

# Ecosystem Services

The benefits provided by ecosystems  
that contribute to making human life  
both possible and worth living



# ECOSYSTEMS AND HUMAN WELL-BEING

*Synthesis*



MILLENNIUM ECOSYSTEM ASSESSMENT

# UK National Ecosystem Assessment

Understanding nature's value to society



The first analysis of the UK's natural environment in terms of the benefits it provides to society and continuing economic prosperity.

The NEA will create a compelling and easily understood explanation of the state and value of the UK's natural environment and ecosystem services.

**Pavan Sukhdev. *The Economics of Ecosystems and Biodiversity***

Our economic compass is faulty and must be updated to reflect the roles of natural capital in our economy.

We must ensure that the costs and benefits of nature are calculated , recognised by leaders, businesses and citizens, included in the accounts of society and managed in order to be distributed more fairly and to remain sustainable for generations to come.

We lose trillions of dollars a year because our global economic mechanism is failing to account for the natural capital that underpins industry. We must recognise the nature of value and the value of nature and move now to create a sustainable future.

## ***Key message of the UK National Ecosystem Assessment***

The natural world, its biodiversity and its constituent ecosystems are critically important to our well-being and economic prosperity, but are consistently undervalued in conventional economic analyses and decision making.

Social feedbacks,  
institutional interventions and responses

### Drivers of Change (Direct and Indirect)

- Demographic, economic, socio-political, technological and behavioural
- Management practices
- Environmental changes

Future scenarios  
for the UK

### Human Well-being:

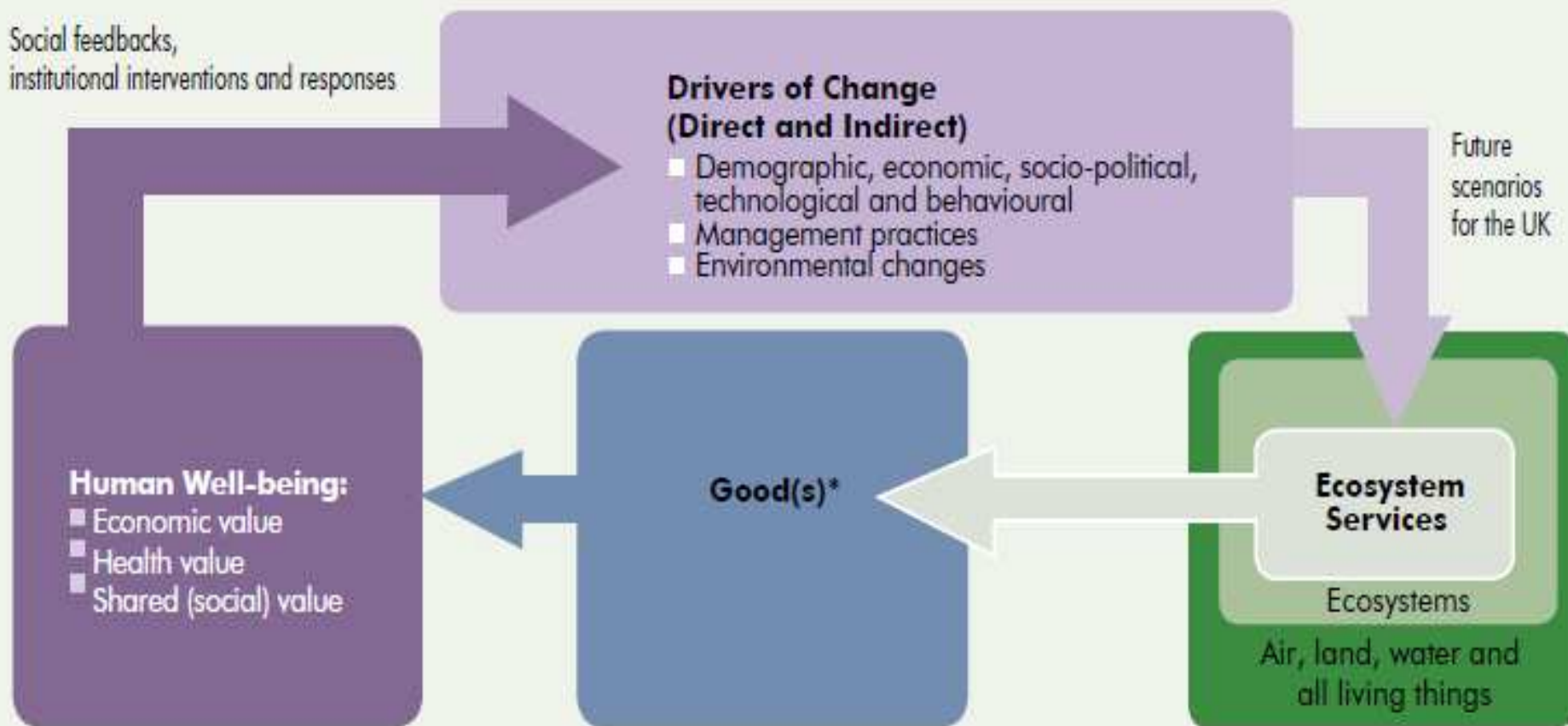
- Economic value
- Health value
- Shared (social) value

Good(s)\*

### Ecosystem Services

Ecosystems

Air, land, water and  
all living things



**Provisioning services**

**Regulating services**

**Cultural services**

**Support services**

# Provisioning services



Fibre

Food

Drinking water

Energy

Drugs

Wild species



# Regulating services



Flood control

Waste breakdown

Local climate

Disease control

Pollination

# Cultural services



Meaningful places

Access & Recreation

Tourism

Wild species variety

Spiritual enrichment

# Supporting services



Nutrient cycling

Weathering

Plant growth

Soil formation

Water cycling

Evolution

Ecological interactions

**Primary  
ecological  
functions**



**Ecosystem  
services**



**Goods**

eg

**Weathering**

**Plant growth**

**Soil formation**

**Nutrient cycling**

**Ecological  
interactions**

**Climate regulation**

**Pollination**

eg

**Crops, livestock**

**Water**

**Trees**

**Wild species**

**Local climate**

**Purification**

**Wild species**

**Meaningful places**

eg

**Food**

**Drinking water**

**Fibre**

**Energy**

**Flood control**

**Disease control**

**Recreation**

**Good health**

**Enterprises**

**Services**

**Ecosystems**



**Drivers of change**



# Support Services

## Core Ecosystem processes:

- Water cycling / hydrology
- Mineral cycles,
- Solar energy flow,
- Species / community interactions

## Ecosystem structure:

- Vegetation structure,
- Soil,
- Water bodies,
- Species,
- connectivity etc

**Undiscovered services: ?**

# Support Services

How it works

What it's made of

Undiscovered services: ?

Provisioning  
services



Regulating  
services



Cultural  
services



Primary ecological functions – A Living Landscape  
**Supporting and regulating services**



Stuff



Risk reduction



A reason for living



A Living Landscape

# Where does Biodiversity fit in?

**Ecological functions**



Underpins ecological processes and indicates their health  
(supporting, regulating)

**Genes and species**



Species and genetic variety give direct products like crops, livestock, fibre, pharmaceutical products etc.  
(provisioning)

**Valued by people**



Appreciation of wildlife provide spiritual, educational and recreational benefits, improve health and give a sense of place  
(Cultural)



## Sussex LNP Vision

The purpose of the Sussex LNP is to work across sectors and organisations to secure the healthiest possible ecological system thereby protecting and enhancing the natural environment and all that it gives us.



## Two elements

1. Securing a healthy ecological system – **the ecosystems of Sussex.**

and...

2. Supporting and enhancing all that the environment gives us – **ecosystem services**

# 1

## A Healthy ecological system - An ecosystem appraisals for Sussex:

- National Character Areas
- Biodiversity Action Plan objectives and targets
- Biodiversity Opportunity Areas
- Focal areas for landscape scale activity.
- Habitat potential modelling
- Climate vulnerability mapping
- Catchment and water body mapping





## 2

Supporting and enhancing all that the environment gives us - **An ecosystem services assessment**

### **Supporting the value of nature**

- South Downs Way Ahead NIA
- Arun and Rother Connections
- Adur and Ouse Pilot Catchment
- Brighton Biosphere
- West Weald Landscape Partnership
- Wooded Heaths Partnership

# Key messages

- The benefits we get from ecosystems are critically important, but under-recognised.
- Ecosystem services are in decline
- Provisioning services have been emphasised, at the cost of other ecosystem services.
- We need to translate an ecosystem assessment approach from the national level to the local level
- We need systems of working the value of nature into all decision making.



## **UK National Ecosystem Assessment (UKNEA):**

<http://uknea.unep-wcmc.org/>

**Millennium Ecosystem Assessment:**  
[www.maweb.org](http://www.maweb.org)

**The Economics of Ecosystems and Biodiversity (TEEB):**  
[www.teebweb.org](http://www.teebweb.org)

**DEFRA Ecosystems approach:**  
[www.defra.gov.uk/environment/policy/natural-environ/ecosystems/index.htm](http://www.defra.gov.uk/environment/policy/natural-environ/ecosystems/index.htm)