

Living With Environmental Change: linking science, policy and practice

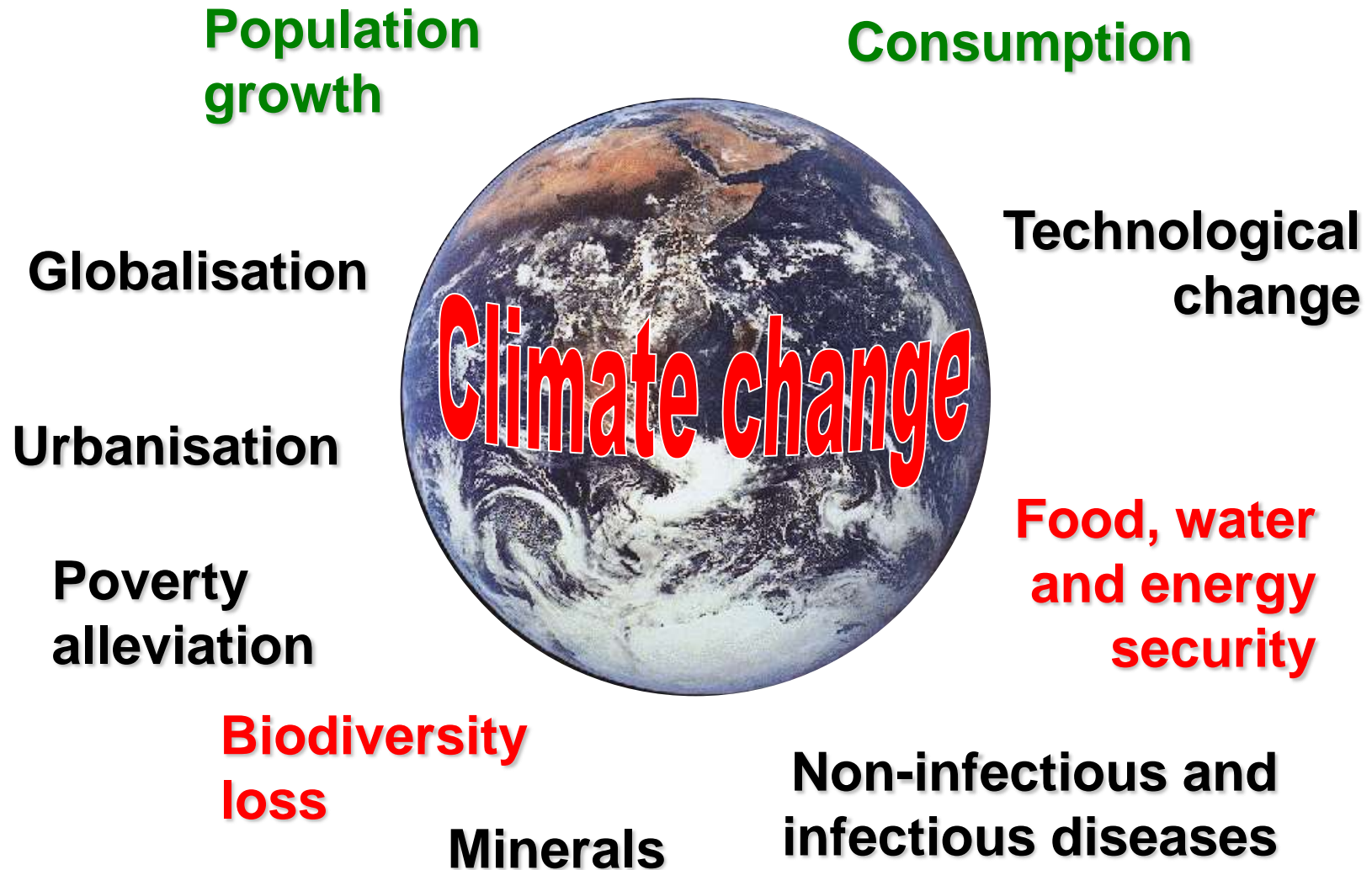
Andrew Watkinson

LWEC Director

IUCN Peatland Conference 29 Sept 2010



Global challenges



The LWEC Vision



To provide government, business and society with the foresight, knowledge and tools in mitigating, adapting to and capitalising on environmental change



LWEC brings together 22 UK organisations funding, undertaking and using environmental research to accelerate the delivery of research on environmental change into policy, business and society

How LWEC delivers

Partnership, coordination, alignment

- Research funders and policy users : 22 partners
- Business advisors : key industry sectors and FTSE100 companies
- £550m commitment since 2008 launch : target £1bn in 5 years
- Common research objectives : co-design, co-produce, co-deliver



Aligning activities

Flooding,
Ecosystems,
Water
Observations



Agreeing priorities

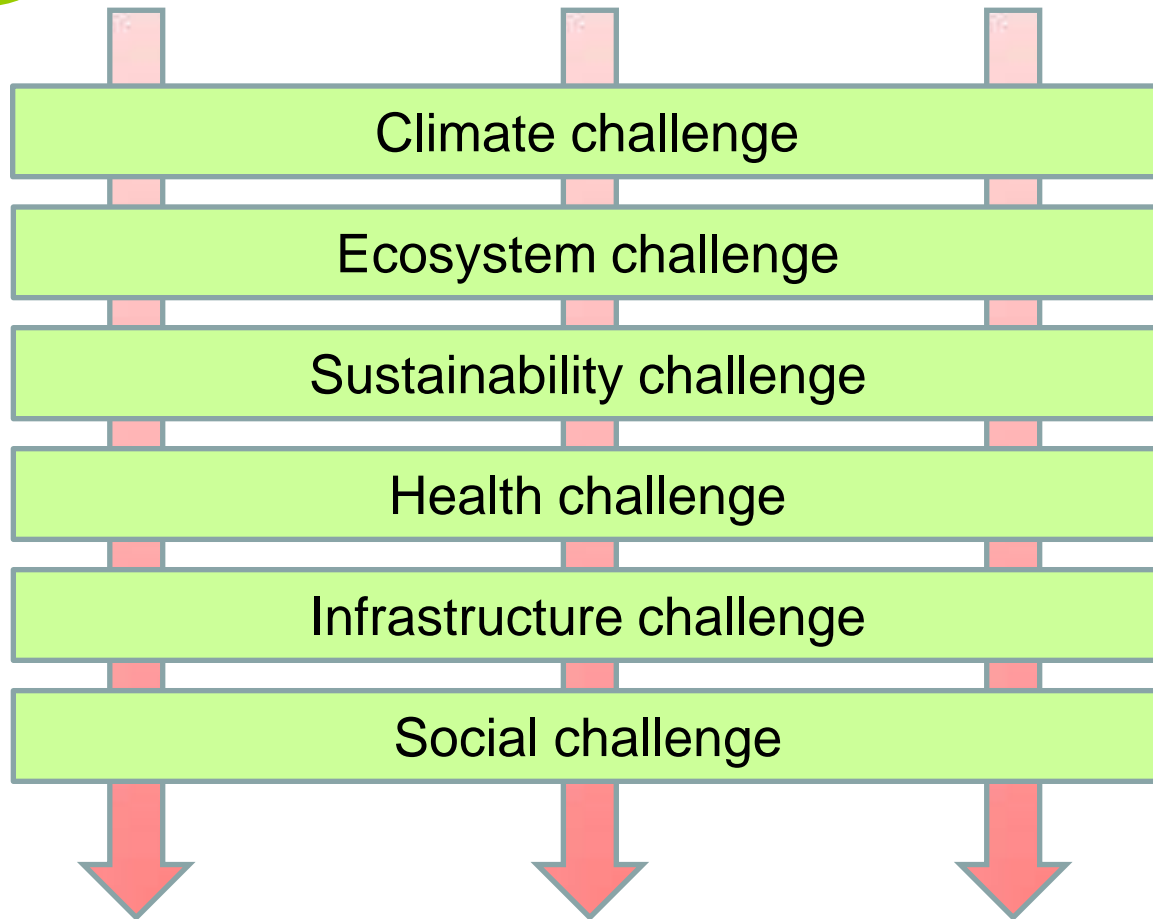
Natural hazards & humanitarian aid
Biodiversity, environment & health
Ocean Acidification
Geoengineering
Food

Developing partnerships

Joint Weather and Climate Research Programme : NERC, Met Office
National Ecosystem Assessment : Defra, SG, others
Ecosystem Services for Poverty Alleviation : DfID, ESRC, NERC
Behaviour and Risk Centres : ESRC, DEFRA, SG and others...



Grand challenges



LWEC
challenges

How do we make the transition to a low carbon economy?

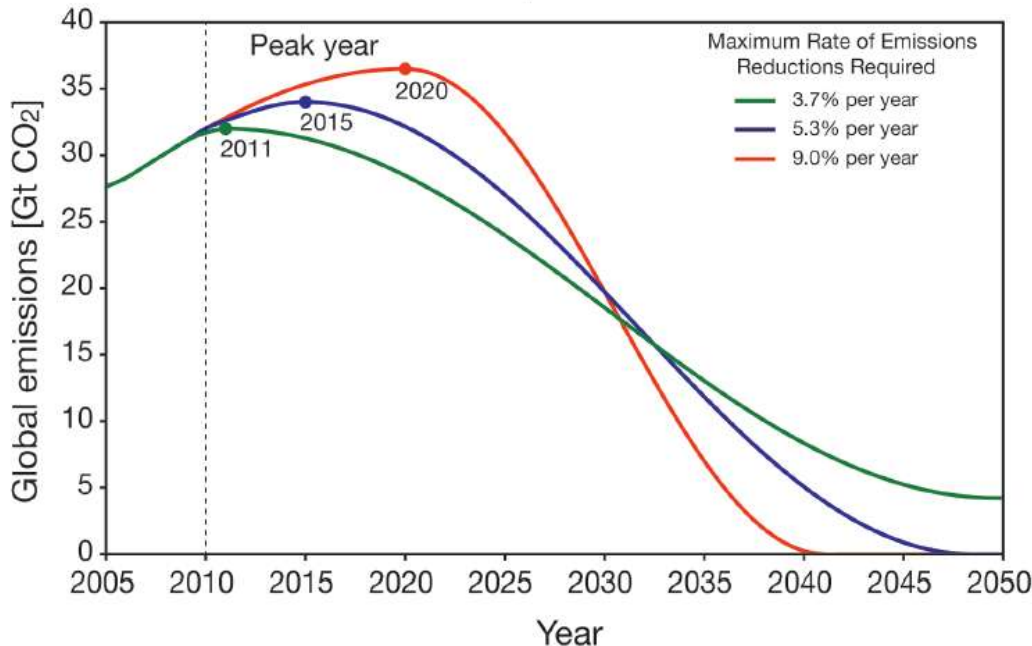
How do we increase the resilience of vulnerable people places and infrastructure?

How do we ensure food, water and human security?

The climate challenge

To predict the impacts of climate change and to promote sustainable solutions through mitigation and adaptation

Source



- Energy (61.3%)
- Land use (18.2%)
- Industrial processes (3.4%)
- Agriculture (13.5%)
- Waste (3.6%)

Examples of global emission pathways where cumulative CO2 emissions equal 750 Gt during the time period 2010-2050 (1 Gt C = 3.67 Gt CO2). At this level, there is a 67% probability of limiting global warming to a maximum of 2°C.

Aim for 2°C and plan for 4°C

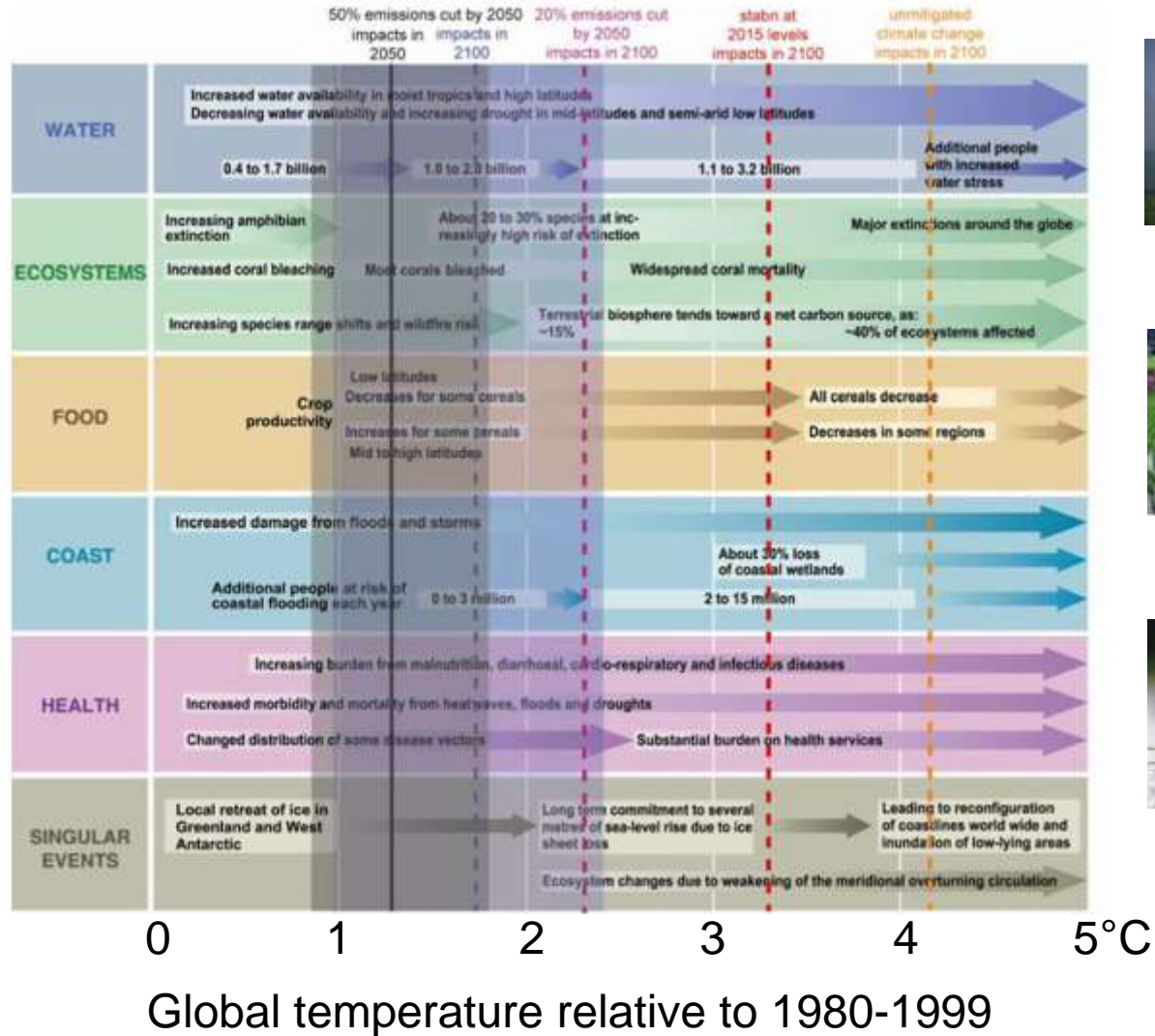
Ecosystems



Coast



Events



Water



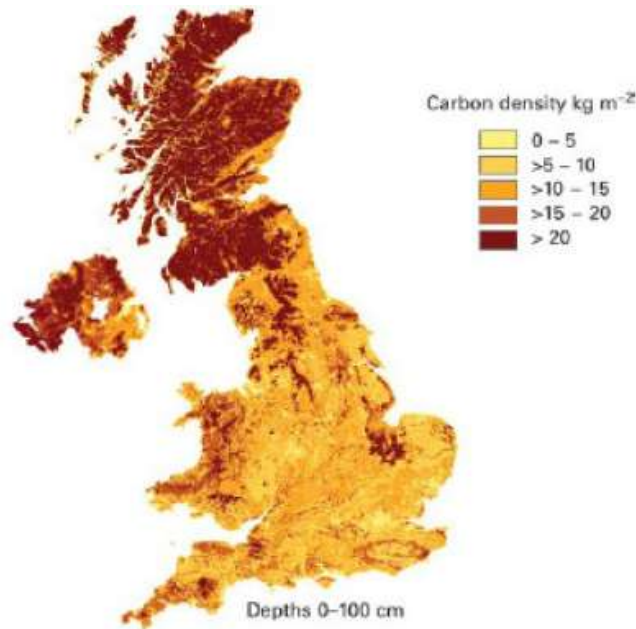
Food



Health



Peatlands and climate



- How do we enhance C stocks?
- Mountains, moors and heaths hold 44% (2015 Tg) of all UK soil carbon (4562 Tg)
- 1620 Tg C held in Scottish peats



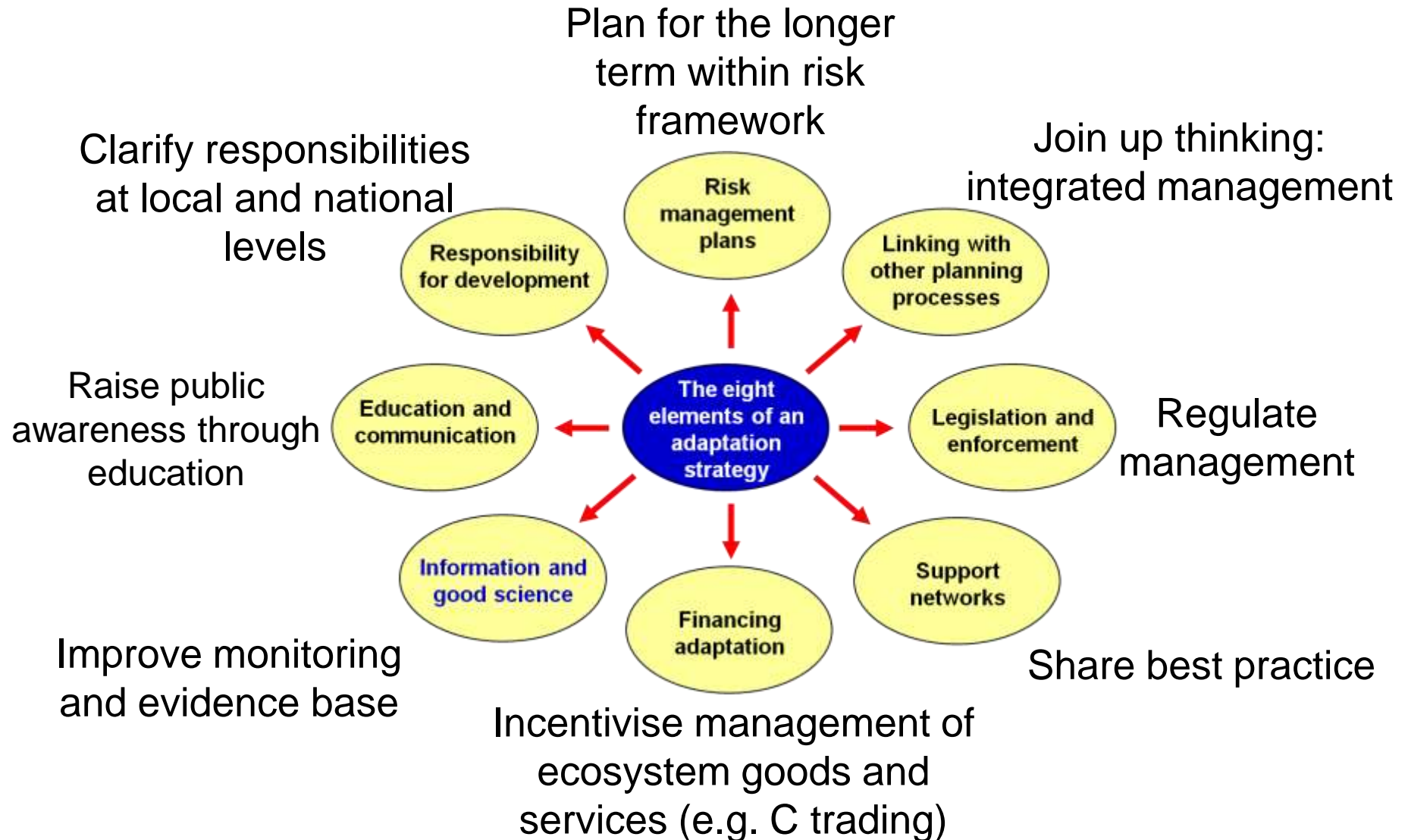
- Reduce GHG emissions
- How will peatlands respond to climate and management change?



Priority areas for research

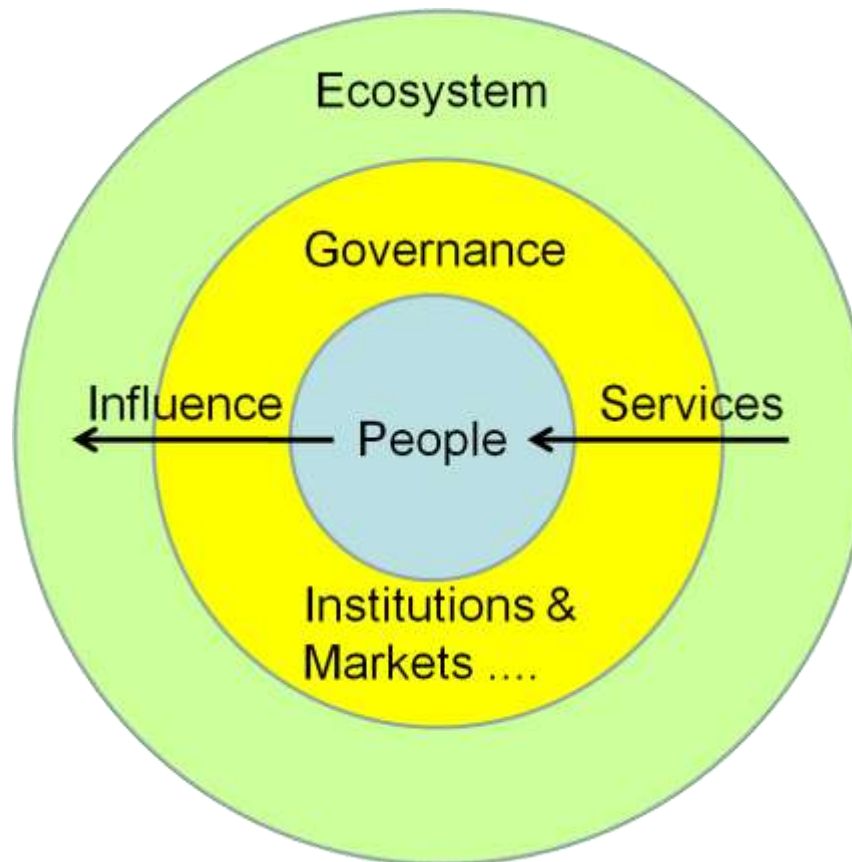
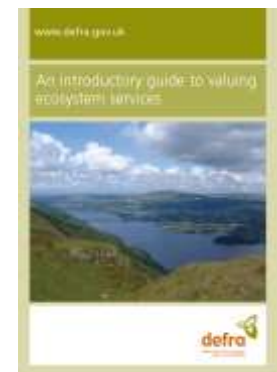
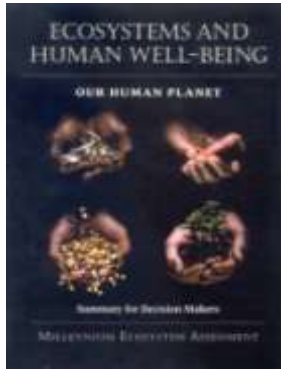
- 1) Collation of existing data
- 2) Standardise methodologies
- 3) Greater understanding and quantification of ecosystem service processes that can enhance C stocks and reduce greenhouse gas emissions
- 4) Understand impact of different land management regimes on soil carbon and GHG emissions (ecosystem goods and services)
- 5) Monitoring of control, changed management and restoration sites
- 6) Place research and monitoring (habitat and hydrological condition) within spatial context (citizen monitoring?)

Policy issues



Linking research and policy

Ecosystem services



The ecosystem challenge

To manage ecosystem services for human well-being and to protect the natural environment in a changing world



Ocean acidification



Ecosystem Services for Poverty Alleviation (ESPA)

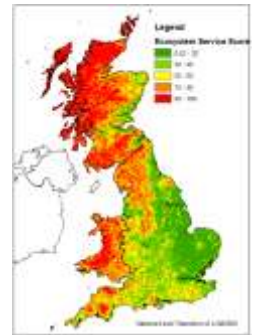
National Ecosystem Assessment

Carbon flux from peatlands



Insect Pollinator Initiative

Valuation network



Biodiversity and Ecosystem Service Sustainability (BESS)

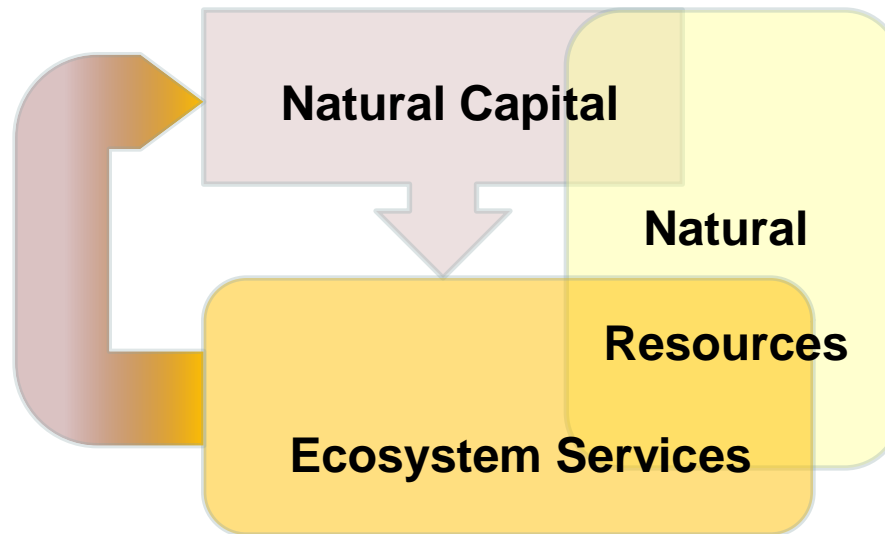


Macronutrient Cycles

Policy questions

How might we increase the value of our natural capital by investing in it to enhance the structure and functions from which we derive valuable services and resource?

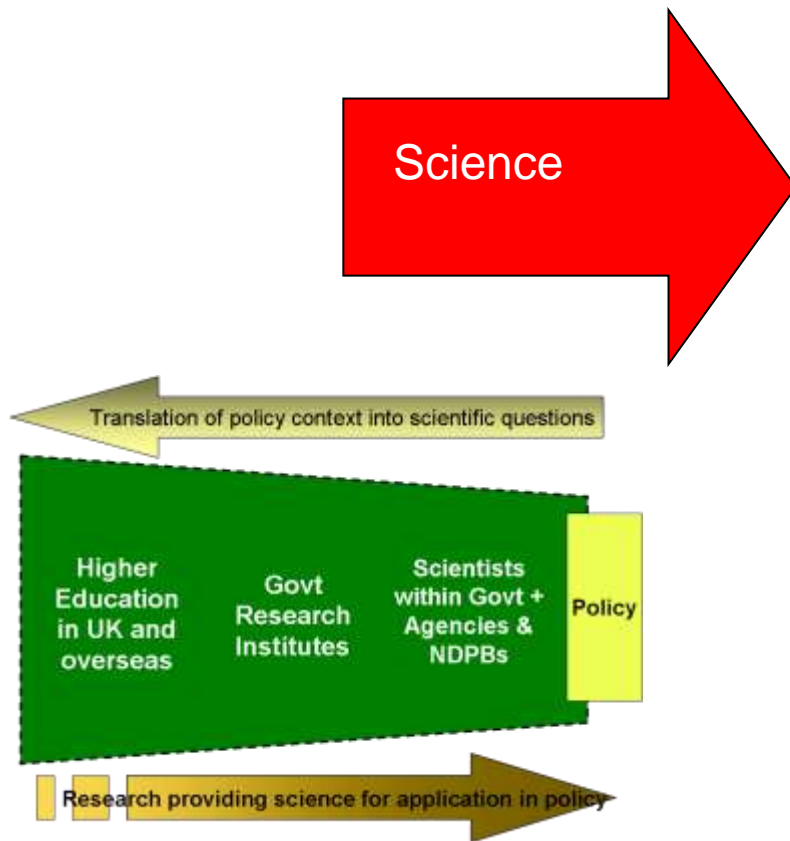
How do we enhance “Regulating” services to improve the quality or quantity of either cultural or provisioning services so that the environment helps protect us from hazards?



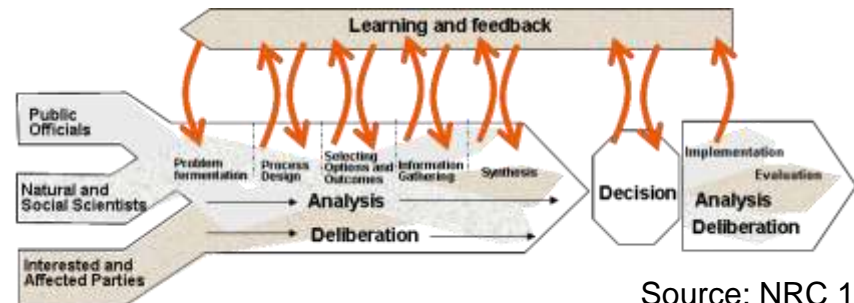
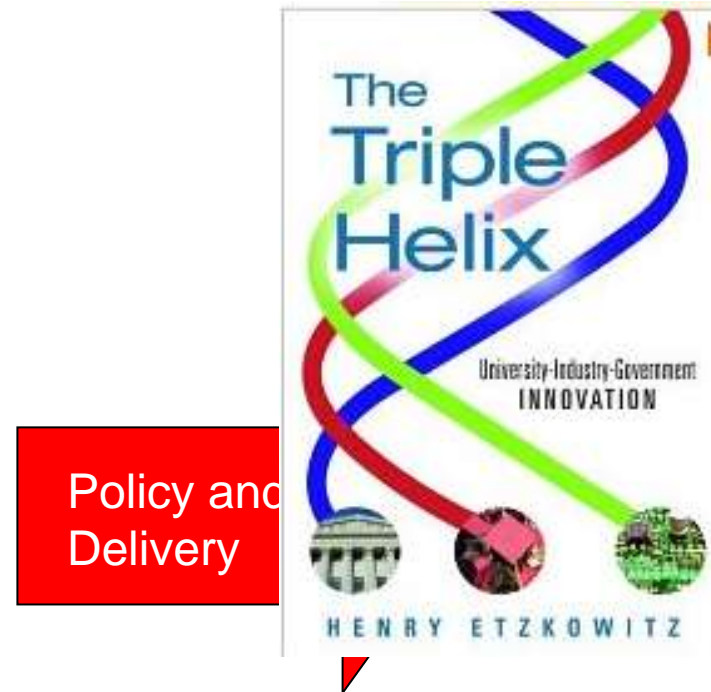
How can we extract renewable resources from our capital stocks without depleting them – can we avoid overloading “Provisioning” services?

How do we enable more people to benefit from “Cultural” services to increase their personal wellbeing and boost the local economy?

Delivering science



Source: Maggie Gill



Source: NRC 1996

Getting involved

Who should be involved?

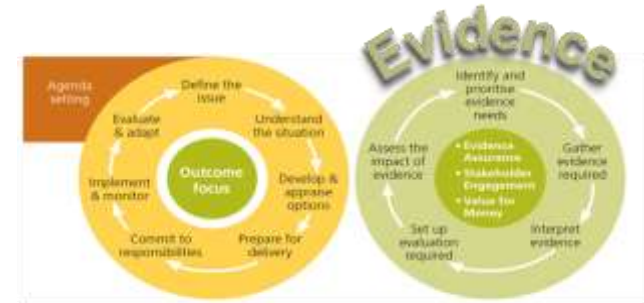
When do get involved

Where do I get involved?

What involvement?

How do I get involved?

Why should I get involved?



Peatland Programme



Living With Environmental Change

- is helping to maximize the policy and business impact of scientific advances
- is providing solutions to the challenge of environmental change
- aims to produce world class research that meets the needs of society

