Connecting the dots

The nexus between ecosystems and business

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Training modules

1. Elevator speech – *getting hooked*
   - ✓ Asking the right questions
2. Definitions and concepts – *setting the scene*
   - ✓ Biodiversity, ecosystems and ecosystem services
3. Status and supply – *urgency for action*
   - ✓ Based on the findings of the Millennium Ecosystem Assessment (MA) and Global Environment Outlook (GEO) reports
4. Drivers and causes of change – *cause and effect*
   - ✓ Direct and indirect
5. Consequences of degradation – *impacts*
   - ✓ Social and economic (business)
6. Responses – *ways forward*
   - ✓ What companies can do and tools that help

Elevator speech - relevance for business

Exercise: Should I care? Yes or no – what do you think?

- Company operations are vulnerable to changes in the quality and quantity of ecosystem service inputs – e.g., water
- Company license to operate is challenged by new stricter environmental policies and legislation – e.g., GHG emissions
- Company reputation, brand or image is sensitive to public opinion and NGO actions about nature conservation – e.g., boycotts & campaigns
- Companies respond to increased demand for *green* products – e.g., eco-labeled & certified
- Companies face biodiversity impact assessments when seeking external finance

Exercise:
Ecosystems dilemma assessment

I have (or my company has) been affected by the following ecosystem challenges:

Water scarcity	☐ Yes	☐ No	☐ Do not know
Climate change	☐ Yes	☐ No	☐ Do not know
Habitat change	☐ Yes	☐ No	☐ Do not know
Biodiversity Loss	☐ Yes	☐ No	☐ Do not know
Overexploitation of oceans	☐ Yes	☐ No	☐ Do not know
Nutrient overloading	☐ Yes	☐ No	☐ Do not know

I have (or my company has) benefited from the following ecosystem services:

Provisioning	☐ Yes	☐ No	☐ Do not know
Regulating	☐ Yes	☐ No	☐ Do not know
Cultural	☐ Yes	☐ No	☐ Do not know
Supporting	☐ Yes	☐ No	☐ Do not know

I have (or my company has) taken the lead on addressing ecosystems:

To manage risk	☐ Yes	☐ No	☐ How?
To improve operational efficiencies	☐ Yes	☐ No	☐ How?
To gain business opportunities	☐ Yes	☐ No	☐ How?

I have (or my company has) considered the long term consequences of ecosystem degradation in my strategy: ☐ Yes ☐ No ☐ How?

I have (or my company has) taken into account the direct impact I/we have on ecosystems: ☐ Yes ☐ No ☐ How?

I have (or my company has) taken into account the indirect impact I/we have on ecosystems: ☐ Yes ☐ No ☐ How?

Linking ecosystems, sustainable development and business – The WBCSD's approach

- **Ecological balance** is one of the three pillars of sustainable development
- All businesses **depend** and **impact** on ecosystems and their services – either as part of their core operations or through their value chain
- Ecosystem degradation can undermine the business license to operate by posing significant **risks** to companies, their suppliers, customers and investors
- Sustainable ecosystem management can create new business **opportunities** and **markets**

What are biodiversity, ecosystems and ecosystem services?

The Web of Life

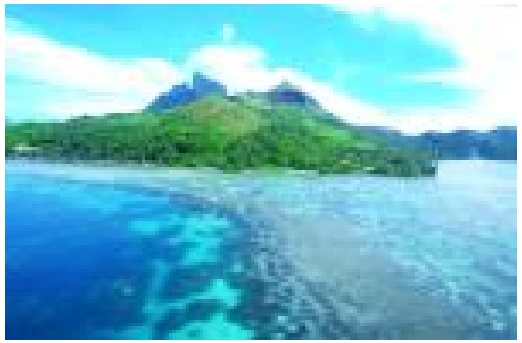
- Sit back and enjoy the movie

http://countdown2010.net/daversity

A few definitions

biodiversity • The variability among living organisms
- –Within species & populations
- –Between species
- –Between ecosystems

ecosystem • A dynamic complex of plant, animal, and micro-organism communities and the non-living environment interacting as a functional unit



ecosystem services
- • The benefits people obtain from ecosystems
- • The “goods and services of nature”

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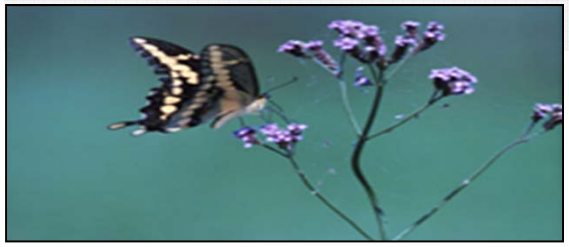
Ecosystem services – an overview

Provisioning

Goods or products produced by ecosystems

Regulating

Natural processes regulated by ecosystems



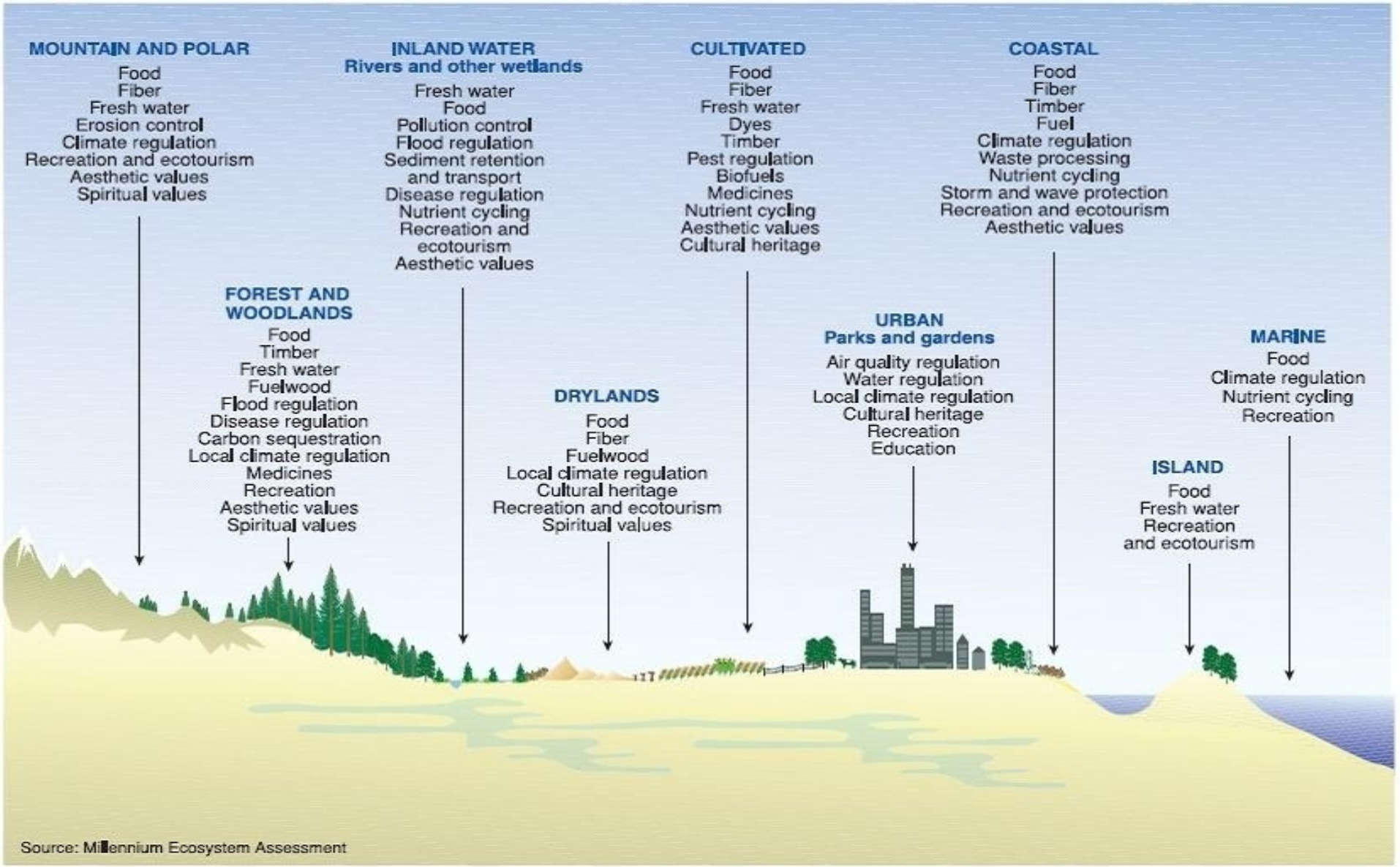
Cultural

Non-material benefits obtained from ecosystems

Supporting

Functions that maintain all other services

The ecosystem landscape



Provisioning services: Goods produced or provided by ecosystems

- Food
  - ✓ Crops
  - ✓ Livestock
  - ✓ Capture fisheries
  - ✓ Aquaculture
  - ✓ Wild foods
- Fiber
  - ✓ Timber
  - ✓ Cotton, hemp, silk
  - ✓ Biomass fuel
- Freshwater
- Genetic resources
- Biochemicals, natural medicines & pharmaceuticals

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Source: Millennium Ecosystem Assessment, 2005.

Regulating services: Natural processes regulated by ecosystems

- Air quality regulation
- Climate regulation
  - ✓ Global (CO_2 sequestration)
  - ✓ Regional and local
- Water purification and waste treatment
- Water flow regulation
- Natural hazard regulation
- Erosion regulation
- Disease regulation
- Pest regulation
- Pollination

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Source: Millennium Ecosystem Assessment, 2005.

Cultural services: Non-material benefits obtained from ecosystems

- Recreation
- Ecotourism
- Spiritual and religious values
- Ethical and “existence” values

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Source: Millennium Ecosystem Assessment, 2005.

Supporting services: Functions that maintain all other services

- Nutrient cycling
- Primary production
- Photosynthesis
- Water cycling

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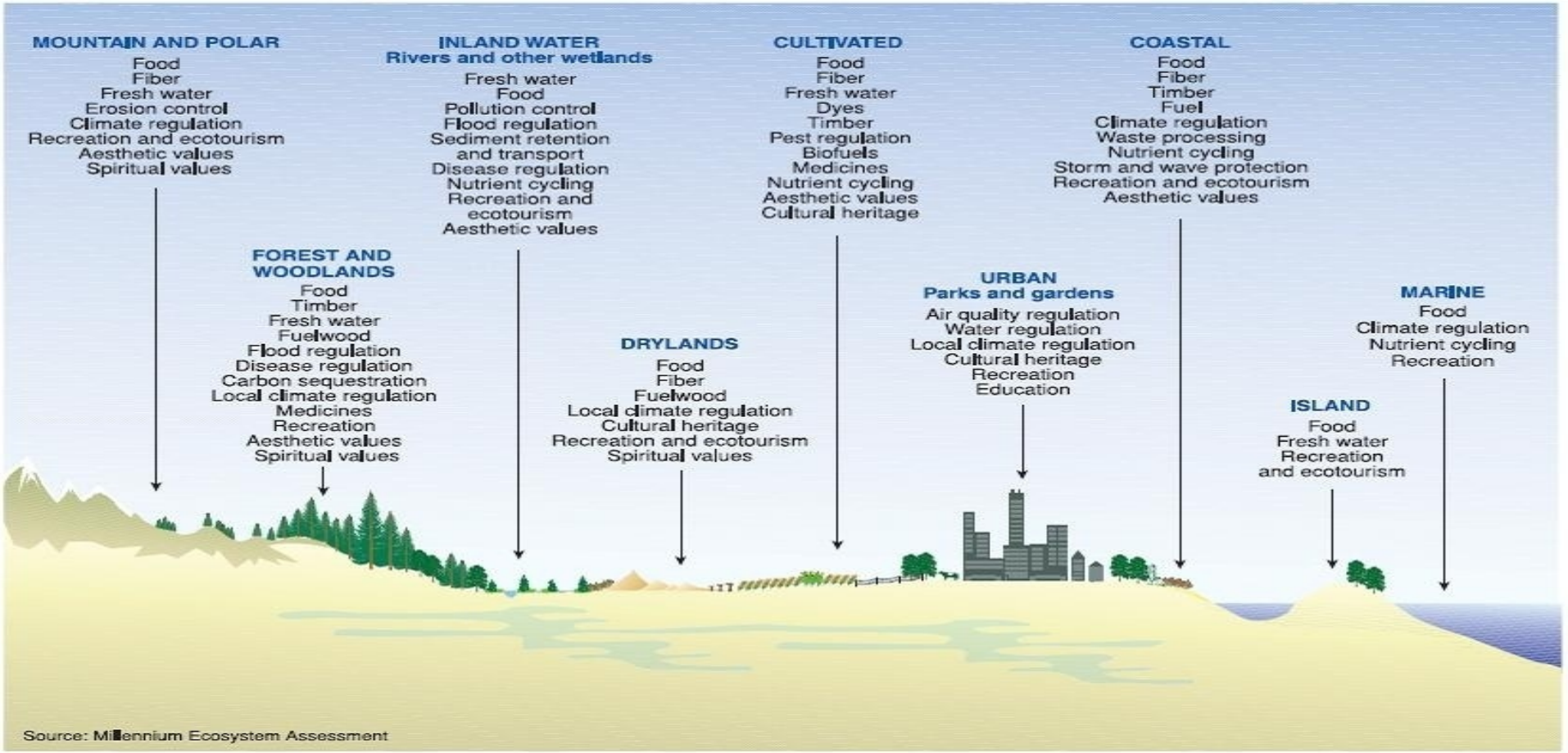
Source: Millennium Ecosystem Assessment, 2005.

Exercise:
Think about your life…

Circle the ecosystem services you have enjoyed this week.

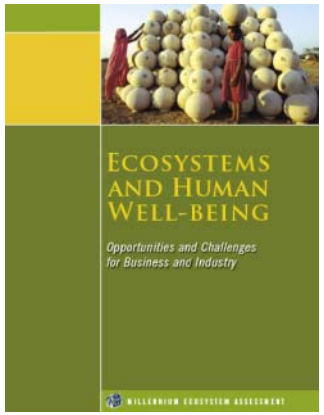


Exercise:
Do you know the answers?

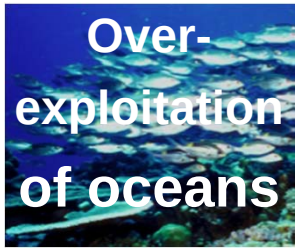
- Is biodiversity an ecosystem service?
- Are minerals and fossil fuels ecosystem services?
- If fossil fuels are not an ecosystem service, then why is freshwater?

Ecosystem status and projected supply of ecosystem services

2005: Millennium Ecosystem Assessment



- Many of the world's ecosystems are in serious decline
- Continuing supply of critical ecosystem services like water purification, pollination and climate regulation are in jeopardy
- 6 interconnected challenges are of particular concern for business



What was the Millennium Ecosystem Assessment?

Largest assessment of **health of ecosystems** ever undertaken


Photo courtesy of USDA NRCS

Partnership of UN agencies, five conventions, business, and NGOs


Photo courtesy of USDA NRCS

Examined **links** between ecosystems and human well-being


VNU <www.vnu.com>

Scientifically **credible** and politically **legitimate** source of information

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1,360 experts from 95 countries over 4 years

World Resources Institute

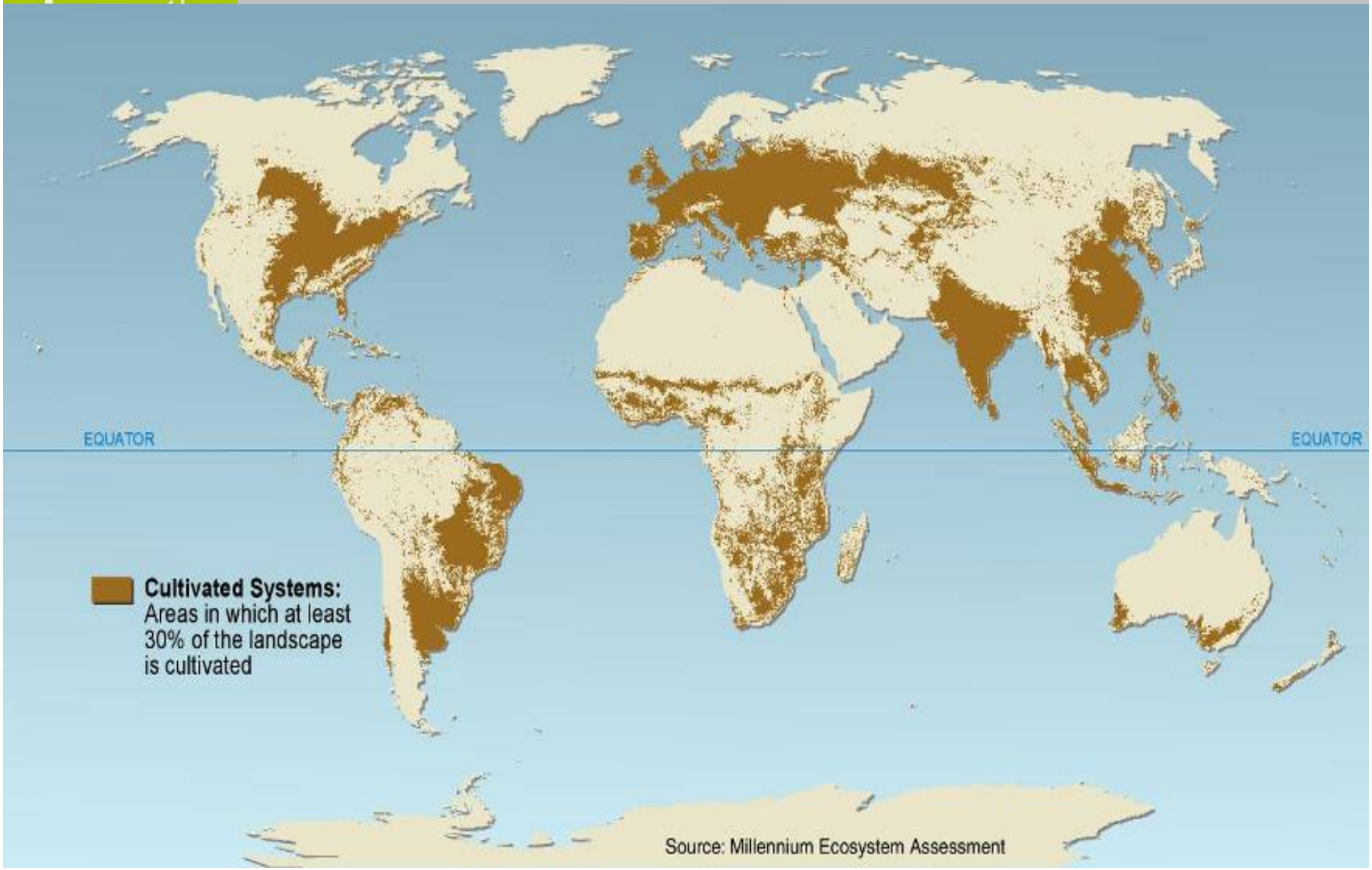
The MA's major finding regarding ecosystems

The structure and functioning of the world's ecosystems has changed rapidly the past 50 years

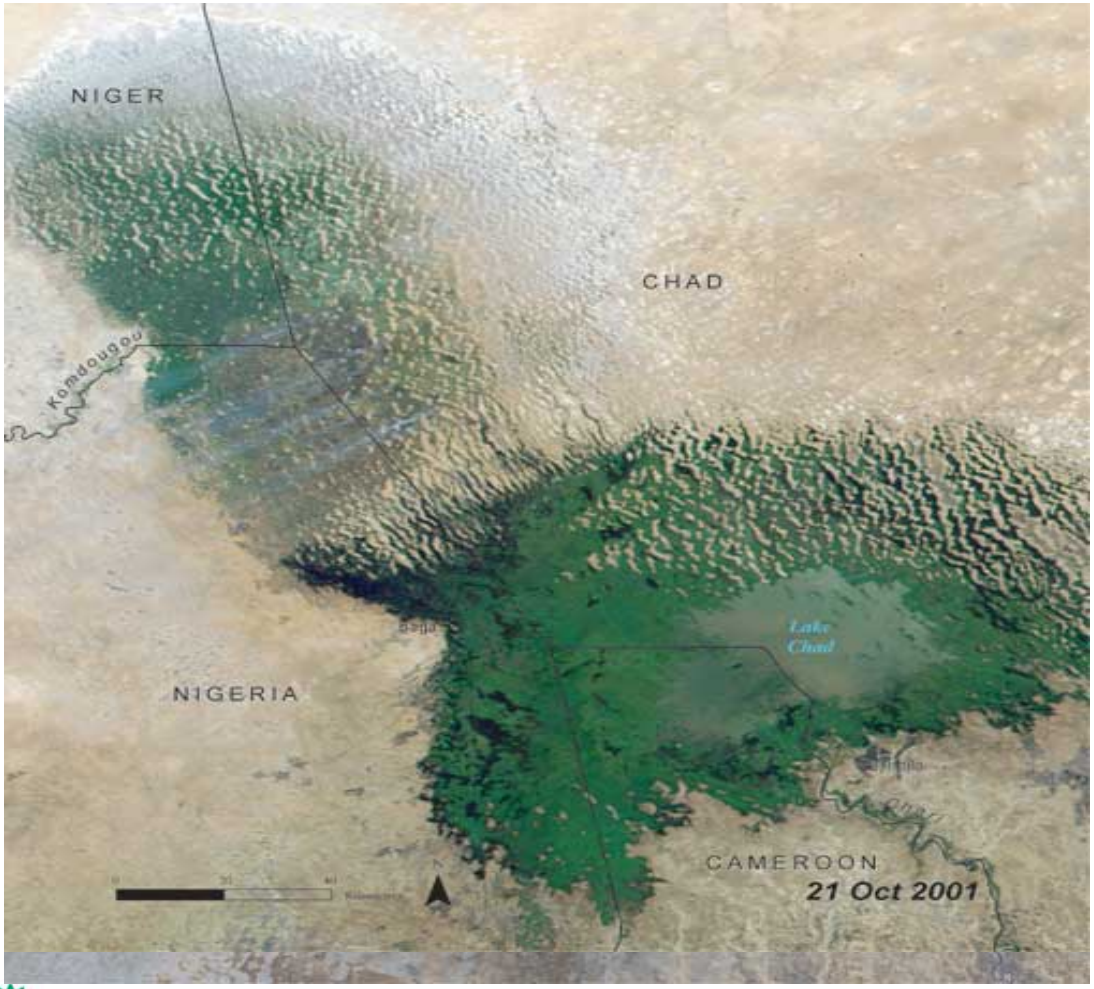
- 20% of the world's coral reefs have been lost and more than 20% are degraded
- 35% of mangrove area has been lost in the last several decades
- Amount of water in reservoirs quadrupled since 1960
- Withdrawals from rivers and lakes doubled since 1960

Source: Millennium Ecosystem Assessment, 2005.

25% of earth's land surface is now cultivated



Desertification



Lake Chad

1960: The World's 6th largest lake

1963-2001: Shrunk by 95%, wetlands spoiled

Photos taken approx. same date each year

Source: UNEP – ONE PLANET MANY PEOPLE: Atlas of our Changing Environment

MA major finding regarding ecosystem services

60% of the world's ecosystem services are degraded

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

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Source: Millennium Ecosystem Assessment, 2005.

Balance Sheet – Ecosystems Services

Provisioning services		
Food	crops	↑
	livestock	↑
	capture fisheries	↓
	aquaculture	↑
	wild foods	↓
Fiber	timber	+/-
	cotton, silk	+/-
	wood fuel	↓
Genetic resources		↓
Biochemicals, medicines		↓
Water	freshwater	↓

↑ globally enhanced
↓ globally degraded

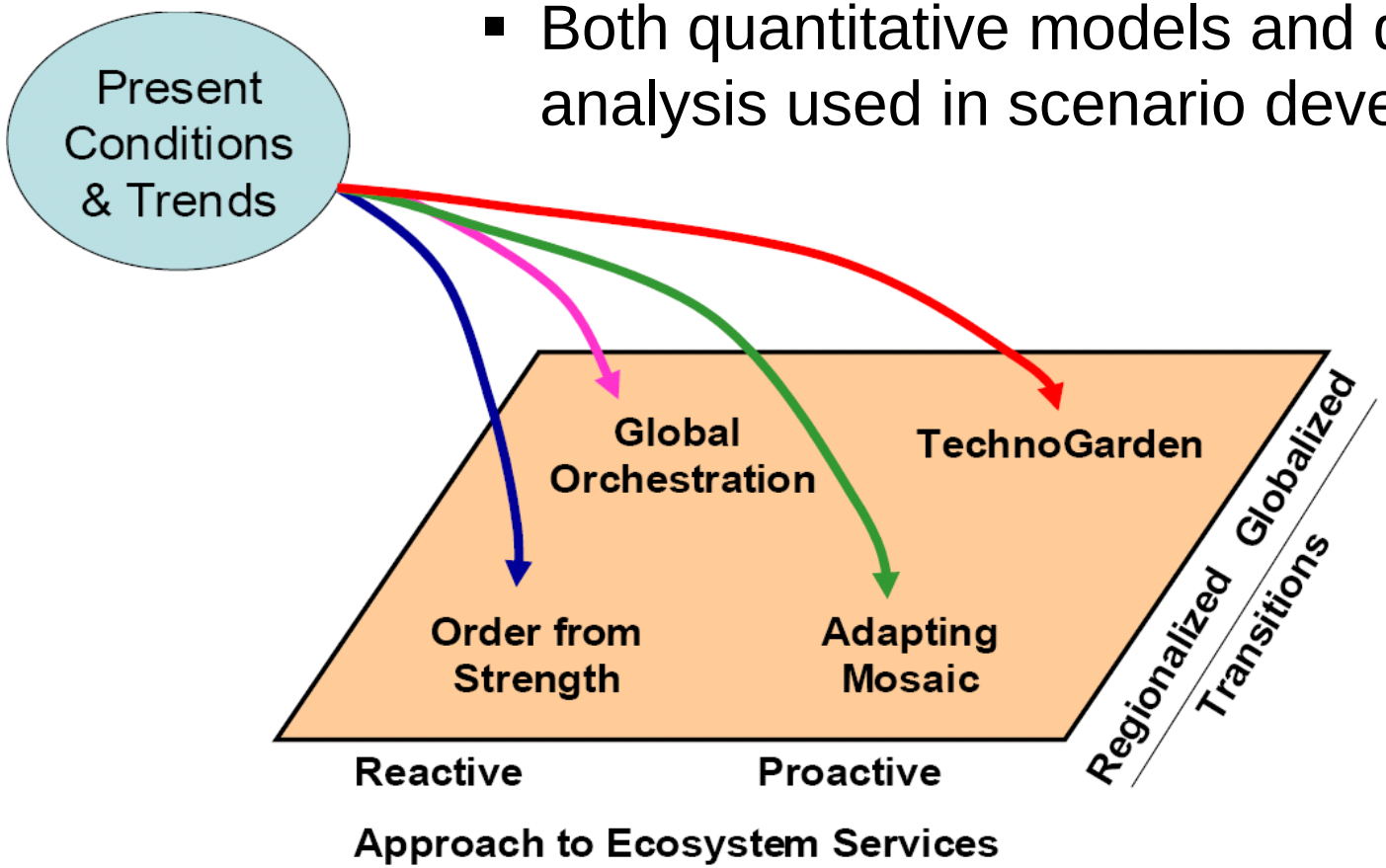
Regulating services	
Air quality regulation	↓
Climate regulation – global	↑
Climate regulation – regional and local	↓
Water regulation	+/-
Erosion regulation	↓
Water purification and waste treatment	↓
Disease regulation	+/-
Pest regulation	↓
Pollination	↓
Natural hazard regulation	↓
Cultural services	
Spiritual and religious values	↓
Aesthetic values	↓
Recreation and ecotourism	+/-

Source: Millennium Ecosystem Assessment. 2005.

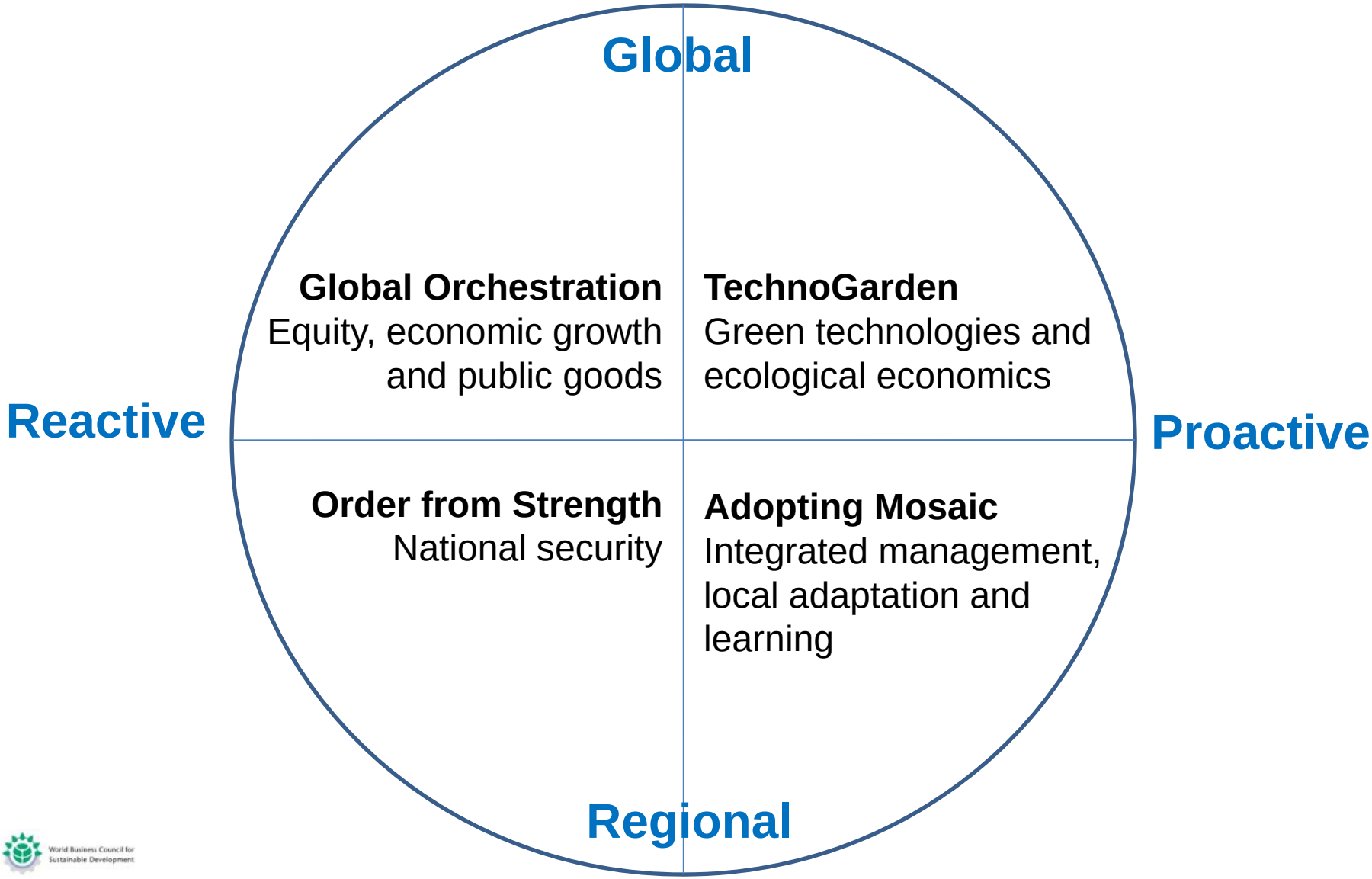
Species loss – overexploitation of Atlantic Cod off Newfoundland

MA Scenarios

- Not predictions – scenarios are plausible futures
- Both quantitative models and qualitative analysis used in scenario development



The four MA Scenarios



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MA Scenarios - storyline

- **Global Orchestration** – Globally connected society that focuses on global trade and economic liberalization and takes a reactive approach to ecosystem problems but that also takes strong steps to reduce poverty and inequality and to invest in public goods such as infrastructure and education.

- **Order from Strength** – Regionalized and fragmented world, concerned with security and protection, primarily emphasizing regional markets, paying little attention to public goods, and taking a reactive approach to ecosystem problems.

MA Scenarios - storyline

- **Adapting Mosaic** – Regional watershed-scale ecosystems are the focus of political and economic activity. Local institutions are strengthened and local ecosystem management strategies are common; societies develop a strongly proactive approach to the management of ecosystems.

- **TechnoGarden** – Globally connected world relying strongly on environmentally sound technology, using highly managed, often engineered, ecosystems to deliver ecosystem services, and taking a proactive approach to the management of ecosystems in an effort to avoid problems.

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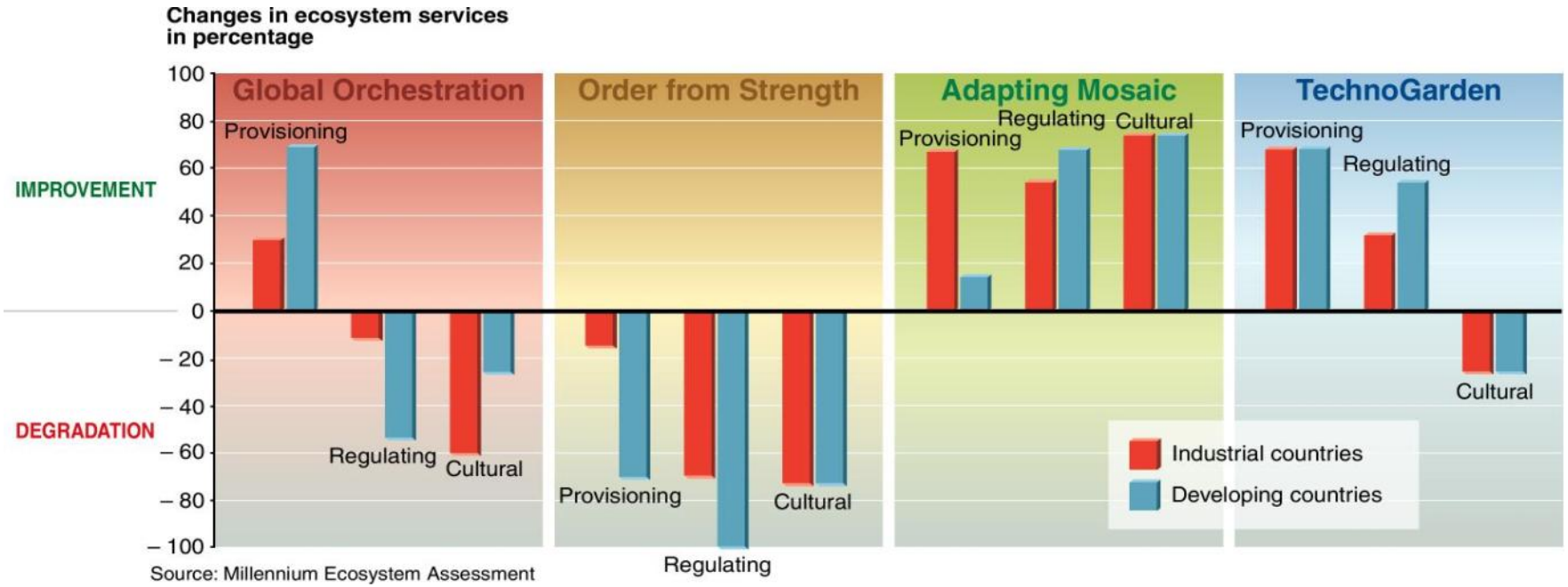
Drivers affecting the projected future – by 2050

- **Population size** (reaching 8-10 billion people)
- **Per capita income** (growing 2-4 times)
- **Land conversion** (converting 10-20% of additional grassland and forestland)
- **Overexploitation incl. overfishing** (increasing pressure)
- **Invasive alien species** (continuing spread)
- **Reactive nitrogen flow** (increasing by another 66% – already doubled during the past 50 years)
- **Climate change** (continuing global warming – expected to become the predominant global cause of ecosystem degradation and ecosystem service loss)

Projected changes in the provision of Ecosystem Services

- Demand for food crops to grow by 70-85%
- Water availability to increase by 5-7%
- Water demand to grow by 30-85%
- Number of plant species to decline by 10-15%



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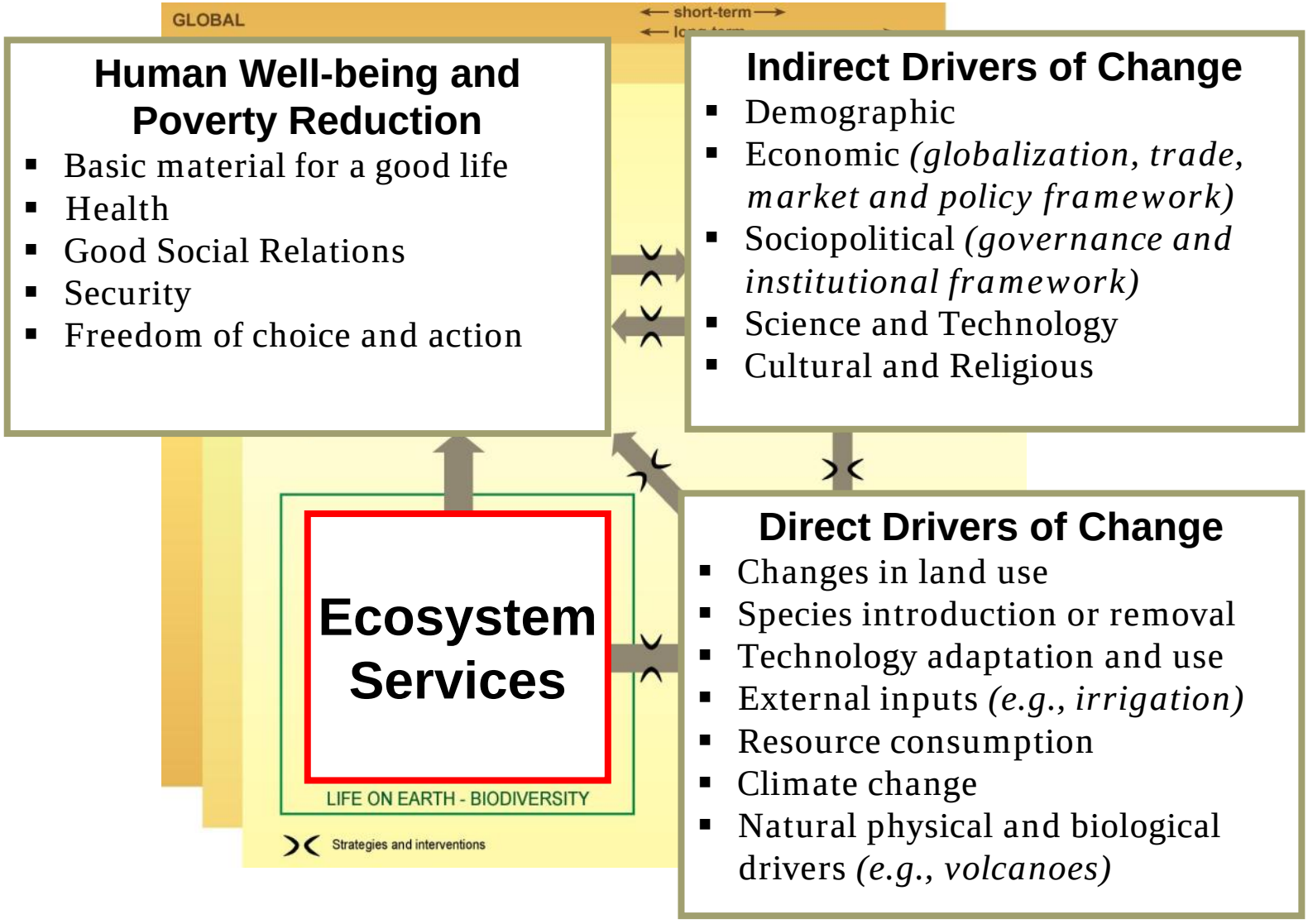
The drivers and underlying causes of ecosystem and ecosystem service change

Exercise:
What are the drivers and causes….

What do you think are the main drivers and underlying causes of ecosystem and ecosystem service change and degradation?

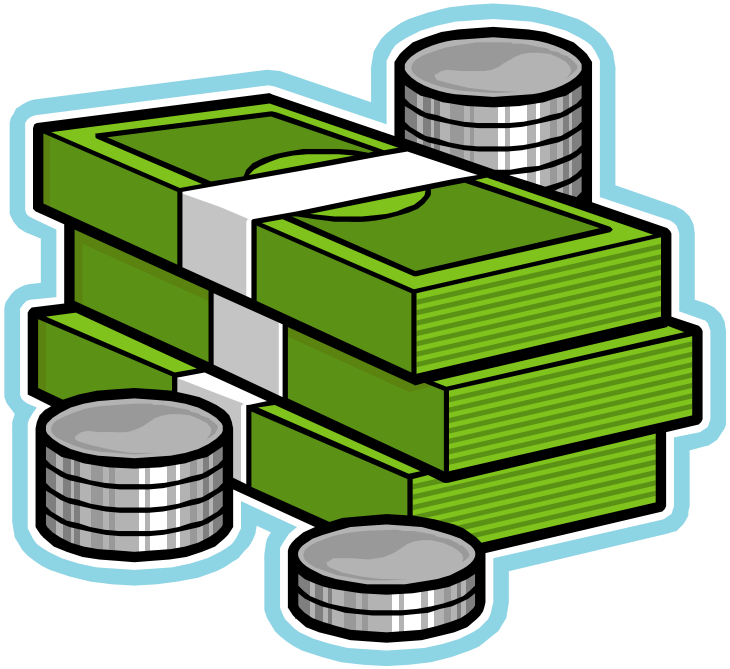
How many can you write down in 1 minute?

Main drivers – as per the MA



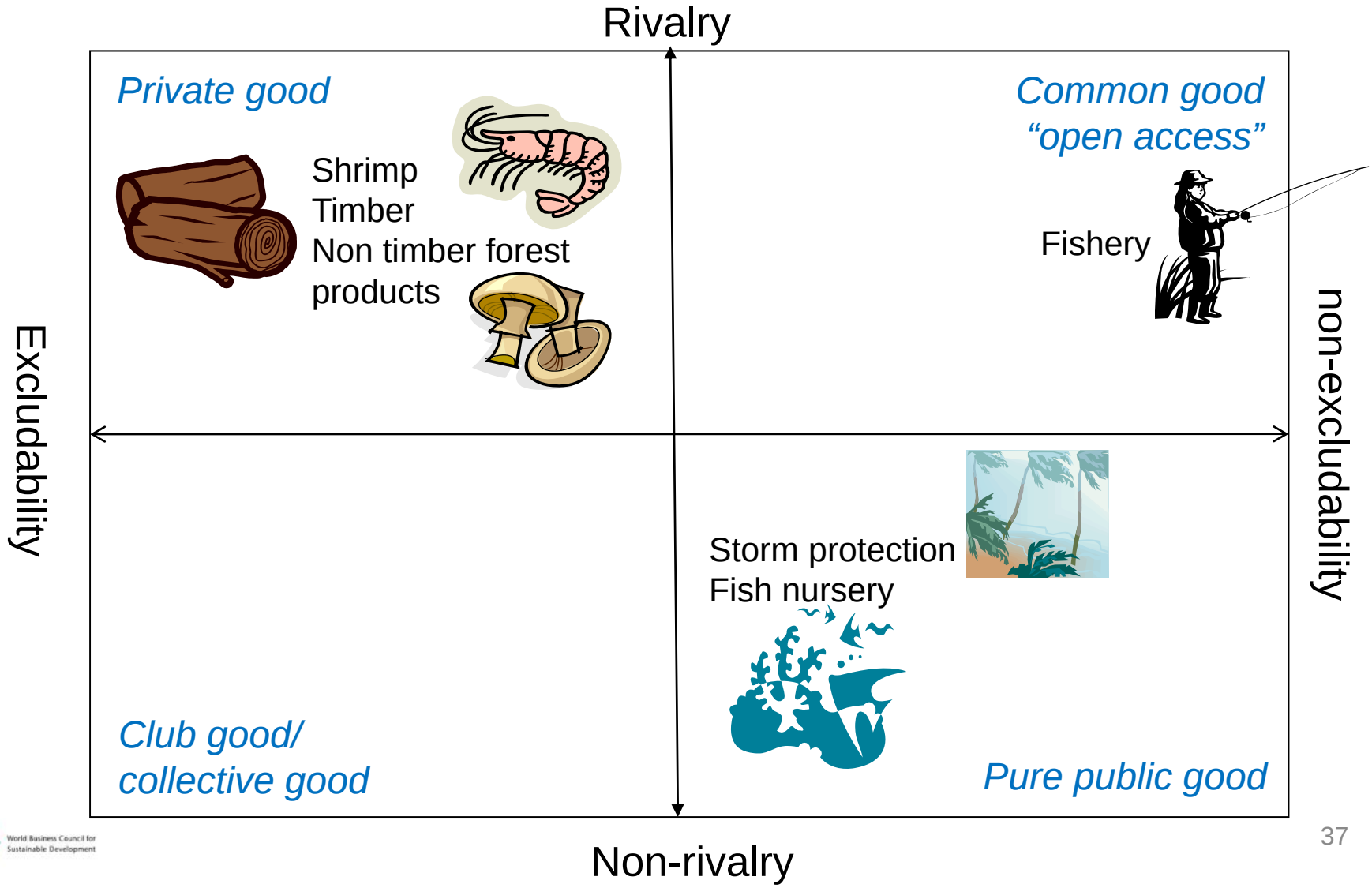
Exercise:
Think about your life…

Of all the ecosystem services, how many do people actually pay the full cost for?



Underlying cause – missing markets undervaluation and lack of incentives

Private vs. public goods dilemma

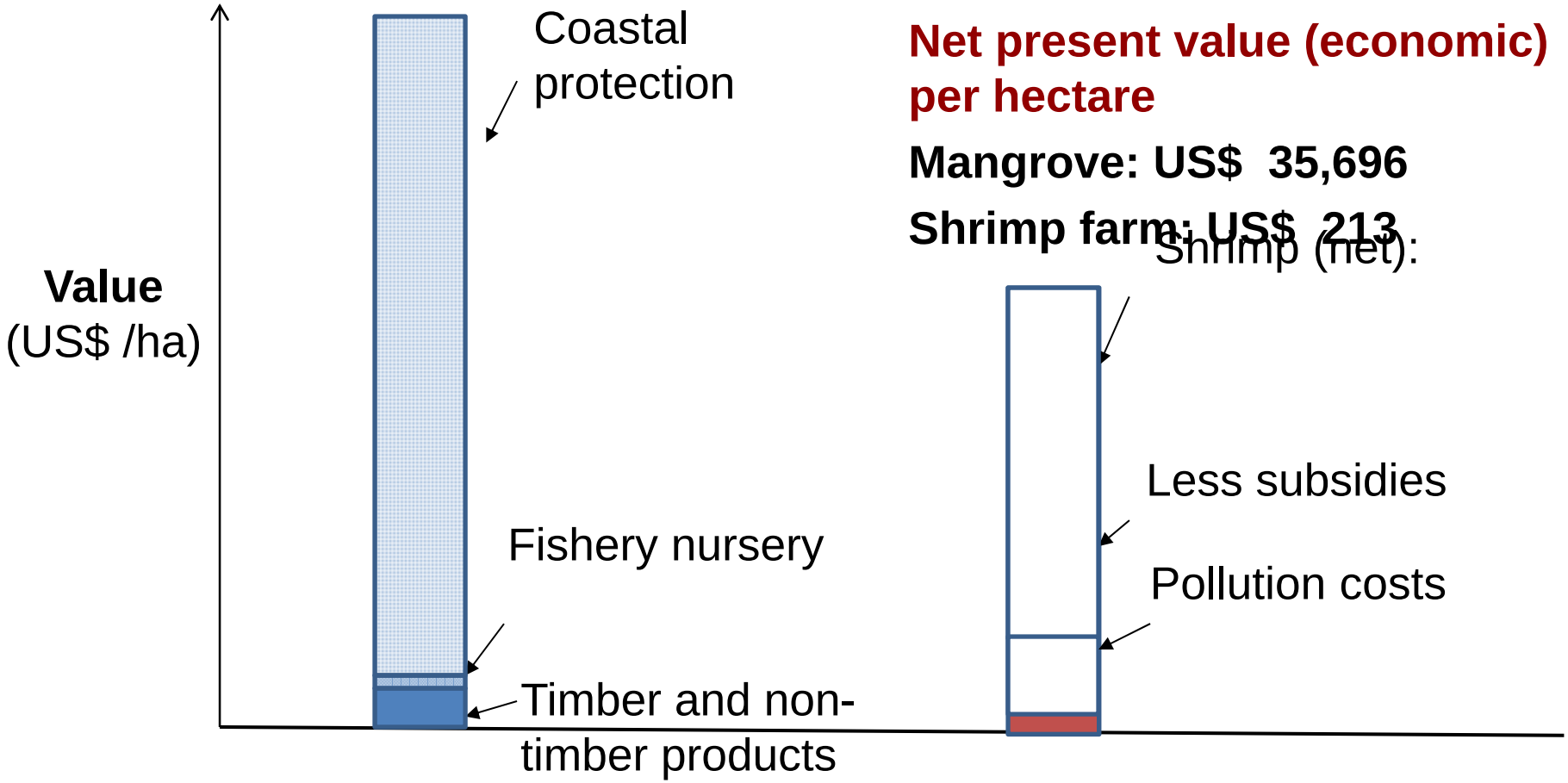


Exercise:
Financial vs. economic value

Source: UNEP – ONE PLANET MANY PEOPLE: Atlas of our Changing Environment.

1. *Which land use generates the highest **financial return**?*
2. *Which land use represents the highest **socio-economic value**?*

Implication of undervaluation – shrimp vs. mangrove



Note: 10% discount rate, Source: Millennium Ecosystem Assessment; Sathirathai and Barbier 2001

Total Economic Value – TEV

USE

Direct values
Outputs that can be consumed directly, such as fish, medicines, wild foods, recreation, etc.

Indirect values
Ecological services, such as catchment protection, flood control, carbon sequestration, climatic control, aesthetics, etc.

Option values
The premium placed on maintaining resources and landscapes for future possible direct and indirect uses, some of which may not be known now.

NON-USE

Existence values
The intrinsic value of resources and land-scapes, irrespective of its use such as cultural, aesthetic, bequest significance, etc.

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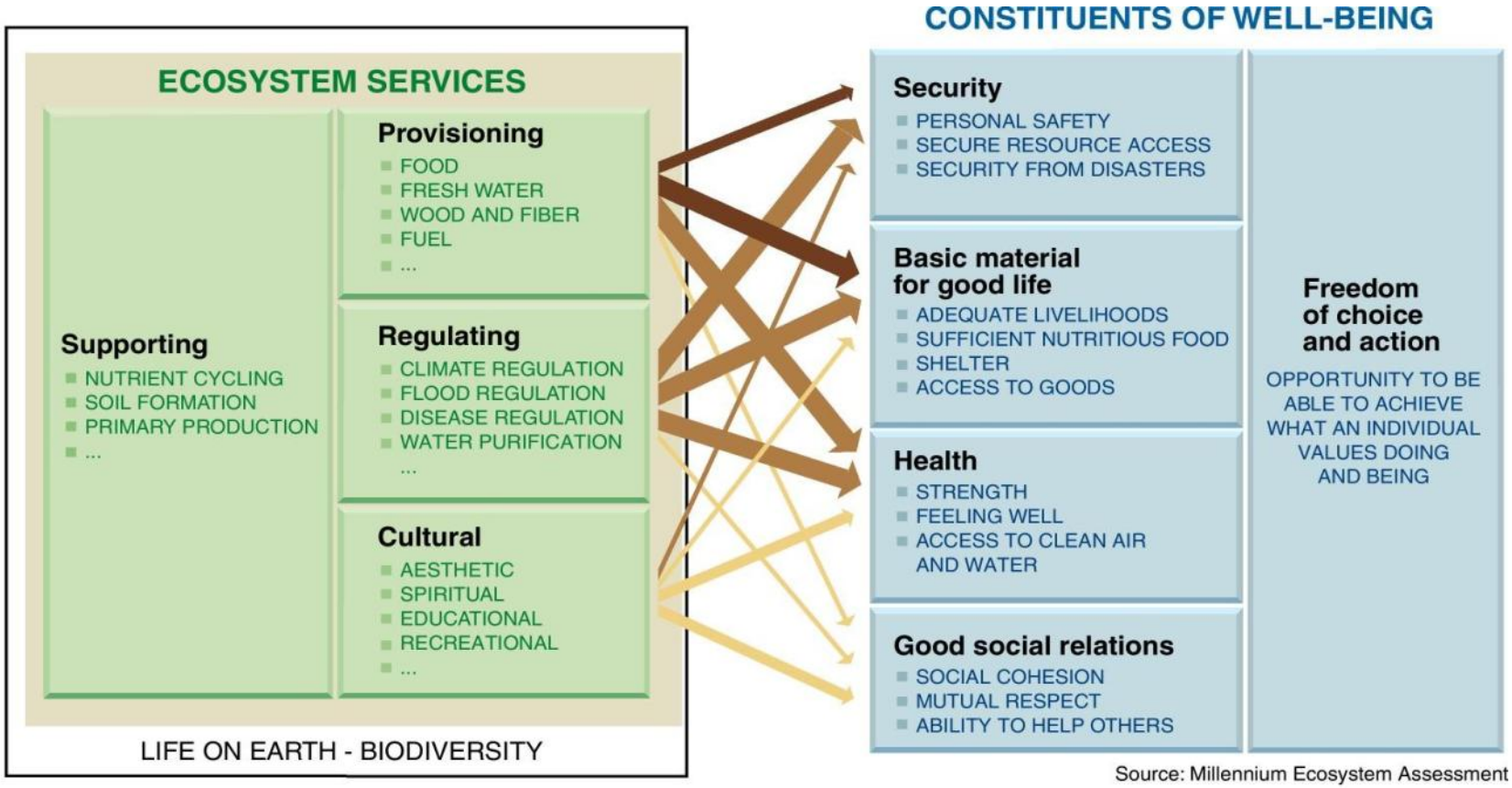
Consequences of ecosystem change

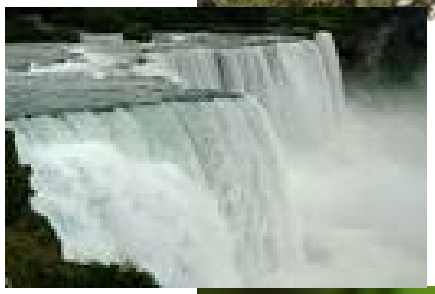
Consequences for human well-being – as per the MA



Source: Millennium Ecosystem Assessment, 2005.

Consequences for business

Businesses impact on ecosystems and ecosystem services



Ecosystem change creates business **risks** and **opportunities**

Businesses rely and depend on ecosystems and ecosystem services

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Business risks and opportunities

Type	Risk 	Opportunity 
Operational	• Increased scarcity / cost of inputs • Reduced quality of inputs • Disruption to business operations	• Increased resource use efficiency
Regulatory and legal	• Stricter environmental policies & legislation • Fines • Permit or license suspension	• License to expand operations • Ability to shape government policy
Reputational	• Damage to brand or image • Challenge to “license to operate”	• Improved or differentiated brand
Market and product	• Changes in customer preferences	• New products or services • Markets for certified products • Markets for ecosystem services
Financing	• Higher cost of capital • More rigorous lending requirements	• Green banking

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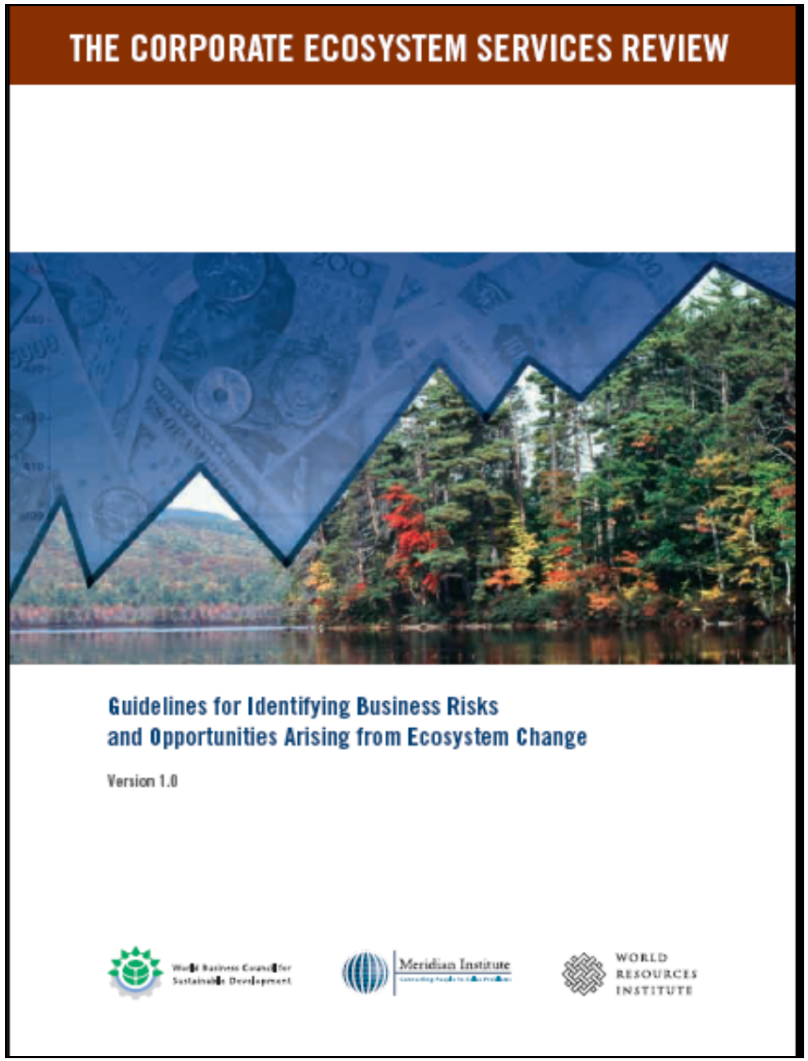
What can business do?

What business can do

1. Address risks and explore opportunities – Apply the Corporate *Ecosystems Services Review (ESR)*
2. Undertake ecosystem *valuation*
3. Measure, manage and mitigate
4. Engage in developing:
   - ✓ Markets for ecosystem services
   - ✓ Eco-efficiency

Apply the Corporate Ecosystem Services Review (ESR)

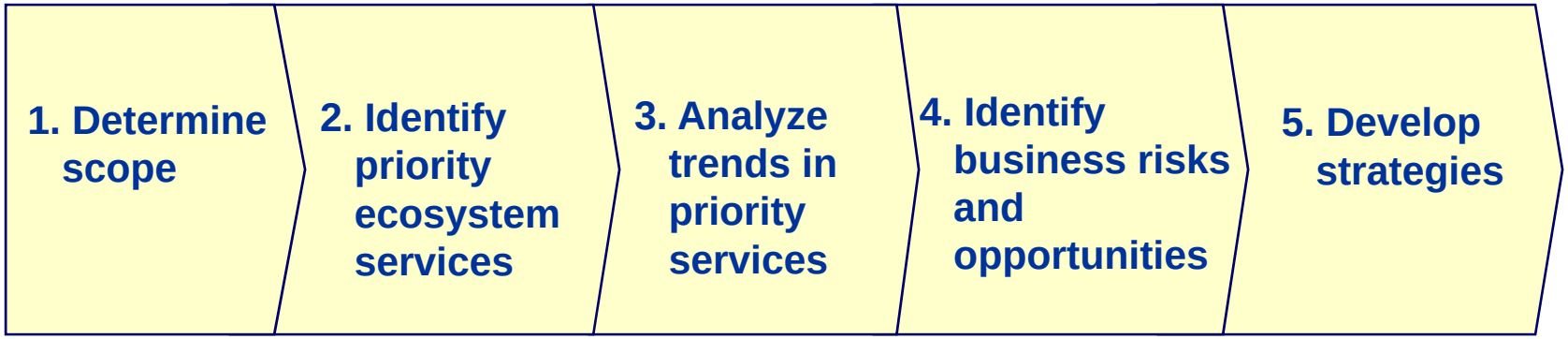


ESR overall

- Assess which ecosystem services the company impacts and depends on
  - ✓ Covering direct operations and those of suppliers and customers
- Evaluate the trends and drivers affecting the assessed ecosystem services
- Identify risks and opportunities arising from trends in ecosystem services
- Develop strategies for addressing risks and opportunities
  - ✓ Reduce impacts and scale up solutions
  - ✓ Identify, evaluate and respond to new business opportunities
  - ✓ Set targets for improvement, and report on the results
  - ✓ Build alliances with research organizations, NGOs, industry associations and governments

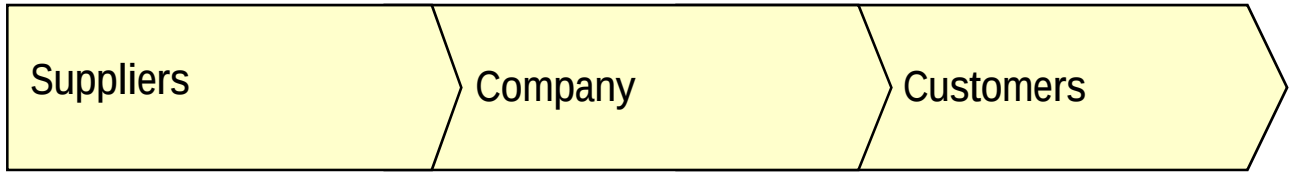
Corporate Ecosystem Service Review Tool (ESR)

Steps in a corporate ecosystem services review



Step 1: Considerations when selecting scope

1. Which stage of the supply chain?



2. Who and where specifically?

- Which supplier(s)?
- In which geographic market(s)?
- What aspect of the business?
  - Business unit
  - Product line
  - Facility
  - Project
  - Landholdings
- Which customer(s)?
- In which geographic market(s)?

3. Is it strategic, timely and supported?

Step 2: Identifying priority eco services

	Key input suppliers		Company operations*		Major customers	
Ecosystem services	Dependent upon	Impact	Dependent upon	Impact	Dependent upon	Impact
Provisioning						
Crops				○ -		
Livestock				○ -		
Capture fisheries						
Aquaculture						
Wild foods				○ +		
Timber				● +		
Cotton, hemp, silk, etc						
Biomass fuel				○ +		
Fresh water			●	● -		
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						
Spiritual, religious, or cultural heritage values				○ +/-		
Recreation, ecotourism, or aesthetic values				● +/-		

O Some impact or dependence
● Significant impact or dependence
+ Positive impact
– Negative impact

* The business unit, facility, geographic operations, or product line being reviewed in the ESR

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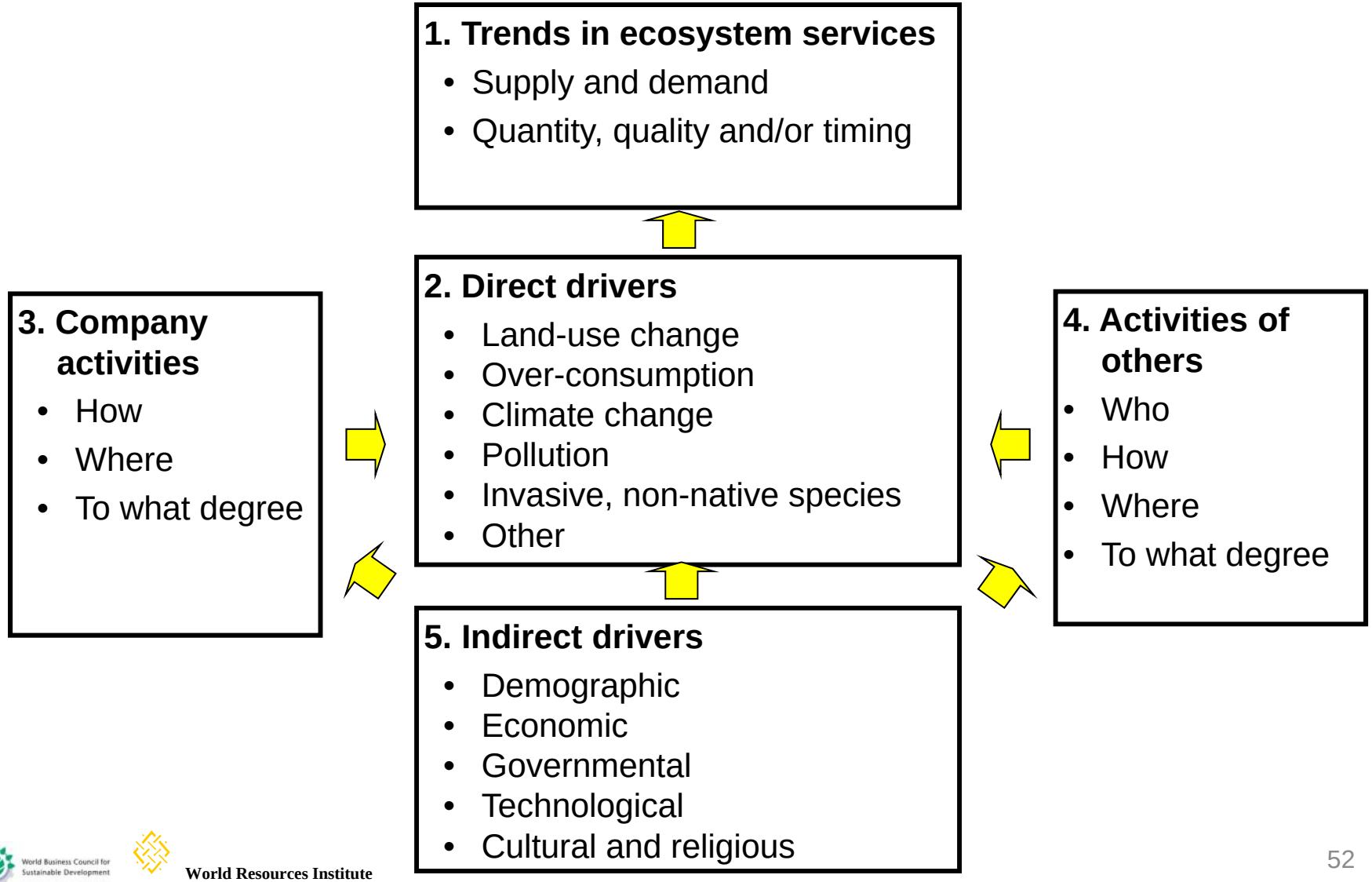
Step 3: Evaluate trends



Step 4: Risks and opportunities

Type	Risk	Opportunity
Operational	• Increased scarcity or cost of inputs • Reduced quality of inputs • Reduced output or productivity • Disruption to business operations	• Increased resource use efficiency • Integrated ecosystem/manufacturing processes
Regulatory and legal	• Extraction moratoria • Lower quotas • Fines • User fees • Permit or license suspension • Permit denial • Lawsuits	• License to expand operations • Ability to shape government policy
Reputational	• Damage to brand or image • Challenge to “license to operate”	• Improved or differentiated brand
Market and product	• Changes in customer preferences	• New products or services • Markets for certified products • Markets for ecosystem services
Financing	• Higher cost of capital • More rigorous lending requirements	• New revenue streams from company-owned or managed ecosystems

Step 5:
Develop strategies

1. Internal strategy or operational changes

2. Industry peer or other sector engagement

3. Policy-maker engagement

Use to build on existing efforts…

- Strategic planning
- Organizational support for a strategy
- Infusing ecosystem services thinking
  - Strategic planning
  - Existing environmental impact assessments, environmental management systems, etc.
  - Better address stakeholder concerns

What the ESR is not

- It does not identify or address every environmental issue
- It is not strictly quantitative
- It is not dependent upon economic valuation of ecosystem services
- It does not require a long, multi-year analysis

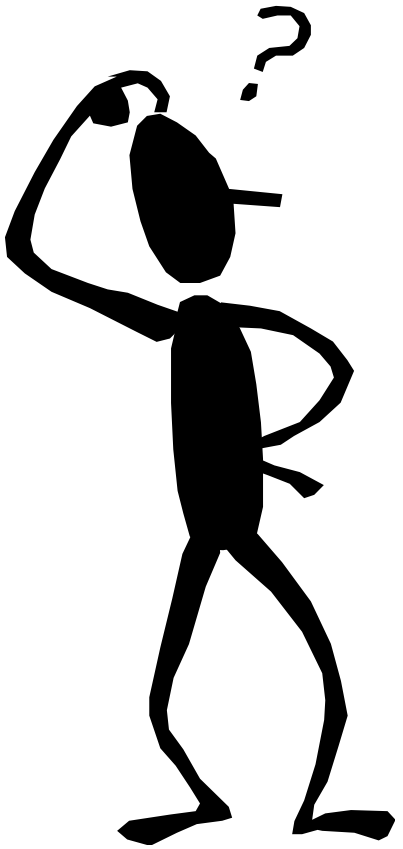
Undertake ecosystem valuation

The problem

Despite the economic importance of ecosystem services to production, consumption, trade and investment, these values remain largely unreflected in the policies, prices and markets that shape economic behaviour.

Decisions are made on the basis of only partial information.

Not only does this incur unnecessary costs and losses as ecosystems are degraded, it also means that many of the opportunities to capture and gain from ecosystem values are missed.



A snapshot of ecosystem values

Biome	Area (mill ha)	Global value (US$ trill/yr)
Open ocean	33,200	8,381
Coastal	3,102	12,568
Tropical forest	1,900	3,813
Temperate forest	2,955	894
Grass/rangelands	3,898	906
Tidal marsh/mangroves	165	1,648
Swamps/floodplains	165	3,231
Lakes/rivers	200	1,700
Cropland	1,400	128
Total	**51,625**	**33,268**

articles

The value of the world's ecosystem services and natural capital

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The services of ecological systems and the natural capital stocks that produce them are critical to the functioning of the Earth's life-support system. They contribute to human welfare, both directly and indirectly, and therefore represent part of the total economic value of the planet. We have estimated the current economic value of 17 ecosystem services for 16 biomes, based on published studies and a few original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US$16–54 trillion ($10^{12}$) per year, with an average of US$33 trillion per year. Because of the nature of the uncertainties, this must be considered a minimum estimate. Global gross national product total is around US$18 trillion per year.

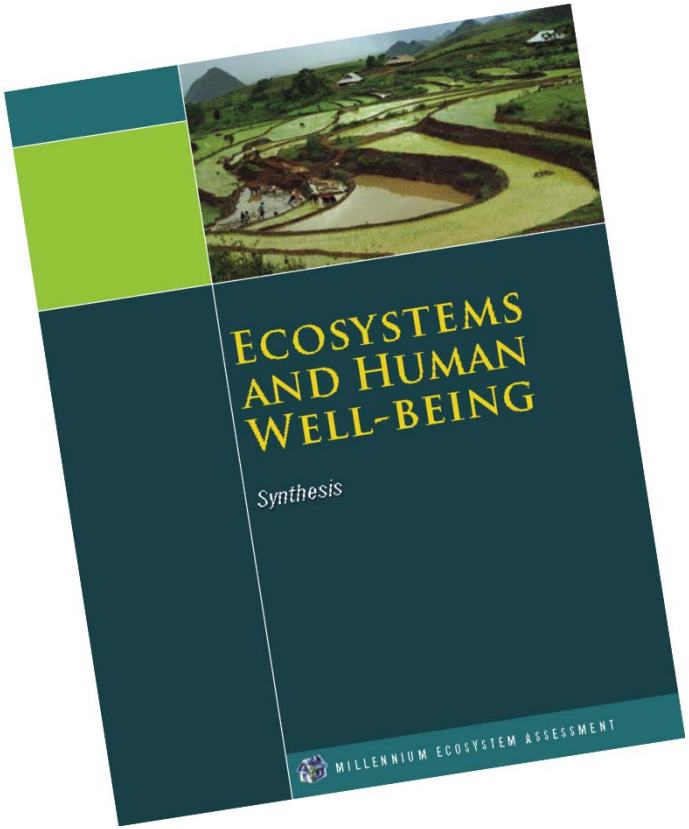
Because ecosystem services are not fully "captured" in commercial markets or adequately quantified in terms comparable with conventional services and manufactured capital, they are often given too little weight in policy decisions. This neglect may ultimately compromise the sustainability of humans in the biosphere. The economics of the Earth would grind to a halt without the services of ecological life-support systems, so in one sense their total value to the economy is infinite. However, it can be instructive to estimate the "incremental" or "marginal" value of ecosystem services (the estimated rate of change of value compared with changes in ecosystem services from their current levels). There have been many studies in the past few decades aimed at estimating the value of a wide variety of ecosystem services. We have gathered together the large (but scattered) amount of information and present it here in a form useful for ecologists, economists, policy makers and the general public. From this synthesis, we have estimated values for ecosystem service per unit area by biome, and then multiplied by the total area of each biome and summed over all services and biomes.

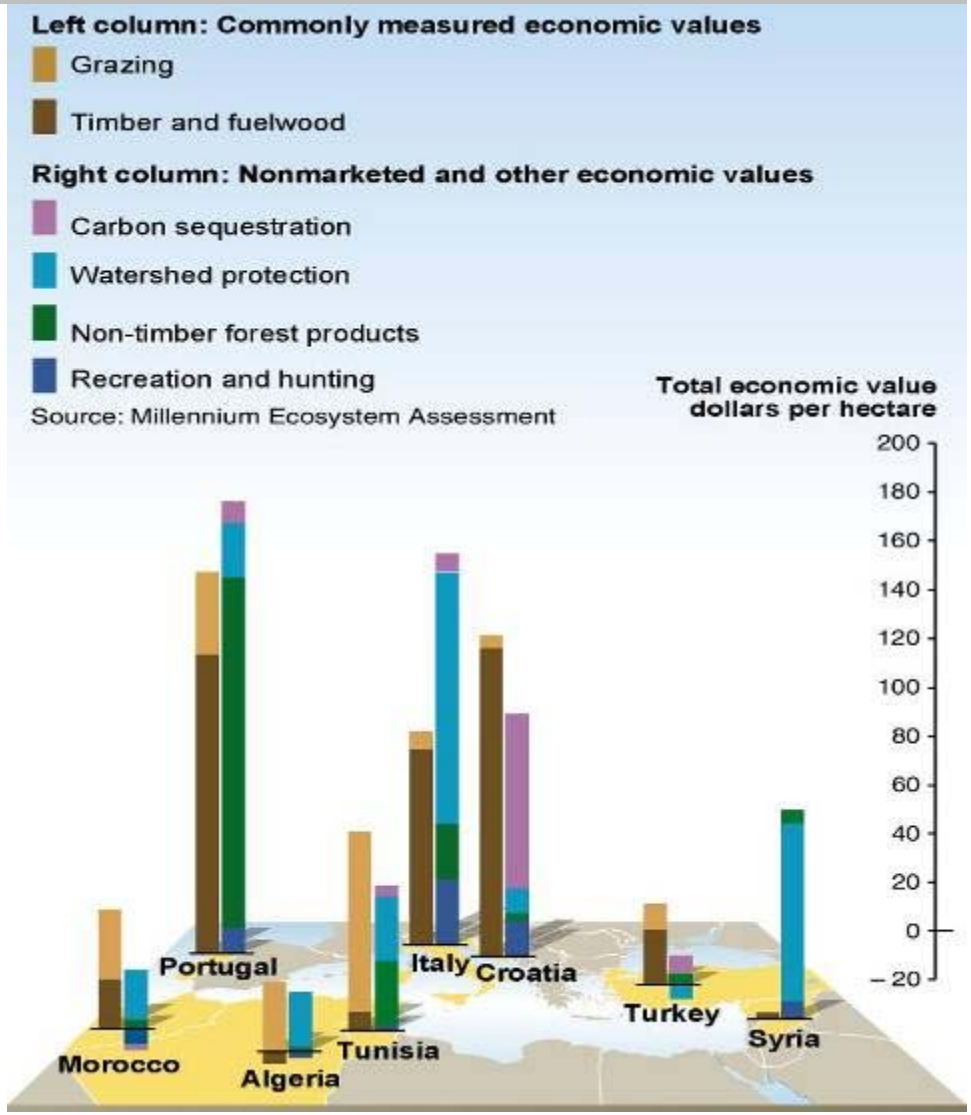
Although we acknowledge that there are many conceptual and empirical problems inherent in producing such an estimate, we think this exercise is essential in order to (1) make the range of potential values of the services of ecosystems more apparent, (2) establish at least a first approximation of the relative magnitude of global ecosystem services, (3) set up a framework for their further analysis, (4) point out those areas most in need of additional research and (5) stimulate additional research and debate. Most of the problems and uncertainties we encountered indicate that our estimate represents a minimum value, which would probably increase: (1) with additional effort in studying and valuing a broader range of ecosystem services, (2) with the incorporation of more realistic representations of ecosystem dynamics and interdependences and (3) as ecosystem services become more stressed and "scarce" in the future.

Ecosystem functions and ecosystem services

Ecosystem functions refer variously to the habitat, biological or system properties or processes of ecosystems. Ecosystem goods (such as food) and services (such as waste assimilation) represent the benefits human populations derive, directly or indirectly, from ecosystem functions. For simplicity, we will refer to ecosystem goods and services together as ecosystem services. A large number of functions can be identified—References 5 provides a recent, detailed compendium on describing, measuring and valuing ecosystem services. For the purposes of this analysis we grouped ecosystem services into 17 major categories. These groups are listed in Table 1. We included only renewable ecosystem services, excluding non-renewable fuels and mineral and the atmosphere. Note that ecosystem services and functions do not necessarily have one-to-one correspondence. In some cases a single ecosystem service is the product of two or more ecosystem functions whereas in other cases a single ecosystem function contributes to two or more ecosystem services. It is also important to emphasize the interdependent nature of many ecosystem functions. For example, some of the net primary production in an ecosystem ends up as food, the consumption of which generates respiratory products necessary for primary production. Even though these functions and services are interdependent, in many cases they can be added because they represent 'joint products' of the ecosystem, which support human

A snapshot of ecosystem values





We should see ecosystems as an economic part of infrastructure

- Business should think of ecosystems as:
  - ✓ Valuable assets and natural capital
  - ✓ Ultimately as elements of the basic infrastructure that supports production, consumption, trade and investment
- But conventional definitions of infrastructure often omit natural ecosystems
- Yet there are large pay-offs to valuing and investing in ecosystems as economic infrastructure

Investing in ecosystems can make economic sense

US$ 200 billion

US$ 14 billion

Scientists estimate that up to 65% of the destruction from hurricane Katrina could have been avoided if actions had been taken to conserve the shoreline protection provided naturally by wetlands

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Ecosystem valuation is ONLY a means to an end

- Placing monetary values on ecosystem services is not an end in itself
- The aim is to provide information to make better and more informed decisions:
  - Better meeting targets and goals
  - Avoiding costs and losses
  - Maintaining/Increasing revenues
  - Finding cost-effective means of complying with obligations and managing environmental footprints

Business case for valuation

- Quantifying ecosystem services as inputs, ecosystems as assets
- Identifying new investments, markets and products for value capture and profit
- Identifying areas for cost saving, loss avoidance and revenue/ productivity maintenance
- Assessing environmental liability and facilitating regulatory compliance
- Articulating environmental performance and impacts
- Reflecting shareholders' environmental performance values

Measure , manage and mitigate

Global Water tool

The Greenhouse Gas Protocol Initiative

The foundation for sound and sustainable climate strategies

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Measure, manage and mitigate

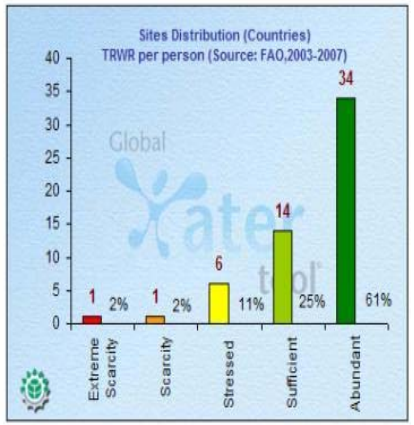
- Measuring, managing and mitigating one's ecosystem impacts and dependencies requires incorporating environmental externalities into core management decisions
- WBCSD tools that help do that include:
  - ✓ The Global Water Tool
  - ✓ The GHG Protocol
  - ✓ Sustainable Procurement of Wood and Paper-based Products Guide
  - ✓ Measuring Impact Framework

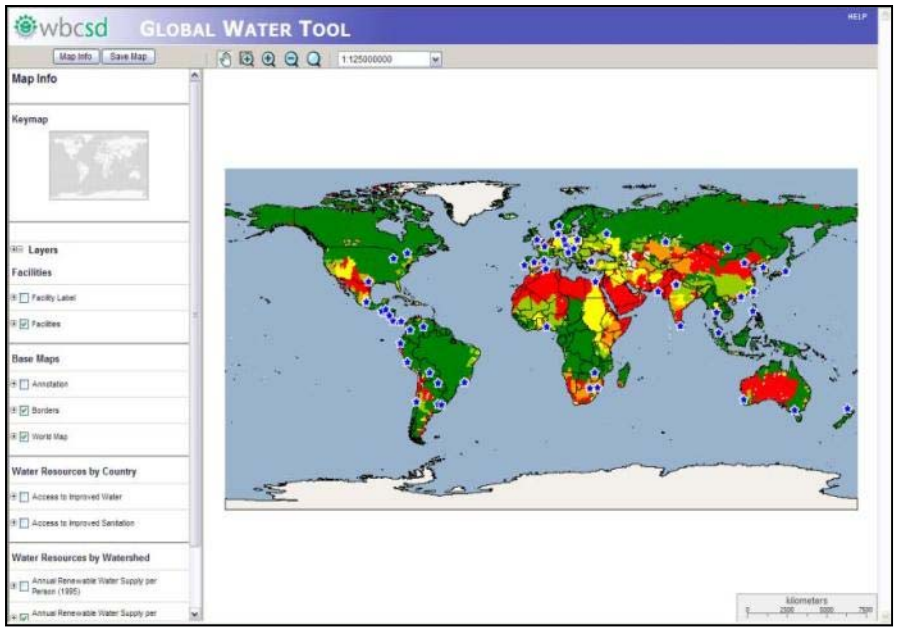
The Global Water Tool

- Maps a company's water use and assesses water risks relative to global operations and supply chain by comparing sites with validated water and sanitation data on a country and watershed basis
- Company data is kept secure by user – not saved on the WBCSD website

a) Total Renewable Water Resources (TRWR) per person (m^3/person/year) (Source: FAO, 2003-2007)

	Extreme Scarcity <500	Scarcity 500-1000	Stressed 1001-1700	Sufficient 1701-4000	Abundant >4000
No. of Sites	1	1	6	14	34
	2%	2%	11%	25%	61%
No. of Workers					
No. of Suppliers					



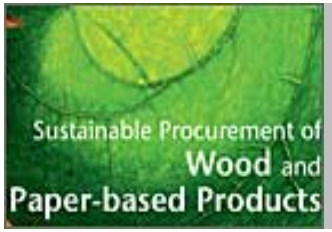


Benefits of the Global Water Tool

- Compares a company's water uses (including staff presence, industrial use, and supply chain) with key external water-related data
- Creates key water GRI Indicators, inventories, risk and performance metrics and geographic mapping
- Establishes relative water risks in a company's portfolio to prioritize action
- Enables effective communication with internal and external stakeholders on a company's water issues
- Allows calculation of water consumption & efficiency

The Greenhouse Gas Protocol

- A protocol for quantifying and reporting the greenhouse gas (GHG) emission benefits of climate change mitigation projects
- Maintaining a well-designed corporate GHG inventory presents business benefits by:
  - ✓ Managing GHG risks and identifying reduction opportunities
  - ✓ Public reporting and participation in voluntary GHG programs
  - ✓ Participating in mandatory reporting programs
  - ✓ Participating in GHG markets
  - ✓ Recognition for early voluntary action.



Sustainable Procurement of Wood and Paper-based Products Guide

- **Information guides**
  - ✓ Designed to help customers develop their own procurement policies for wood and paper-based products
- **Decision support tools**
  - ✓ Provides credible & simple information on existing approaches to the “responsible” procurement of wood and paper-based products from “legal & sustainable” sources

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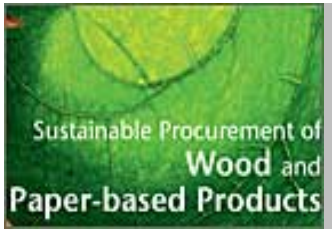
WRI



Ten key issues related to sustainable procurement

Sourcing and legality aspects

Origin
Where do the products come from?

Information accuracy
Is the information about the products credible?

Legality
Have the products been legally produced?

Environmental aspects

Sustainability
Have forests been sustainably managed?

Special places
Have special places, including sensitive ecosystems, been protected?

Climate change
Have climate change issues been addressed?

Environmental protection
Have appropriate environmental controls been applied?

Recycled fiber
Has recycled fiber been used appropriately?

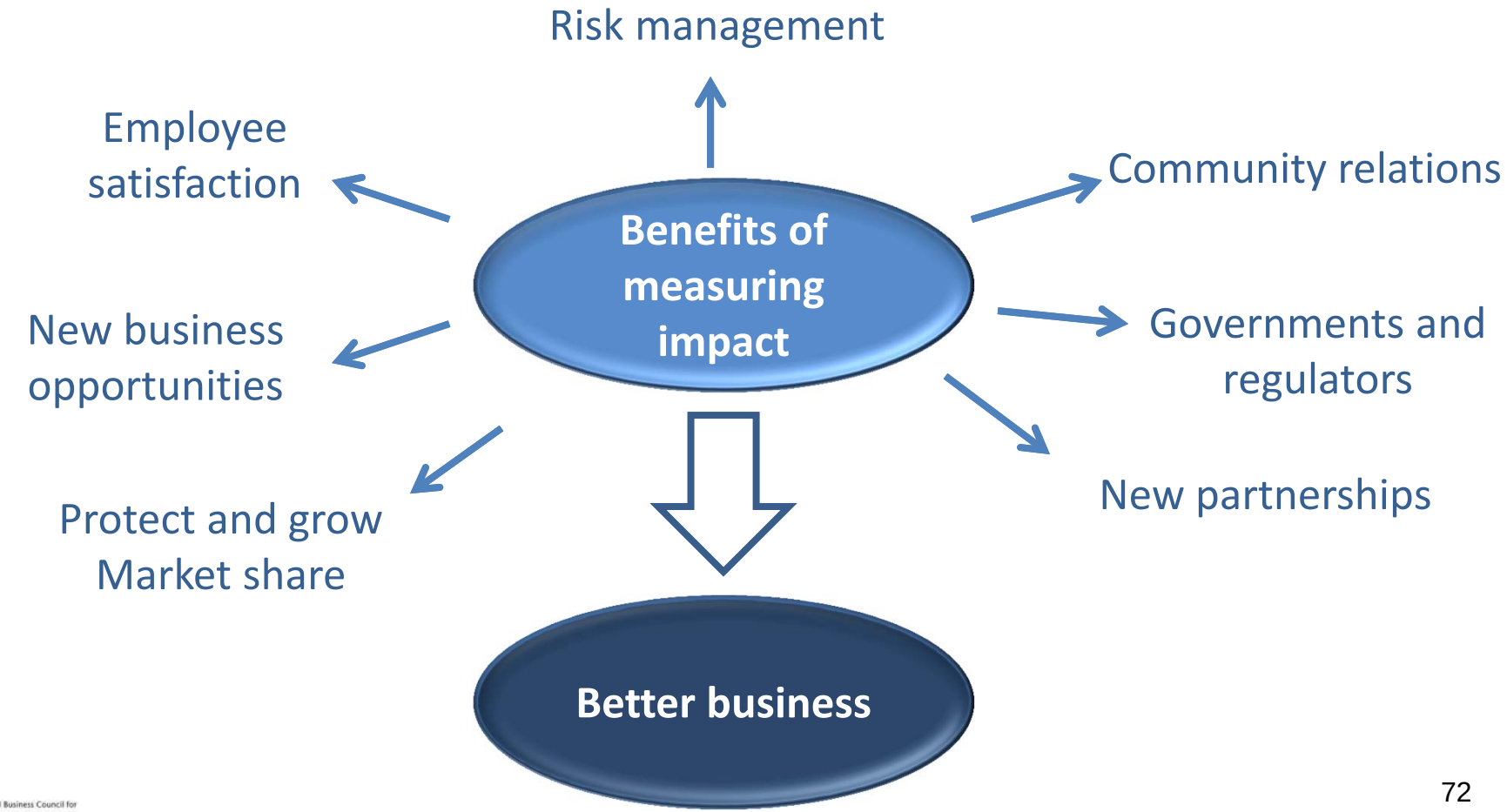
Other resources
Have other resources been used appropriately?

Social aspects

Local communities and indigenous peoples
Have the needs of local communities or indigenous peoples been addressed?

Measuring Impact Framework – Business case: why measure?

"Beyond the bottom line"- why measuring impacts on society makes business sense



Measuring Impact Framework – Four-step Methodology

Step 2 – Measure direct and indirect impacts

Step 1 - Set boundaries

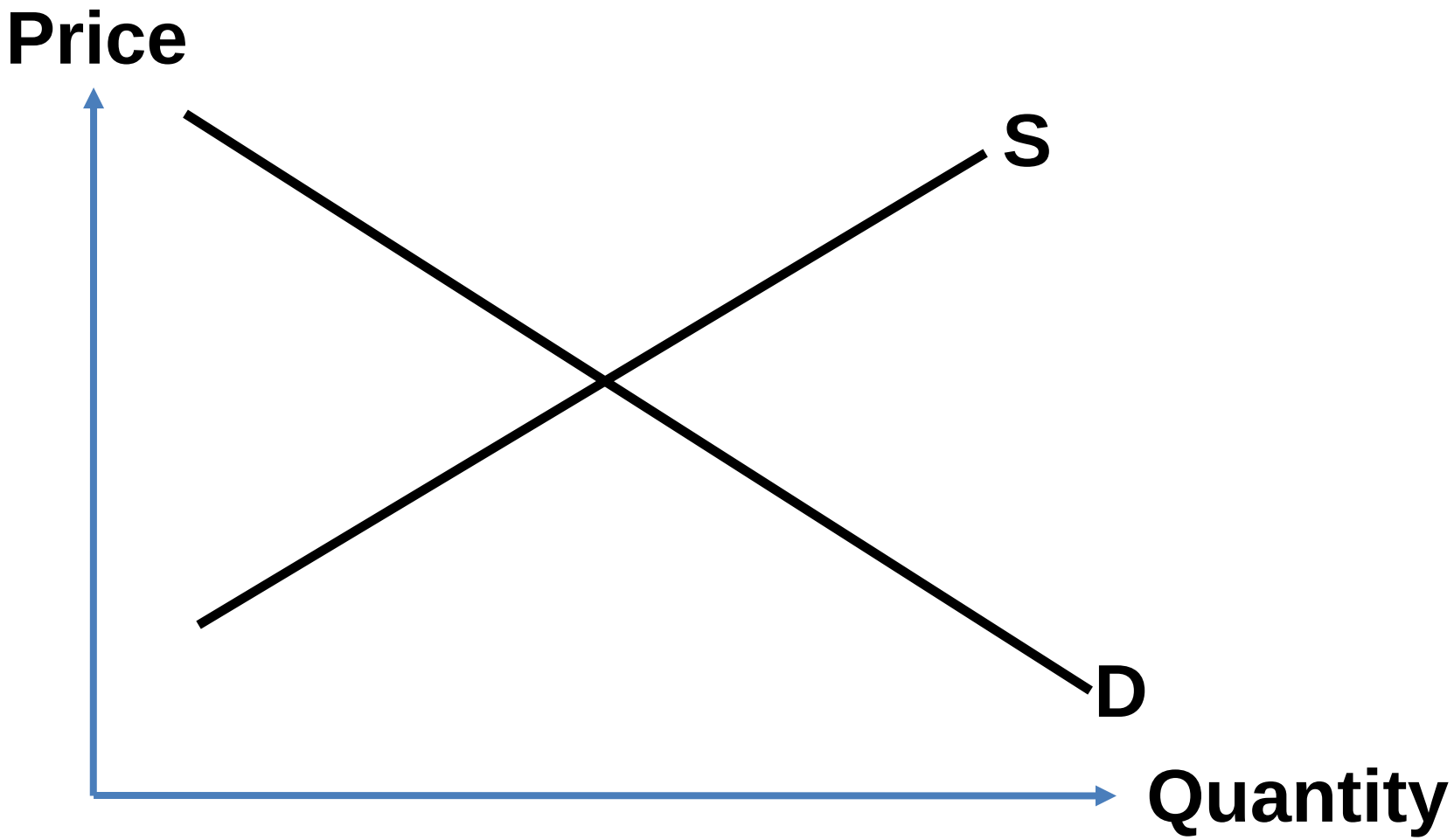
Step 3 – Assess contribution to development

Step 4 – Prioritize management response

Measuring Impact Framework

Decision by individual companies

Engage in developing: Markets for ecosystem services



Types of markets that can be established for ecosystem services

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1. Direct payments

- Payments for the delivery of specific ecosystem services or, more commonly, payments for maintaining or adopting land uses that are thought to provide such ecosystem services

- Governments in several
  have de
  and tax incentives to
  resource con

Payment for watershed protection: conserving natural forests in watersheds and reducing pollutant loads in run-off from upland areas can be a cost-effective means of providing reliable supplies of clean water for hydroelectric power generation, irrigation, industrial, domestic and recreational uses

2. Tradable permits

- Create new rights or liabilities for the use of natural resources, and then allow business to trade (i.e., buy and sell) these rights or liabilities

- Growing trade in carbon credits, based on government-allocated emission allowances and/or the purchase of voluntary carbon offsets by both organizations and individuals. Global carbon trade worth over billion in 2006

Wetland banking in the US, trade in forest conservation obligations in Brazil, and markets for ground-water salinity credits in Australia.

3. Certification

- Eco-labeling and certification schemes to distinguish products and services by their social and environmental performance (consumers will prefer to buy or even pay more for certified goods and services).

  - ✓ ***Agriculture:*** Good Agricultural Practices (GAP) to ensure that agriculture is undertaken in a responsible way that respects food safety, the environment, workers' rights and the welfare of animals.

  - ✓ ***Forestry:*** about 7% (approx. 270 million hectares) of the world's forests are independently certified.

  - ✓ ***Fisheries, tourism, financial services***…

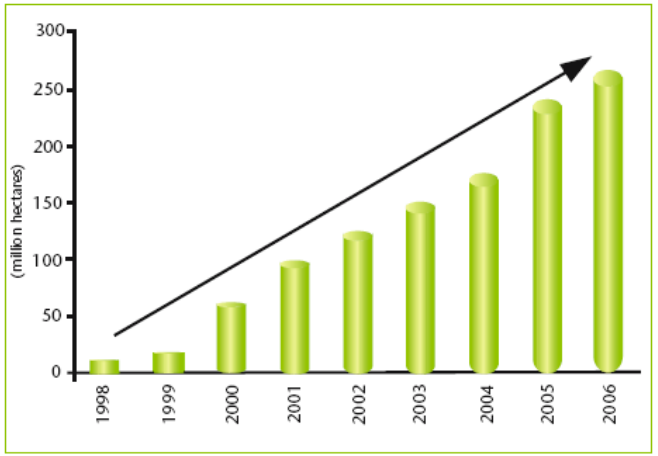

Figure 5: Certified forestry area worldwide, 1998-2006[22]

5 steps to becoming a good trader

1. Know that you are selling ecosystem services at full cost
2. Know that you are buying ecosystems services at full cost
3. Ensure clear ownership of the ecosystems services that are to be traded
4. Ensure clear and transparent accountability of the ecological value accruing to the owner as a result of the sale
5. Create competition among buyers and sellers

Engage in developing: Eco-efficiency

- Seven approaches to achieving eco-efficiency:
  1. Reduce material intensity
  2. Minimize energy intensity
  3. Reduce dispersion of toxic substances
  4. Undertake recycling
  5. Capitalize on use of renewables
  6. Extend product durability
  7. Increase service intensity

Key messages

Key messages

Ecosystems are everywhere and are everyone's business:

- The diversity of life – biodiversity – underpins the supply of most ecosystem services.
- The degradation of ecosystems and the services they provide limits sustainable development.
- Sustainable development must be based on healthy economies that deliver on ecological balance and poverty alleviation.
- Conserving biodiversity, reversing ecosystem degradation and using ecosystems services sustainably is a collective responsibility and needs governments, civil society and business to work together.

Key messages

Business and ecosystems are inextricably linked:

- Business interacts with and depends on ecosystems and ecosystems services.
- Degradation of ecosystems and their services limits development options for society and threatens the business license to operate.
- Ecosystem valuation must become an integral part of planning and decision making by business, but also by governments and consumers.
- Transparent policy frameworks and government regulations are needed for business to contribute fully to conserving biodiversity, reversing ecosystem degradation and using ecosystems services sustainably.
- Within ecosystem regulatory frameworks, the use of market mechanisms can contribute to its effective implementation.

Key messages

The business case for biodiversity conservation and sustainable ecosystem management can be made by:

- Assessing business ecosystem impacts and dependence
- Measuring, monitoring and managing ecosystems interactions and assets
- Scaling up and implementing mitigation and adaptation measures and sustainable use solutions
- Pursuing new ecosystem based business opportunities
- Seeking effective partnerships with key stakeholders that share this objective.