as such has not been engaged in or provided expertise or recommendations to its member organisations in terms of addressing risk of loss in biodiversity and ecosystem services.

The dependency of BES is less and less.

Drivers for addressing BES risks

Consequently, drivers to address the risk of loss in BES are rather weak within the pharmaceutical industry.

The main CSR concern of the pharmaceutical industry are actions to address access to medicine and to address the 'bad image of the industry, e.g., the high prices of medicines, dumping of 'old' medicine onto the market of the developing world, animal testing, etc.

Barriers to addressing BES risks

To the extent that barriers exist, it is probably more the case that biodiversity is not seen as a concern for the pharmaceutical industry. Biodiversity is not a good term to sell, and it should be incorporated into sustainability.

The main challenges facing the pharmaceutical industry are:

- Neglected diseases
- Pandemic diseases
- New antibiotics

These are seen as new business opportunities further fuelled by climate change and increased buying power and demographic development in some parts of the world.

Annex 5 NVI workshop conclusions

thenaturalvalueinitiative
linking shareholder and natural value

Linking Shareholder and Natural Value
A workshop on the management of ecosystem services risks and opportunities in the food, drink and tobacco sectors – common challenges and tools to address them
20th November 2009, F&C, London.

WORKSHOP REPORT

Opening remarks – why biodiversity and ecosystem services is an issue

Matt Hale (Chair), Acting Chair, UNEP Finance Initiative Biodiversity and Ecosystem Services Work stream

- UNEPFI is a public-private partnership between the United Nations Environment Programme and the global financial sector. Over 180 financial institutions including banks, insurers, asset managers, and pension funds, as well as a range of partner organisations, are signatories to the initiative

- Members work together to embed best sustainability practice in financial institutions and change the way capital markets account for environmental, social, and governance issues. UNEP FI's developed a Biodiversity and Ecosystem Service work stream at the request of their members, the Natural Value Initiative is one of the key projects within this work stream

- Biodiversity and ecosystem services are essential to human development and well being, providing food, fibre and other raw materials which form the basis of many global industries. They act as a regulating system for the environment, controlling the quality of water, the development of soils, maintaining air quality, and plays a key part in regulating the level of carbon dioxide in the atmosphere. As a result, all businesses depend to a greater or lesser extent on the provision of ecosystem services

- A recent global assessment of ecosystem services showed that 2/3 of those services on which we rely are declining and that this is costing society Euro 50 billion each year from land based ecosystems alone. Much of this degradation has been caused by clearance of land for agriculture. Mankind has already cleared half the world's natural habitats – much of it to make way for cultivated land

- Demand for food is projected to increase 70-80% by 2055, and a further 10-20% of grassland and forest are projected to be converted to agriculture between 2000 and 2050, this will result in significant additional release of Greenhouse gases. We know that inaction on climate change may reduce global GDP by as much as 20%. However, until recently the role that loss of natural habitats play in climate change has not been recognised in climate change policy. This looks set to change

- As mankind erodes the capacity of biodiversity to provide ecosystem services, this poses a risk not only to corporate reputation but to operating margins through issues with security of supply and – increasingly – compliance costs

What is a risk for companies is a risk for their investors and the finance sector itself has been the target of a number of campaigns linked to concerns about the loss of biodiversity.

- Increasing awareness of these issues within the financial community is creating new and significant business opportunities and a greater awareness of potential risks – one example of this is the emergence of the concept of REDD – the reduction of emissions from deforestation

UNEP Finance Initiative
Innovative financing for sustainability
FGV GVces
Centro de Estudos em Sustentabilidade da EAESP
FAUNA & FLORA International
Conserving wildlife since 1903

and degradation

- The Ecosystem Services Benchmark is currently the only comprehensive tool for investors on this issue and we encourage its uptake

Management of biodiversity and ecosystem services risks and– the results of the Ecosystem Services Benchmark

Annelisa Grigg, Project Director, Natural Value Initiative, Fauna & Flora International

- The Natural Value Initiative is a collaboration between international environmental NGO, Fauna & Flora International, Brazilian business school FGV and UNEP Finance Initiative. It aims to raise awareness of the links between natural and shareholder value – demonstrating the importance of managing corporate impacts and dependence on biodiversity and ecosystem services

- More specifically it has developed – in collaboration with the investors Aviva Investors, F&C Investments, VicSuper, Pax World, Insight Investment and Grupo Santander Brasil – the Ecosystem Services Benchmark. This is a tool to evaluate corporate approaches to understanding and managing impacts and dependence on biodiversity and ecosystem services

- The tool has been tested on 31 companies in the food, beverage and tobacco sectors based on the holdings of the investors collaborating with the NVI, the results of this analysis are being used by the investors to inform their engagement/ dialogue process with the companies concerned. It uses process based measures as proxies for on the ground performance and is based on a tried and tested methodology developed by Insight Investment for the extractive sector and adjusted through a process of stakeholder dialogue for the food, beverageand tobacco sectors

- The initiative attempted to review performance based measures, drawing up a short list of indicators based on established schemes such as the Roundtable on Sustainable Palm Oil, however, the reporting of quantified data was extremely limited on this issue

- The findings of the NVI's analysis show that, whilst significant activity is underway on the issue, it is often piecemeal in nature with no clear link to a strategic analysis of corporate risk and opportunity. Furthermore, disclosures on the issue are insufficient to enable a clear picture of risk and opportunity management to be communicated to investors. Risks many go unmanaged and opportunities undeveloped

Panel discussion – perspectives on ecosystem services, strengths and weaknesses in current approaches and feedback on the Ecosystem Services Benchmark process followed by Q&A

Steve Waygood, (Head of SRI Engagement, Aviva Investors)

- Investors find biodiversity a challenging issue. One of reasons that biodiversity and ecosystem services is not conventionally included in broker notes is that historically the private sector has received such services for free. As a result they are not currently incorporated into cash flows. This is a long-term market failure that needs to change. It is material right now and it will pay investors to investigate it

- If a company is managing this issue well, it's a good indicator of overall company management.

Some companies are just not responding. There were some companies that scored zero. Aviva will look into these ones and see where there is a problem

- Collectively the market can respond and the NVI is helping that. One example of a strategy to help market corrections is Marks and Spencer's Plan A. One company in our portfolio is United Plantations, so we are pleased to hear the good progress made by this company. We have also been investing in Unilever (which came top of the analysis) for several years.

Mirza Baig (Associate Director Governance & Sustainable Investment)

- Declining biodiversity and ecosystem services is an emerging but critical issue for investors. F&C have a suite of sustainability funds representing £3 billion of assets under management. These funds include explicit criteria which monitors the quality of companies' management of biodiversity and ecosystem services. We will not invest in any company if it is deemed to be performing poorly in this area. In addition, we undertake analysis of environmental issues across all F&C funds. This may affect the valuation of companies in high impact sectors when deemed to be material. Historically this has tended to be focused on direct impacts, but we are now shifting our attention to include dependency.

- Whenever there is a financial crisis, this leads to a period of reflection so this report is timely in that it provides a fresh perspective on corporate risk and opportunities. The analysis is valuable in itself, but the results also act as a good proxy for the quality of management. A company performing well in the benchmark provides us with a sense of assurance that management are looking at every issue that may affect the long-term sustainability of the business.

- The benchmark will help us to identify poorly performing sectors, focus and prioritise our engagement and provide for more informed recommendations. We are hopeful that the NVI report will act as a catalyst for greater investor and corporate attention on this critical issue.

General comments:

- Investors need good examples of the upside such as the example quoted of the 7% increase in yield experienced by cocoa farmers which grow crops near protected areas

- Information is provided by the NGO community which is relevant to risk and opportunity management within the private sector, yet the investment community does not fund this – perhaps there is a need for them to do so?

Managing biodiversity and ecosystem services risk – a retailer perspective

Lauren Orme, Marks and Spencer, Sustainable Development Manager - Raw Materials

- Plan A helps manage risk and manage supply chains for the future. Consumers are more forward thinking now than every before. M&S' approach to every issue is tailored and different, reflecting differing levels of information that exist within the supply chain

- At the start of Plan A M&S thought it would cost £200 million. To date the plan's implementation has been cost neutral as a result of efficiencies realized through implementation. There are areas in which further investment is required with a longer term return on investment

- Although some industry measures exist, measuring customer response to Plan A is challenging

- There is a need for the market as a whole to address sustainability issues in a strategic and focused way, there may be a role for regulation in this

Tools to assist companies in understanding and managing biodiversity impacts and dependence

Monica Barcellos Harris, UNEP-WCMC Head of business, biodiversity and ecosystem services

Monica Barcellos Harris, UNEP World Conservation Monitoring Centre. Head of business, biodiversity and ecosystem services

- BES is a very complex theme. It is not just about having the right metrics. The challenge is interpreting the data. We need to have simple and effective tools. A significant number of tools are developing and there is a further challenge in ensuring their uptake and use in an integrated fashion

- The Integrated Biodiversity Assessment Tool (IBAT), a collaboration between Birdlife International, IUCN, UNEP-WCMC and Conservation International enables companies to locate areas of known biodiversity importance (legally protected or not) in proximity to their operations or sourcing regions.

- The Proteus Partnership is composed primarily of mining and oil and gas companies and provides a tool based on the World Database for Protected Areas which provides information on all the protected areas in the world, thereby allowing companies to access information on potential impacts on such areas and risks arising as a result. The WDPA data is available through IBAT.

- The World Resources Institute and World Business Council for Sustainable Development's Corporate Ecosystem Services Review provides a process for companies to develop understanding and a strategic approach to managing impacts and dependence on ecosystem services.

- The Business and Biodiversity Offset Programme offers a set of tools linked to the mitigation hierarchy (avoid, minimize, mitigate and offset impacts on biodiversity), assisting companies in the development of robust offset schemes.

- For many local NGOs levels of mistrust of corporates is high and they are unwilling to engage. For companies attempting to identify local expertise to help them understand and minimize impact, this can be a barrier to effective management of this issue. International NGOs such as Fauna & Flora International can play a role in brokering partnerships and building trust between NGOs unfamiliar with working with the private sector and the companies seeking assistance to minimize impacts and dependence.

<u>The chair, Matt Hale, finished on the following note:</u> ultimately we are trying to develop end to end strategic decision making, as we seek to create positive change and act as a catalyst for improved practices along the whole supply chain. We cannot wait for governments. NGOs are doing a good job under difficult circumstances. This is beginning to help investors know what they can and cannot do. However more transparency is needed, greater reporting from companies and greater engagement from the private sector are required on this vital issue.

thenaturalvalueinitiative
linking shareholder and natural value

PARTICIPANT LIST

Name	Organisation
Tobin Postma	Arcelor Mittal
Steve Waygood	Aviva Investors
Darren Harris	BAT
Jim Kirke	BAT
Joseph Yalley Ogunro	BAT
Benjamin McCarron	Co-operative Financial Services
Jo Allen	Co-operative Financial Services
Claus Primdal Sørensen	COWI
Birgitte Holt Andersen	COWI
Ritu Patwari	DEFRA
Steph Godliman	DEFRA
James Stacey	Earth Capital Partners LLP
Richard Burrett	Earth Capital Partners LLP
Julian Metcalfe	Earthmind
Paul Laird	Earthwatch
Peter Moore	EBRD
Randeep Sanghera	EIRIS
James Spurgeon	ERM
Mirza Baig	F&C Investments
Jack Foxall	Fauna & Flora International
Annelisa Grigg	Fauna & Flora International
Laura Somerville	Fauna & Flora International
Chris Wickenden	Imperial Tobacco
Rebecca Foges	Independent
Tim Reed	Independent
Gemma Lacey	John Lewis
Deanna Donovan	Joint Nature Conservation Committee
Liz Crosbie	Strategic Environmental Consulting
Tim Tillson	KPMG
Brenden Lucas	Leaf TC
Lauren Orme	M&S
Olivia White	PriceWatehouseCoopers
Naomi English	RiskMetrics
Caroline Miller	Sainsburys
John Briggs	Sancroft
Richard Stathers	Schroders
David Stockford	Sustain IT Solutions
Matt Hale	Sustainable Banking
Geoff Lucas	Sustainable Development Capital LLP
Yulanda Chung	Sustainable Finance
Hannah Clare	Tesco
Alice Byers	Triodos
David Wright	Tropical Biology Association
Monica Harris	UNEP WCMC
Helen Keep	Unilever
Olivia Watson	UNPRI
Richard Perkins	WWF

UNEP Finance Initiative
Innovative financing for sustainability

FGV
GVces
Centro de Estudos em Sustentabilidade da EAESP

FAUNA & FLORA International
Conserving wildlife since 1903

Annex 6 Policies addressing BES

All initiatives at the European level together with national initiatives define the scope for business operations. A number of limits, permits, requirements and economic instruments regulate the operations of businesses, ranging from sector-specific regulation to general regulation. Regulation can thus constitute both a barrier and a driver for business action.

Despite a wide range of regulation instruments, weaknesses exist within the current system according to the European Commission *"Human well-being is dependent upon "ecosystem services" provided by nature for free, such as water and air purification, fisheries, timber and nutrient cycling. These are predominantly public goods with no markets and no prices, so their loss often is not detected by our current economic incentive system and can thus continue unabated".*[3]

It is therefore a question of market failure as the free market forces do not recognize the socio-economic value of BES. Public policy and regulation are thus a tool to remedy this market failure. Regulation exists at different levels of governance as illustrated in the table below.

Overview of policy initiatives

Policy initiative	Scope	Status/BES relevance
International level		
Convention on Biological Diversity (CBD)	In April 2002, the Parties to the Convention committed themselves to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national levels as a contribution to poverty alleviation and to the benefit of all life on Earth.	Unprecedented additional efforts would be needed to achieve, by 2010, a significant reduction in the rate of biodiversity loss at all levels.
EU level		
EC Biodiversity Strategy and Action Plans	Halting the loss of biodiversity by 2010 - and beyond.	A new target has been set for 2020.
Birds and Habitats Directive (the nature directive)	The Directive is built around two pillars: the Natura 2000 network of	The Directive is well implemented into the national legislative structures and

[3] http://ec.europa.eu/environment/nature/biodiversity/economics/.

Policy initiative	Scope	Status/BES relevance
	protected sites and the strict system of species protection. All in all, the directive protects over 1,000 animals and plant species and over 200 so-called 'habitat types' (e.g., special types of forests, meadows, wetlands, etc), which are of European importance.	the Natura 2000 network is in place in the majority of the Member States. A status from June 2008 tells that 21 countries have designated more than 80 % of the expected complete network.
Sustainable Development Strategy (SDS)	Sustainable Development stands for meeting the needs of present generations without jeopardizing the ability of future generations to meet their own needs – in other words, a better quality of life for everyone, now and for generations to come.	Biodiversity is on the decline globally, and major ecosystems are placed under increasing pressure.
6th Environment Action Programme (6th EAP)	IEU environment policy is delivering tangible results for citizens and has helped the European industry become a world leader in a number of high-growth sectors. But despite this progress, global emissions of greenhouse gases are rising, the loss of biodiversity is not yet under control, pollution is still harming public health and volumes of waste are increasing in Europe.	The main conclusion of the strategy is that inside the EU, the policy framework is already largely in place – most importantly with the Natura 2000 network of protected areas. The priority for the EU must be the full and effective implementation of existing legislation.
Common Agriculture Policy (CAP)	The emphasis is on encouraging better agricultural productivity so that consumers have a stable supply of affordable food, and ensuring that the EU has a viable agricultural sector.	The CAP is up for revision in 2013 where BES in the frame of sustainability is likely to play a significant role.
Fishery policies	Set quotas for the amounts of each type of fish that the member states are allowed to catch and encourage the fishing industry to change its behaviour by means of various market interventions.	Of importance for maritime BES and for business sectors such as food retail, restaurants, etc
Environmental Impact Assessment (EIA) Directive	Environmental assessment is a procedure that ensures that the environmental implications of decisions are taken into account before decisions are made.	BES not explicitly covered yet.
Strategic Environmental Assessment (SEA) Directive	Requires a formal environmental assessment of certain plans and programmes, which are likely to have significant effects on the environment.	BES not explicitly covered yet.

Policy initiative	Scope	Status/BES relevance
Supporting measures		
Framework Programmes 6 and 7	R&D/knowledge.	Ongoing research.

These policy initiatives will be taken into consideration in the recommendations of the study due to a belief that it is more efficient to build on existing initiatives than start developing new ones parallel to already existing ones.