Natural Capital Committee

The need for a long-term investment programme in Natural Capital?

Valuing our life support systems
Natural Capital Initiative
British Library

7th November 2014

Outline of the session

1. Overview and Context	Julian Harlow
2. Measuring natural capital and assessing assets at most risk	Prof Georgina Mace
3. Natural Capital Accounting	Prof Giles Atkinson
4. Developing natural capital investment initiatives	Ian Dickie, **eftec**
Discussion Session	All

Overview & Context

Julian Harlow,

Natural Capital Committee Secretariat

Growing appreciation of the economic value of environment

Increasing awareness of:

- The critical role natural capital plays in our economy and in supporting wellbeing; and
- The growing risks to the flow of goods and services we receive from it.

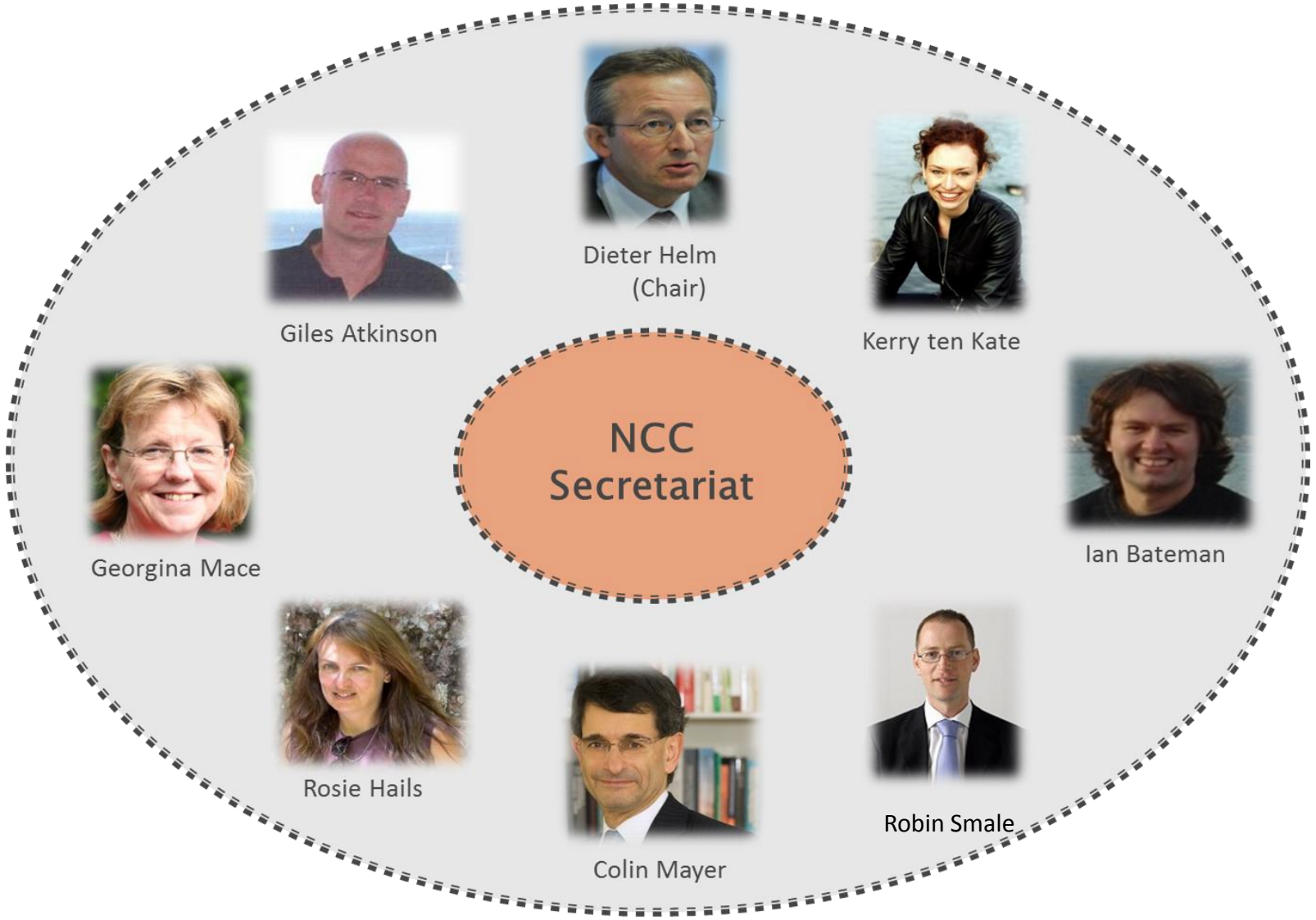
The solution to see natural capital and the economy as inextricably linked, not as separate issues.

Integrating the natural environment into decision making at all levels and properly valuing the role natural capital plays so that it cannot be ignored.

This is the thinking behind recent policy.

The **NCC** was established in 2012 following White Paper

Who is on the Committee?



Terms of Reference

1

Provide advice on when, where and how natural assets are being used unsustainably

For example, in a way that takes us beyond some acceptability limits or non linearity thresholds, or in a way that diminishes some measure of comprehensive wealth;

2

Advise the Government on how it should prioritise action to protect and improve natural capital, so that public and private activity is focused where it will have greatest impact on improving wellbeing in our society.

3

Advise the Government on research priorities to improve future advice and decisions on protecting and enhancing natural capital.

AUDIENCE: Senior ministers and civil servants, reports to Economic Affairs Committee of the Cabinet

NCC work programme

1. Metrics and Risk Register for natural capital and the benefits we derive
Developing approaches to measure changes in status and trends of natural assets.

2. National Natural Capital Accounting
Working with the Office for National Statistics and Defra to develop natural capital accounts.

3. Corporate Natural Capital Accounting
Working with organisations and businesses to develop a framework for corporate natural capital accounts.

4. Long-term investment framework
Developing a proposal for a 25 year investment framework for natural assets.

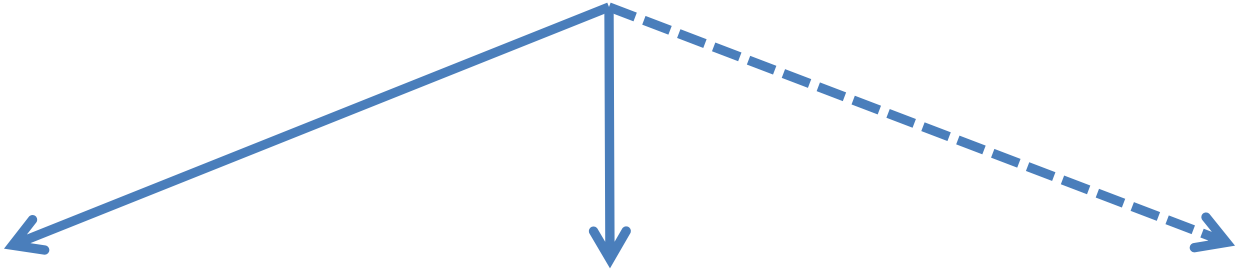
5. Appraisal Guidance
Working with Treasury and Defra to incorporate natural capital issues into the Green Book.

6. Advising on Research Priorities
Working with Research Councils.

7. Advice to Government
Providing *ad-hoc* advice on a number of topical issues.

NCC advice to Government

State of Natural Capital Report (annual)



SoNC 1:

Set framework – measure and value natural capital in order to better manage

SoNC 2:

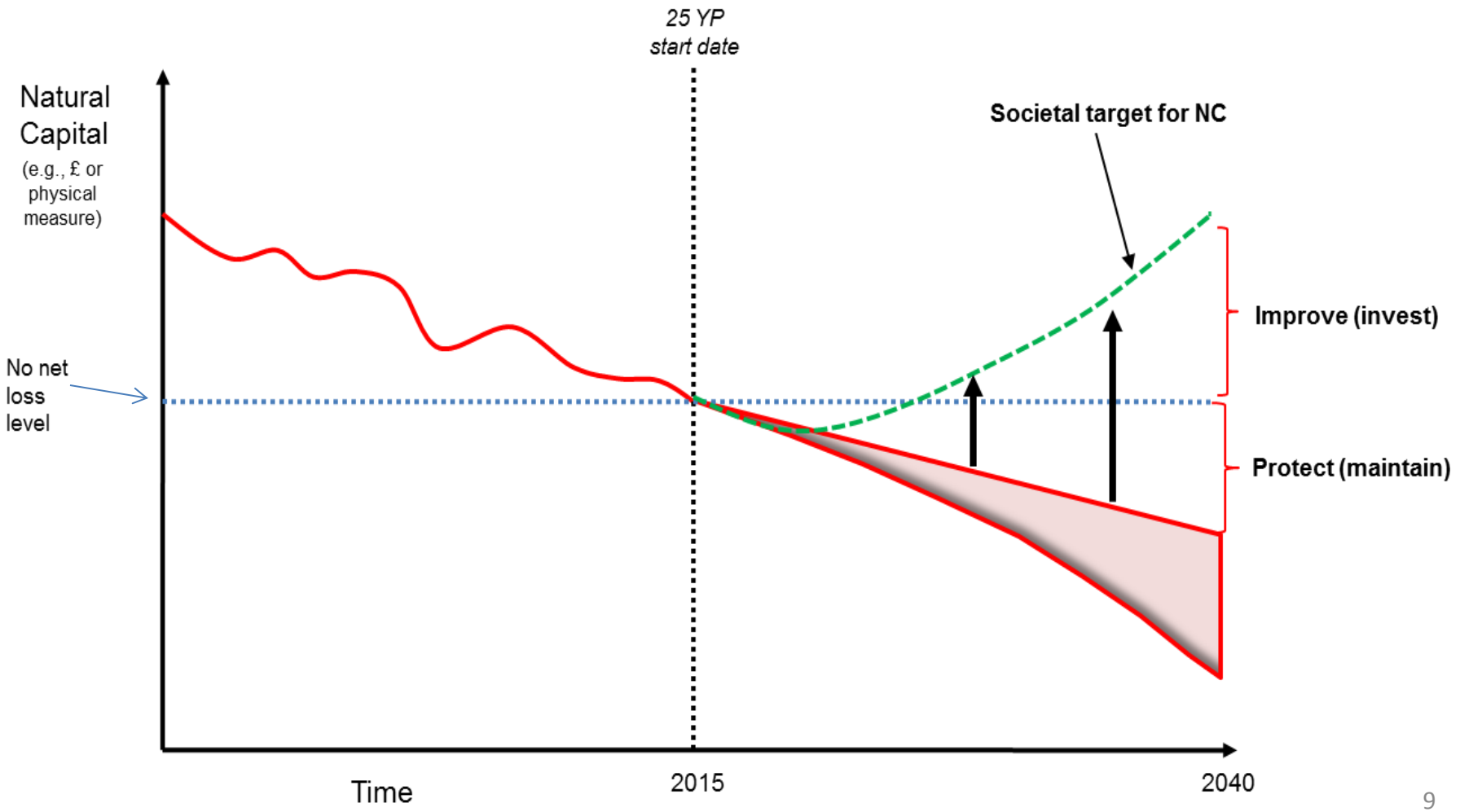
Assets & benefits which could be considered at greatest risk of unsustainable use. Proposed a generational framework to restore natural capital

SoNC 3:

Bring it all together to provide more concrete advice on a generational framework for investment – namely how to prioritise public and private activity to protect and improve natural capital.

Framing natural capital investment…

Convincing economic case to improve some assets, but which ones and by how much?



Measuring natural capital and assessing which assets are at most risk

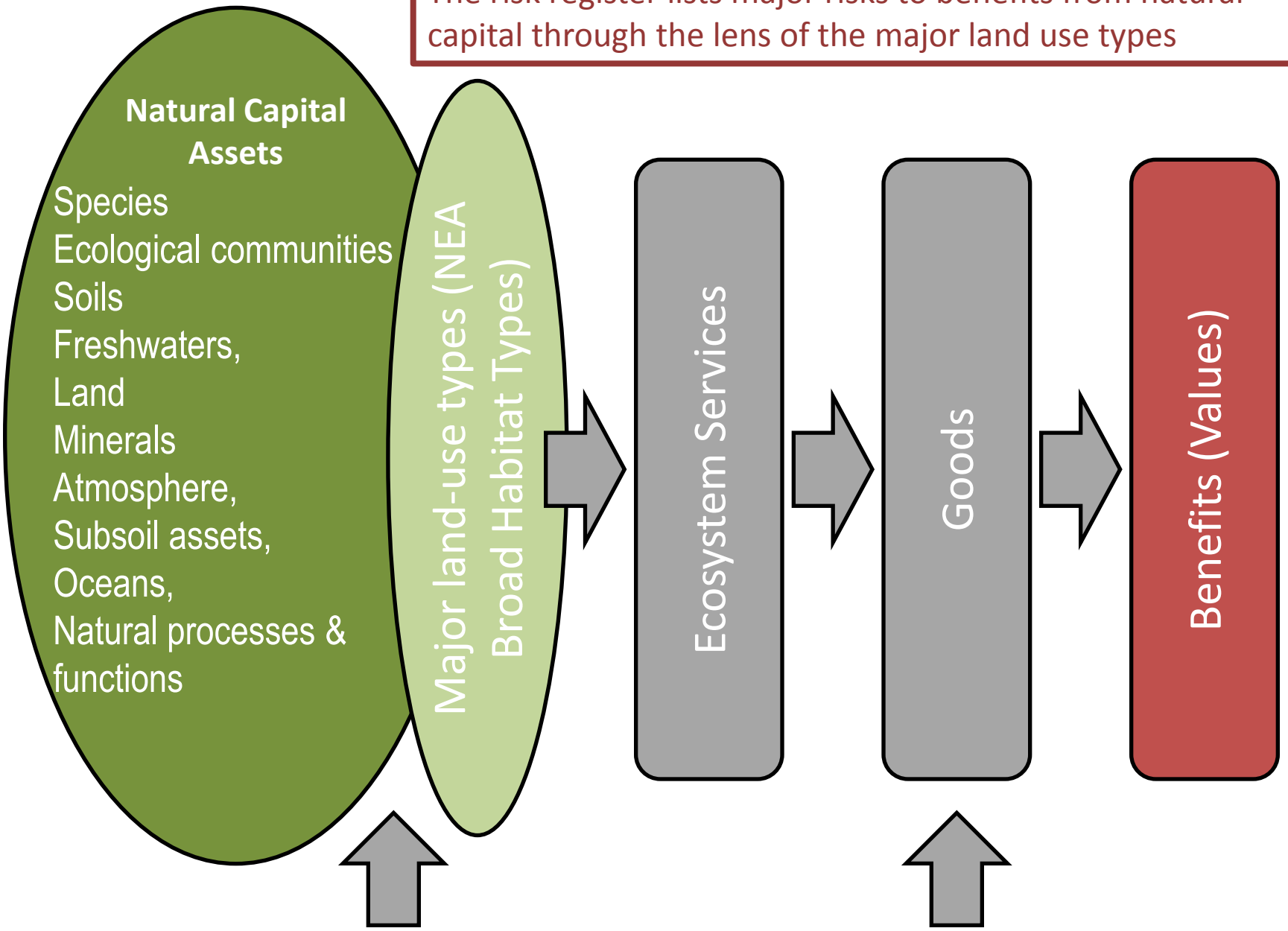
Professor **Georgina Mace**, University College London and
Member of the Natural Capital Committee

What is a risk register?

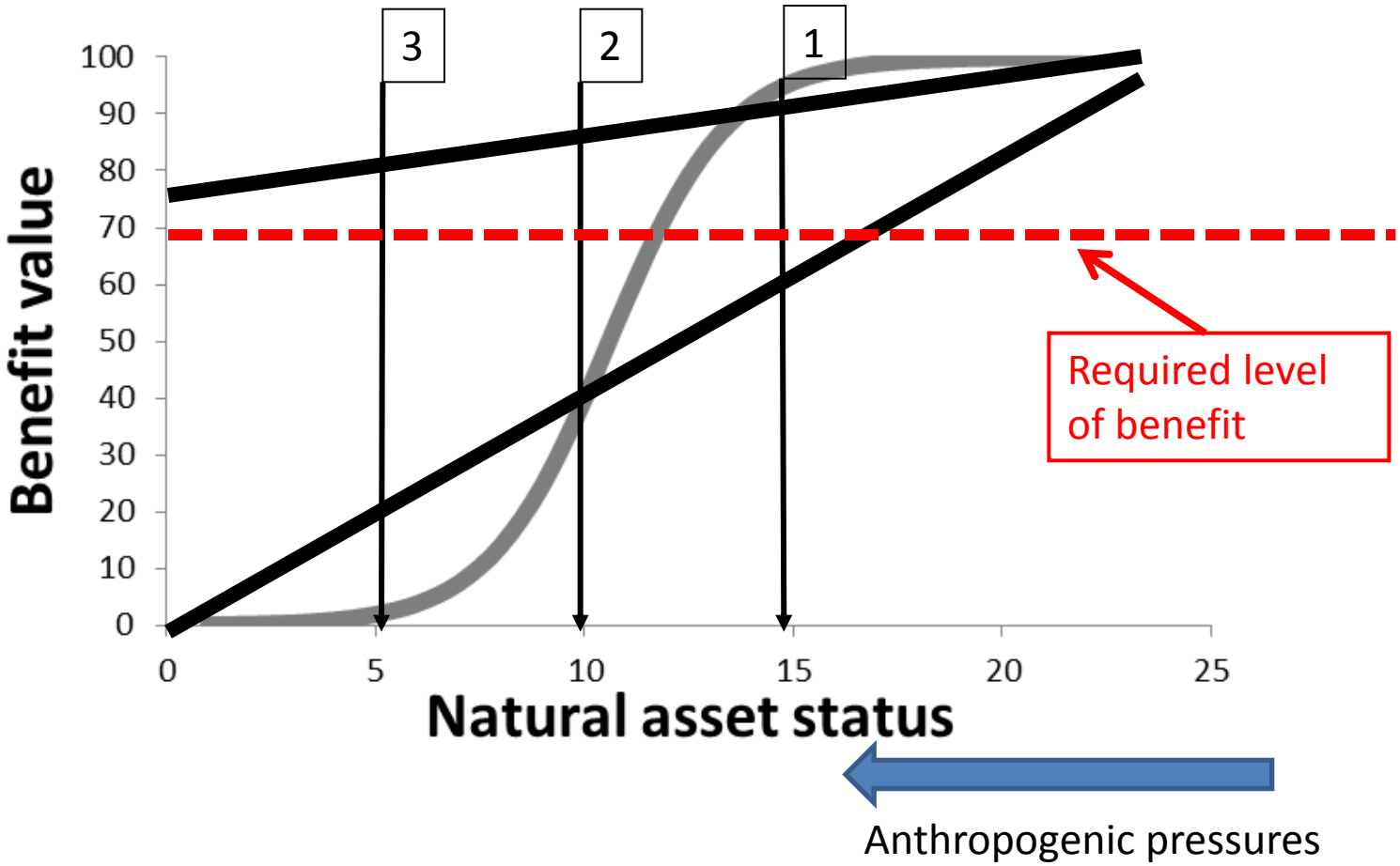
- …a central repository for all **risks** identified by the project or organisation and, for each **risk**, includes information such as **risk** probability, impact, counter-measures, **risk** owner *etc*..

Risk Number	Risk Description / Risk Event Statement	Responsible	Impact H / M / L	Impact Description	Probability H / M / L	Timeline N/M/F	Status of Response N / P / PE / EE	Completed Actions	Planned Future Actions	Risk Status Open / Closed / Moved to Issue
Example R 1	Concrete prices may increase, causing the project to go over budget	Materials Acquisitions Manager	M	The cost of the concrete could be as much as 50% more expensive than budgeted for, resulting in an overall cost overrun of 15% on the project	H	M	PE	10-Jan-2006: Asked concrete supplier to guarantee a price; request denied	12-Jan-2006: Investigating cost of purchasing materials now and storing them until needed	Open
Example R 2	Key supplier may lose a pending lawsuit and go out of business, creating the need to find a new supplier, which will cause schedule delays	Project Manager	H	Finding a new supplier, negotiating contract, and getting re-started is estimated to cause a 6-month delay	N/A	N/A	N/A	12-Jan-2006: Met with supplier to discuss options 15-Jan-2006: Spoke with other suppliers regarding availability 20-Jan-2006: Prepared contingency plan and RFP in case supplier goes bankrupt 25-March-2006: Moved risk to issue process -- supplier lost lawsuit and declared bankruptcy	N/A	Moved to issue
R 1										
R 2										
R 3										
R 4										
R 5										
R 6										

The risk register lists major risks to benefits from natural capital through the lens of the major land use types



As the natural asset status deteriorates, the benefits may reduce, potentially below critical levels.



The preliminary risk register for natural capital (in England)

- The 'risk' is failing to meet targets defined by existing commitments in EU, national or other statutory body commitments (SPA, SAC, WFD, SSSI etc.)
- The status of the natural capital asset is assessed relative to 'quantity, quality and spatial configuration.
- The habitat types are used as 'accounting units'

		Status		
		Above, at or just below target	Below target	Substantially below target (>50%)
Trend	Positive or not discernible	*A*	*B*	*B*
	Negative	*B*	*B*	*C*
	Strongly negative	*C*	*C*	*C*

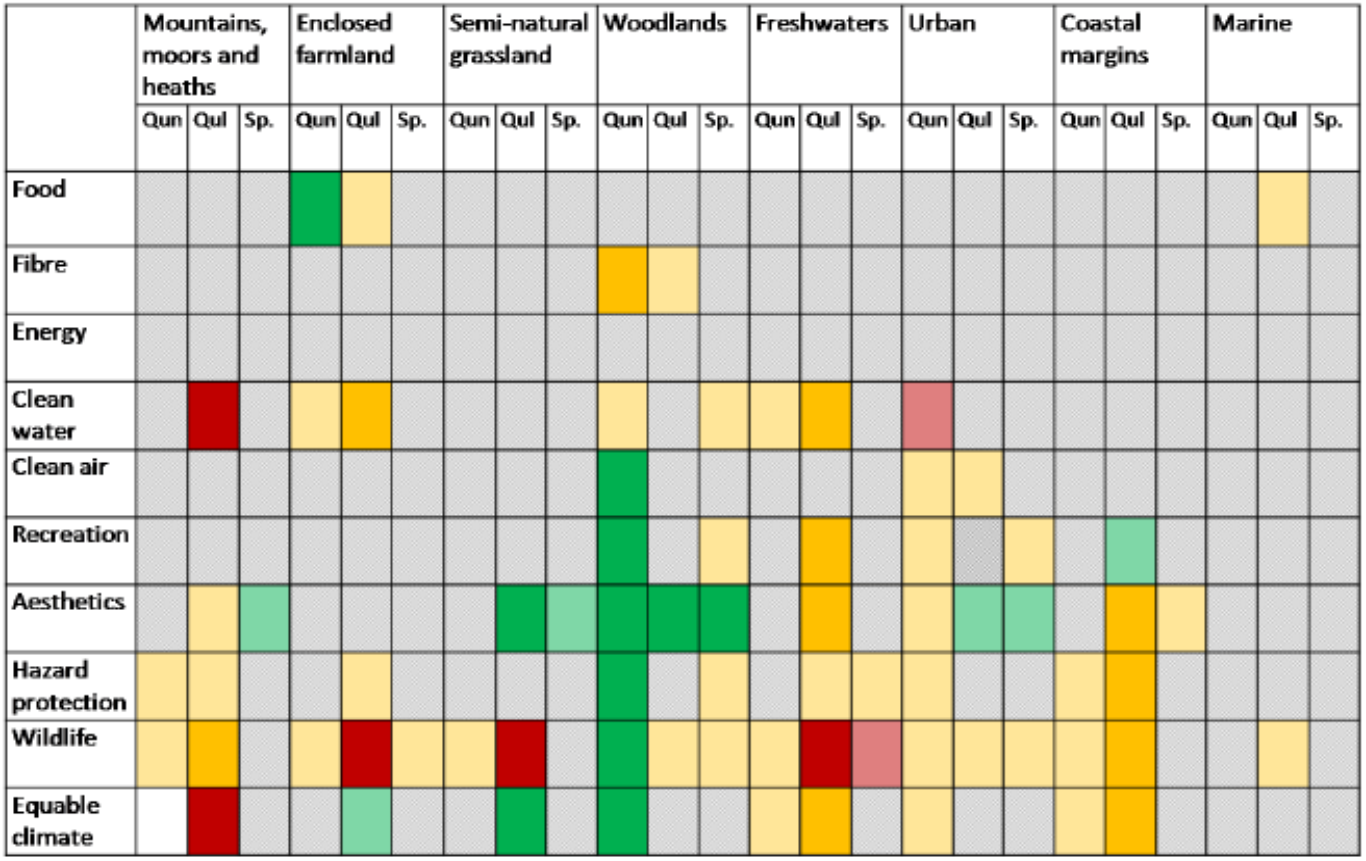
This figure shows the results of the prioritisation and risk categorisation exercise. The 73 relationships (white cells) identified from the initial prioritisation exercise have been allocated to a risk category A-C based on current status and trend. Levels of confidence are indicated.

For the State of Natural Capital Report 2014, we identified three 'dimensions' for each asset that can be used for benefit condition

- **Quantity** – some measure of *amount* (biomass, population size, range or habitat area)
- **Quality** – how good the *condition* is for the asset-benefit relationship (degradation, disturbance, management)
- **Spatial configuration** (*where* it is, fragmentation, connectedness)

Figure 3.2 Risk assessment results

Risk rating for 73 priority relationships between major land use categories (quantity, quality and spatial configuration) and goods



Key

Qun = quantity; Qul = quality; Sp = spatial configuration

	High confidence
Low risk	*A*
High risk (or risk unknown)	*B*
Very high risk	*C*

		Status		
		Above, at or just below target	Below target	Substantially below target (>50%)
Trend	Positive or not discernible	*A*	*B*	*B*
	Negative	*B*	*B*	*C*
	Strongly negative	*C*	*C*	*C*

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Natural Capital Accounting

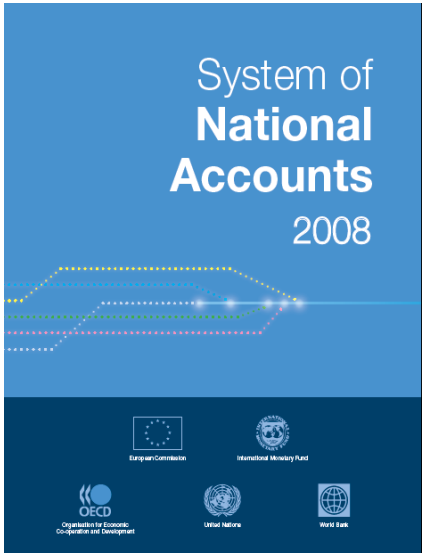
Professor **Giles Atkinson**, g.atkinson@lse.ac.uk

Natural Capital Committee

Why Accounting?

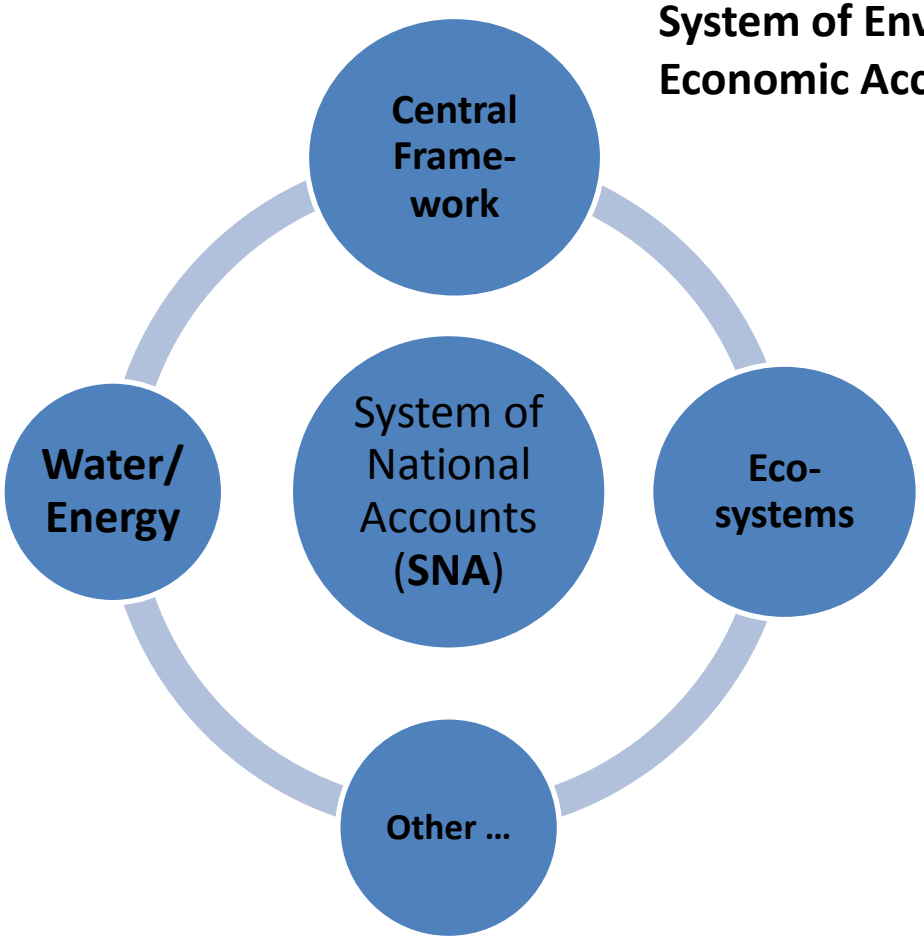
- **Established organising framework**
  - Consistency
  - Replicability
  - Transparency
- **Links to national accounts**
  - Income & product accounts
  - Balance sheets
- **Links to policy questions**
  - Growth & development

UN Statistical Processes

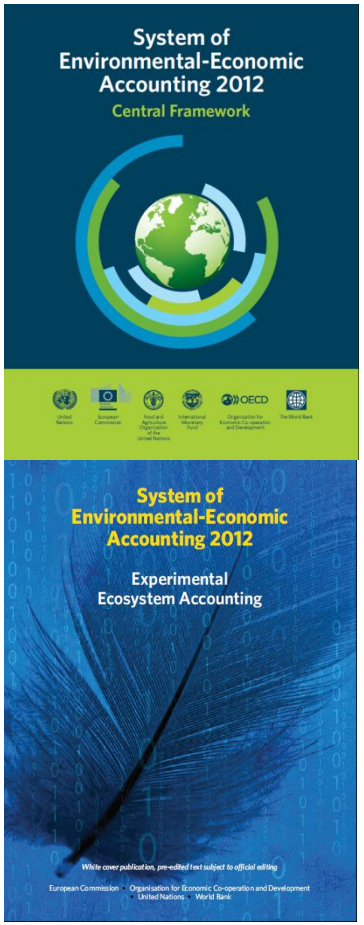


GDP accounting etc.

… **asset accounting**



System of Environmental-Economic Accounts



Key Issues for Natural Capital Accounting (NCA)

	Type of LCEU				
	Forest tree cover	Agricultural land*	Urban and associated developed areas	Open Wetlands	…
Type of ecosystem services					
Provisioning services	e.g. tonnes of timber	e.g. tonnes of wheat			
Regulating services	e.g. tonnes of CO_2 stored/released	e.g. tonnes of CO_2 stored/released	e.g. tonnes of CO_2 stored/released	e.g. tonnes of P absorbed	
Cultural services	e.g. number of visitors/hikers		e.g. hectares of parkland	e.g. hectares of duck habitat	

* Medium to large fields rainfed herbaceous cropland

	Ecosystem extent	Characteristics of ecosystem condition				
		Vegetation	Biodiversity	Soil	Water	Carbon
	Area (proportion of EAU)	Indicators (e.g. Leaf area index, biomass index)	Indicators (e.g. species richness, relative abundance)	Indicators (e.g. soil fertility, soil carbon, soil moisture)	Indicators (e.g. river flow, water quality, fish species)	Indicators (e.g. net carbon balance, primary productivity)
Type of LCEU						
Forest tree cover						
Agricultural land*						
Urban and associated developed areas						
Open wetlands						

* Medium to large fields rainfed herbaceous cropland

Source: UN (2013)

Wealth Account for Australia	2008	2012
Produced Capital	3,978	4,628
- plantation timber	12	9
Net Financial Assets with the rest of the world	-702	-861
Natural Assets	4,480	4,718
- land	3906	4054
- subsoil minerals & energy	581	653
- native timber	2	2

Source: Obst & Vardon (2014)

- **Is natural capital being accounted for?**
- **Role of valuation** in NCA
- **Unsustainable use** of natural capital
  - Is adequate **compensation** being made for loss of natural capital?
  - Are **current stocks of natural capital** declining?
  - Where are we relative to **thresholds** (or safe limits or reference levels)?
- **Asset values** vs. **restoration costs**
- Links between **corporate** and **national** NCA
- **Policy uses** of NCA

Developing natural capital investment initiatives

Ian Dickie (eftec, CEH, APBmer, Regereris),
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Research for the Natural Capital Committee Secretariat

Project Purpose

- Develop the case for ***Investments in Protection and Improvements*** in natural capital

- Interventions that protect and improve natural capital - may involve:
  - Enhancing natural capital (e.g. fish stocks) to increase the goods and services they can provide (e.g. fish), or
  - Halting declines in natural capital (e.g. pollinators) to avoid the loss of goods and services they provide (e.g. supporting crop production)

- Unlike some other forms of capital, the impacts of not safeguarding natural capital can be severe ***and*** irreversible

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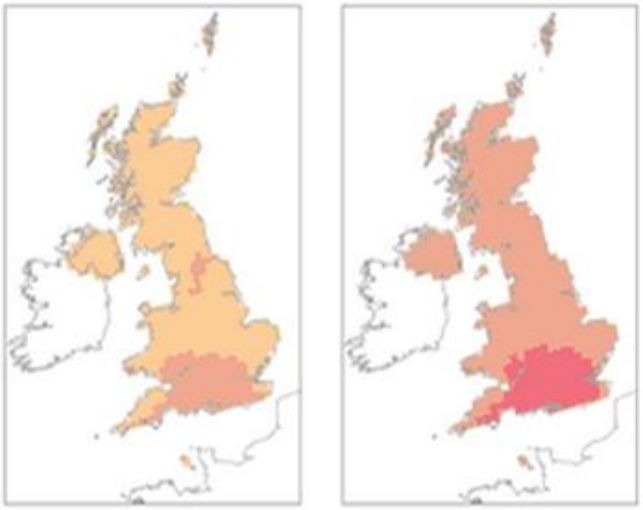
Baseline & Climate Change

- Look at impacts of over long term (around 50 years) of actions over the next 25 years for protection and improvement relative to dynamic baseline



Climate change included in analysis criteria:

- Role in adaptation to known CC risks
- Avoid short-term mal-adaptation

Evidence

- Great variety of scales and types of evidence, but not always focused on the 'investment case'

1. Case studies of natural capital protection/ improvement actions with positive returns
2. Use existing macro/modelled evidence:
   - Woodland restoration model (SoNC II); Fisheries recovery data; Air quality strategy
3. Use existing reviews of restoration evidence:
   - Blanket bogs; Agri-env measures; Catchments
4. Evidence on benefits diverse (e.g. human health, market goods, non-market valuation data, intangibles)

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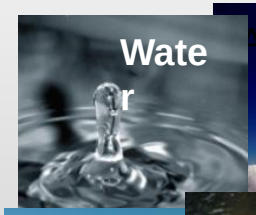
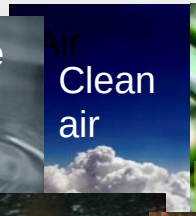
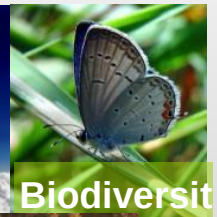
How to Prioritise?

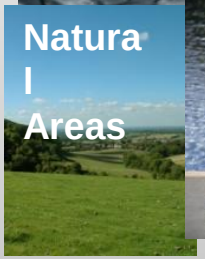


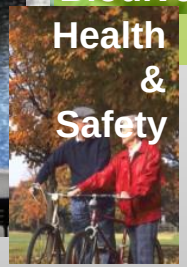

Investments in Natural Capital



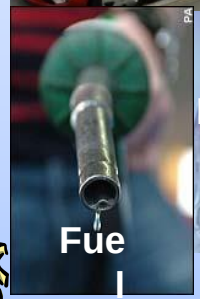








Non-Market Goods



Market Goods

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What do we know?

- Some investments in natural capital have:
  - Good returns in conventional economic terms (e.g. fish stocks)
  - Good returns in non-market terms (e.g. peat bog restoration)
  - Returns that don't fit well into economic analysis (e.g. connectivity for biodiversity) due to current lack of valuation evidence

- The extent of good opportunities is less certain

- Hugely complex area that really requires:
  - Scenarios of future environmental conditions
  - Spatial modelling of actions, their costs/opportunity costs
  - Modelling of ecosystem services responses
  - Valuation of enhanced ecosystem services flows

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Discussion Questions