

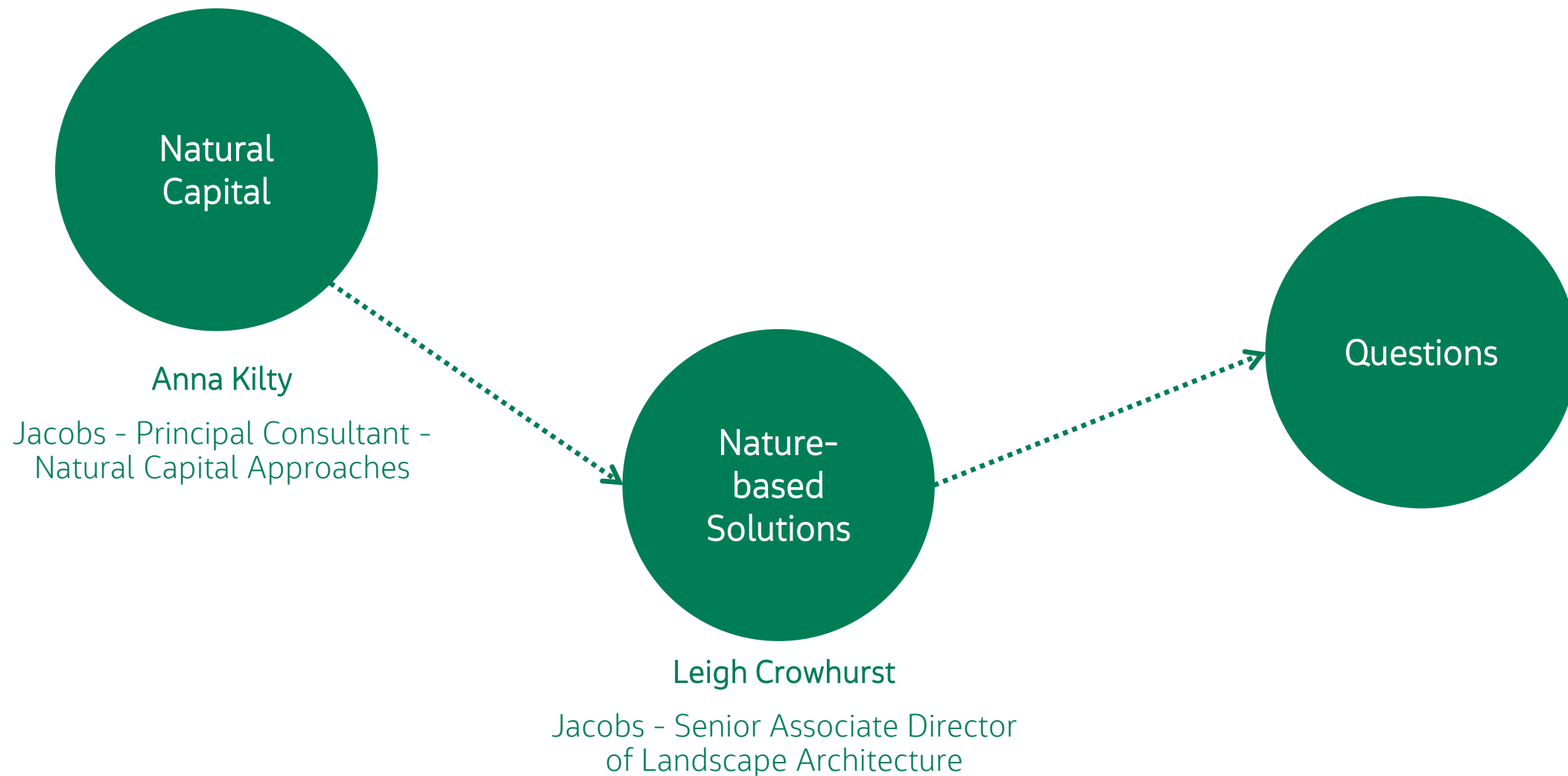


An Introduction to Natural Capital & Nature-based Solutions

Anna Kilty & Leigh Crowhurst

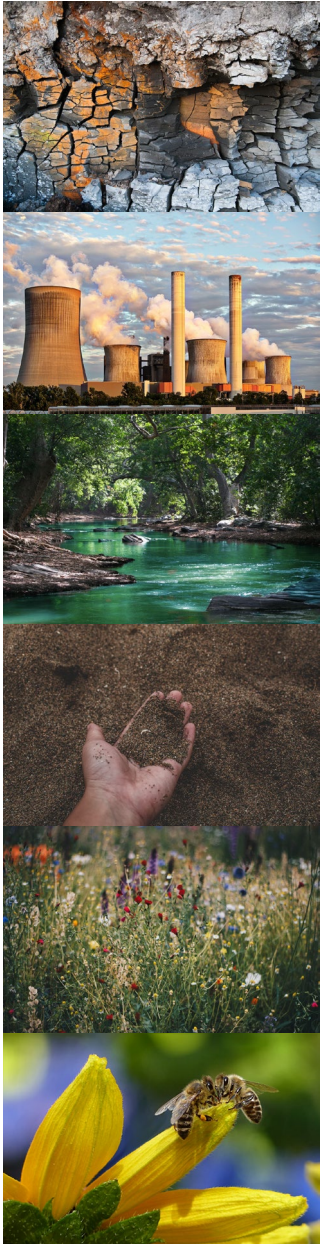
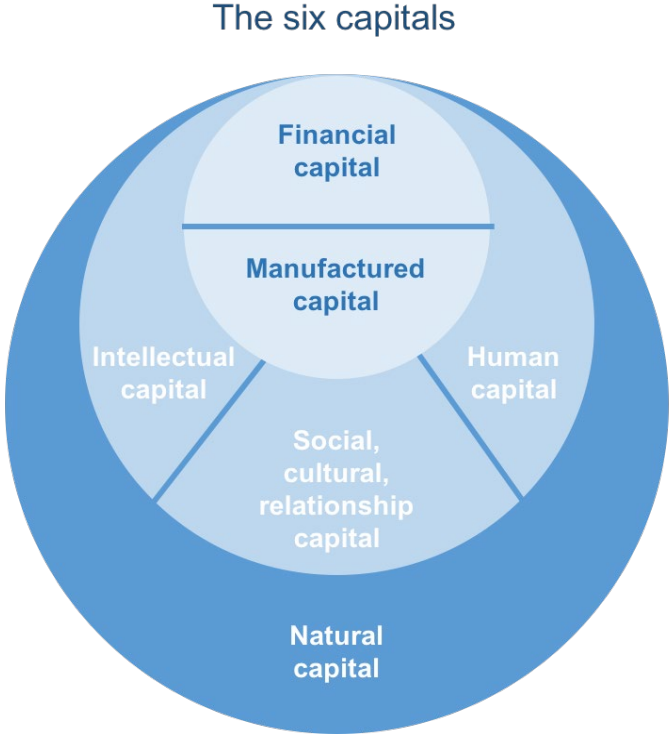
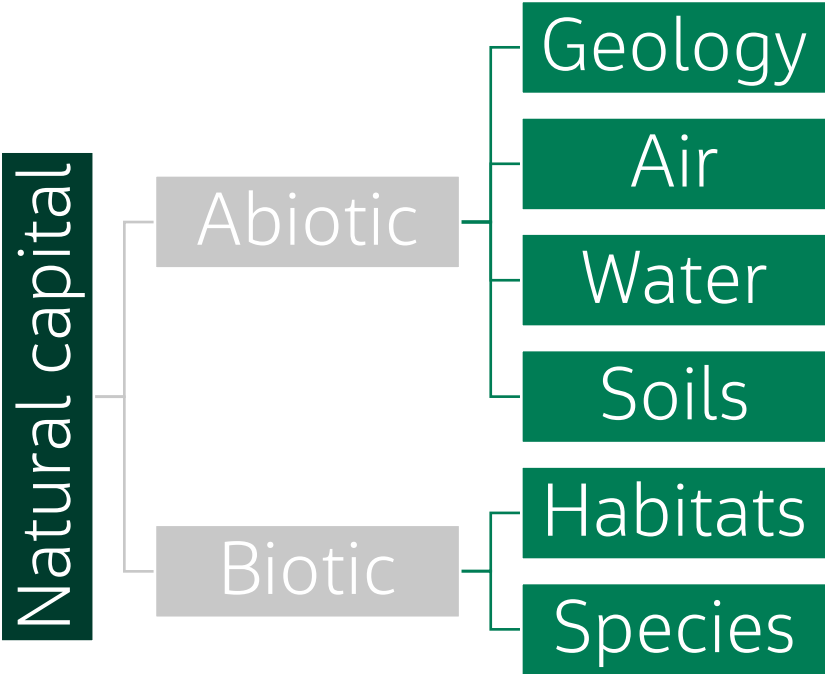


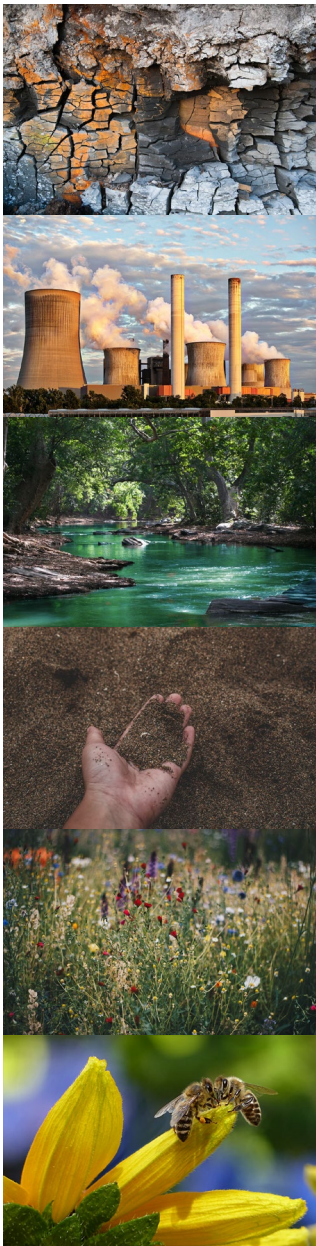
Agenda



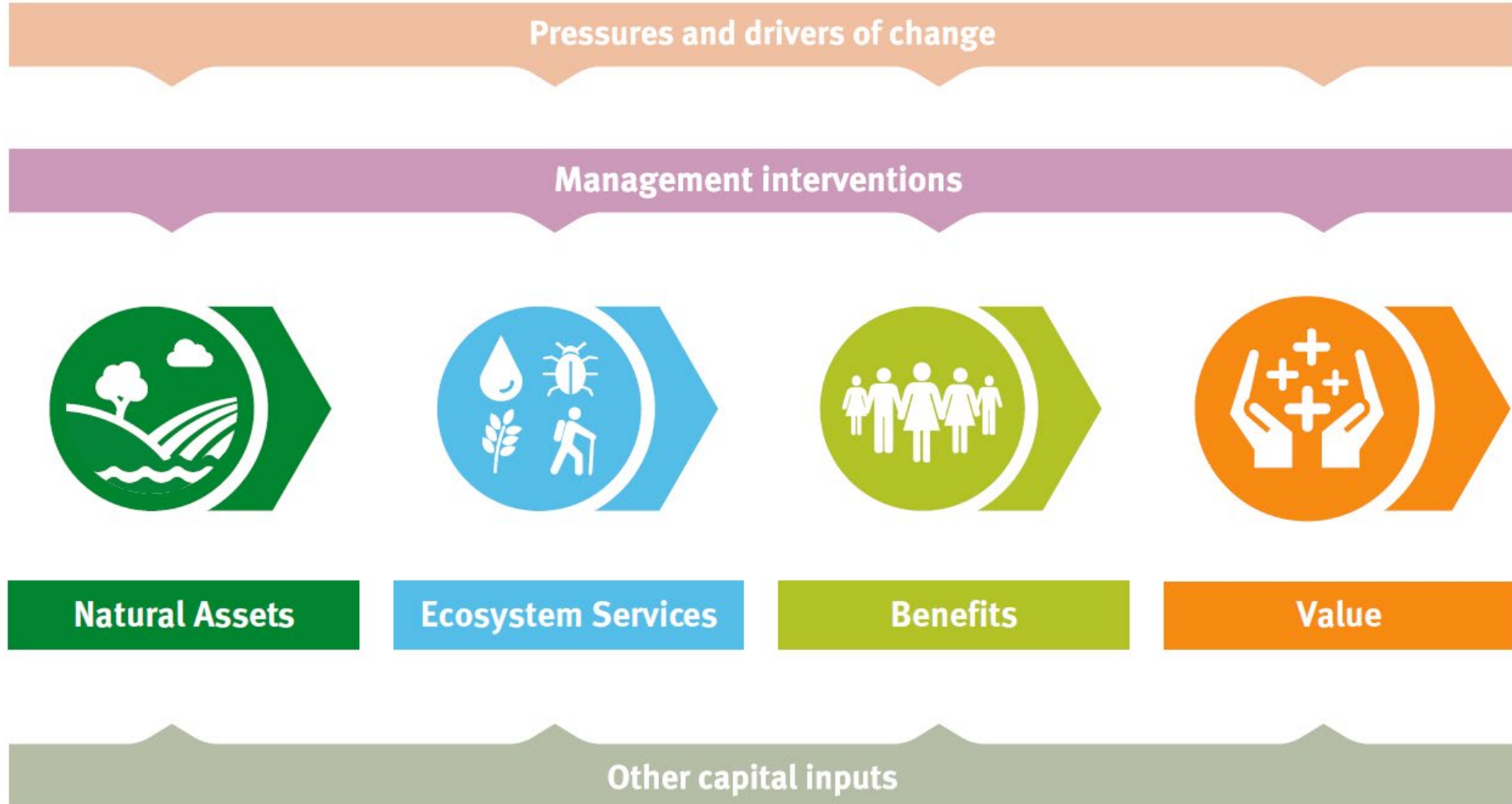
What is Natural Capital

Natural capital is the sum of our ecosystems, species, freshwater, land, soils, minerals, our air and our seas. These are all elements of nature that either directly or indirectly bring value to people and the country. (25-Year Environment Plan, HM Government)





Principles of a natural capital approach

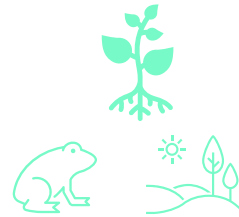


Ecosystem services

Ecosystem services are the direct and indirect contributions ecosystems provide for human wellbeing and quality of life (NatureScot)



Provisioning services
Food
Timber
Water supply
Fish



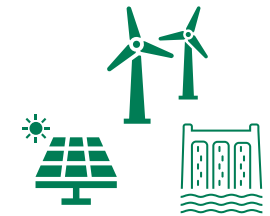
Bundled services
Amenity
Biodiversity
Soil
Water quality
Landscape



Regulating services
Air pollution removal
Carbon reduction
Flood regulation
Noise reduction
Temperature regulation

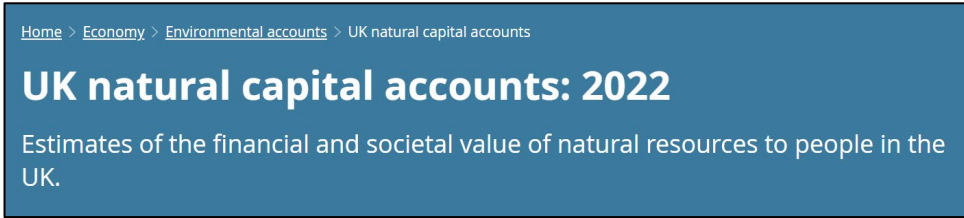


Cultural services
Recreation
Physical health
Mental health
Education
Volunteering



Abiotic flows
Renewable energy

Key guidance and legislation



Natural capital tools

Open source tools:

- Environment Benefits from Nature Tool (EBN)- Natural England
- Nature Tool (WSP)
- BEST tool (CIRIA)
- Woodland Carbon Code, Peatland Carbon Code

Bespoke/organisation tools:

- Natural Capital Register and Account tool (NCRAT) (Environment Agency)
- EcoservR (Liverpool John Moores University)

The Environmental Benefits from Nature Tool

Enabling wider benefits for people and nature from habitat change

Quick Start Instructions | Technical user menu

BETA TEST VERSION 1.00 Short (500 rows)

This tool was formerly known as the Eco-metric. It is a voluntary decision-support tool, designed to be used alongside the Biodiversity Metric 3.0, as part of a project that delivers Biodiversity Net Gain (BNG). The aim is to help improve the design and outcomes of development, and to demonstrate the wider benefits of BNG for people and nature. **Please read the Principles of the EBN Tool approach and the User Guide before using the tool.**

The tool is based on the premise that biodiversity net gain is a primary driver for growing natural capital. Healthy, diverse and resilient ecosystems are essential to underpin the delivery of a wide range of services and long term benefits. It forms part of Natural England's contribution to Defra's work on Environmental Net Gain policy and supports government's 25 Year Environment Plan commitment to expand net gain approaches to include wider Natural Capital benefits such as flood protection, recreation and improved water and air quality.

What the tool does It measures changes in the extent and condition of habitats (natural capital assets) It indicates relative changes in provision of 18 ecosystem services due to habitat and land-use change. It aims to make these losses and gains more transparent in order to help 'start a conversation' and flag areas for more detailed consideration.	What the tool does not do It does not incorporate biophysical modelling of water flow It does not measure the impacts of human pressures on ecosystems, such as the impacts of air pollution from roads. It does not replace the need for more detailed assessments such as an Environmental Impact Assessment (EIA) or flood risk assessment.
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If you encounter errors when using this tool that cannot be resolved after reading the User Guide, please contact:
EBN@naturalengland.org.uk

NATURE TOOL

Tool Development Led By   In Collaboration With  Co-funded By 



BEST

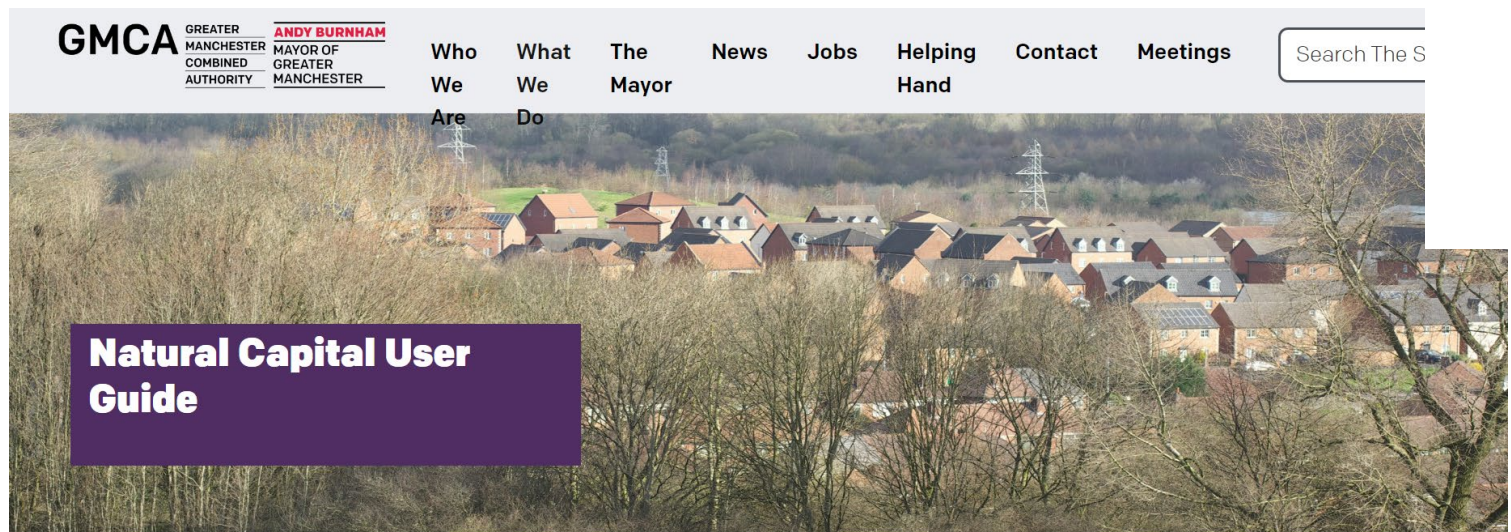
W047b BEST Guidance –
Guidance to assess the benefits of blue and green infrastructure using BEST

Release version 5
June 2019

Useful source of information: [Ecosystem Knowledge Network: Tool Assessor](#)

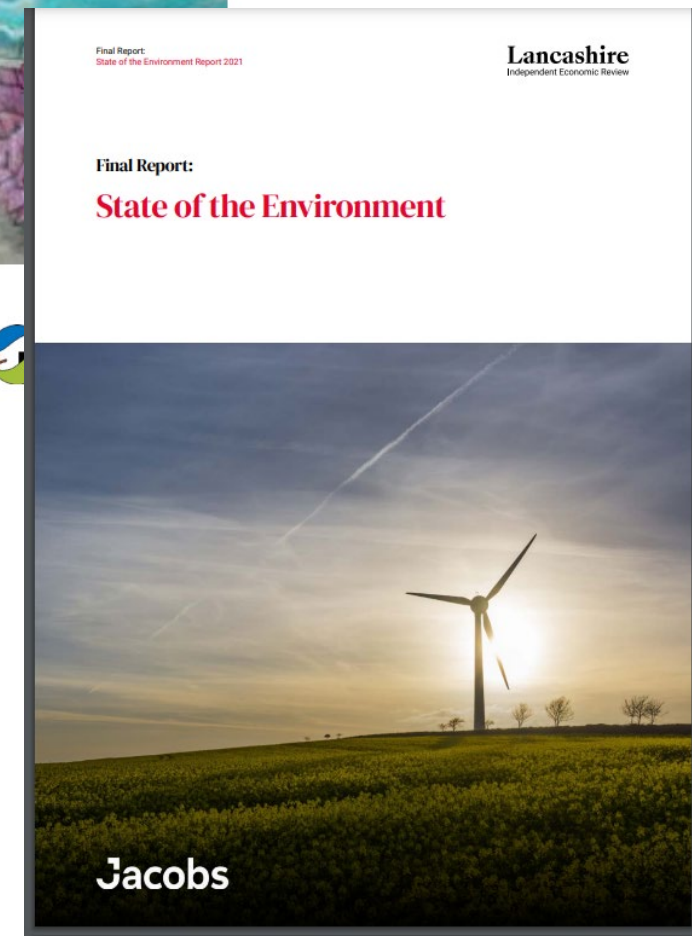
Local Authority Examples

- Collaborative working with the EA
- Eastern Hub



Visit. Sleep. Cycle. Repeat - opportunities to enhance Natural Capital and Nature Connectedness

Main Report



What are Nature-based Solutions?

Nature-based Solutions (NbS) are actions to **create, protect, conserve, restore, sustainably use and manage ecosystems**, effectively responding to **contextual social, economic, resilience and environmental** challenges, whilst providing **benefits to people and biodiversity**.



UNEA

United Nations Environment Assembly
of the United Nations Environment Programme



International Union for Conservation of Nature (IUCN) Umbrella Framework



Ecosystem-based approaches
Main Categories



© IUCN



Global Standard for NbS, and
NbS Principles (eight) in total

Nature Terminology

Nature-based Solutions (NbS) - working with nature to address societal challenges, providing benefits for both human well-being and biodiversity.

Nature Positive - defined as halting and reversing nature loss (can be measurable or conceptual)

Biomimicry - A practice that learns from and mimics the strategies found in nature to solve human design challenges

Biodiversity Net Gain (BNG) - a strategy to develop land and contribute to the recovery of nature. It is a way of making sure the habitat for wildlife is in a better state than it was before development, which is quantifiable in England.

Nature-based Solutions – Typical Interventions

- Green & Blue Roofs,
- Green Walls,
- Green Spaces (inc. Pocket parks),
- Urban Tree Planting (incl. Pits),
- Rain Gardens,
- Bio-retention,
- Infiltration & detention basins,
- Bioremediation,
- River Restoration,
- Floodplain Restoration,
- Carbon capture in Soil and Vegetation,
- Regenerative agriculture,
- Wetlands,
- Waterbody Habitats,
- Rewilding,
-



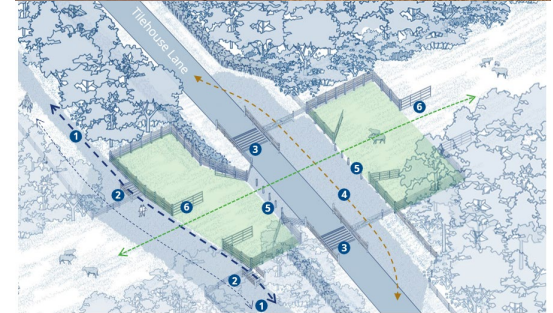
Basildon Hospital Rain Garden (SuDS)



Sidmouth flood alleviation scheme

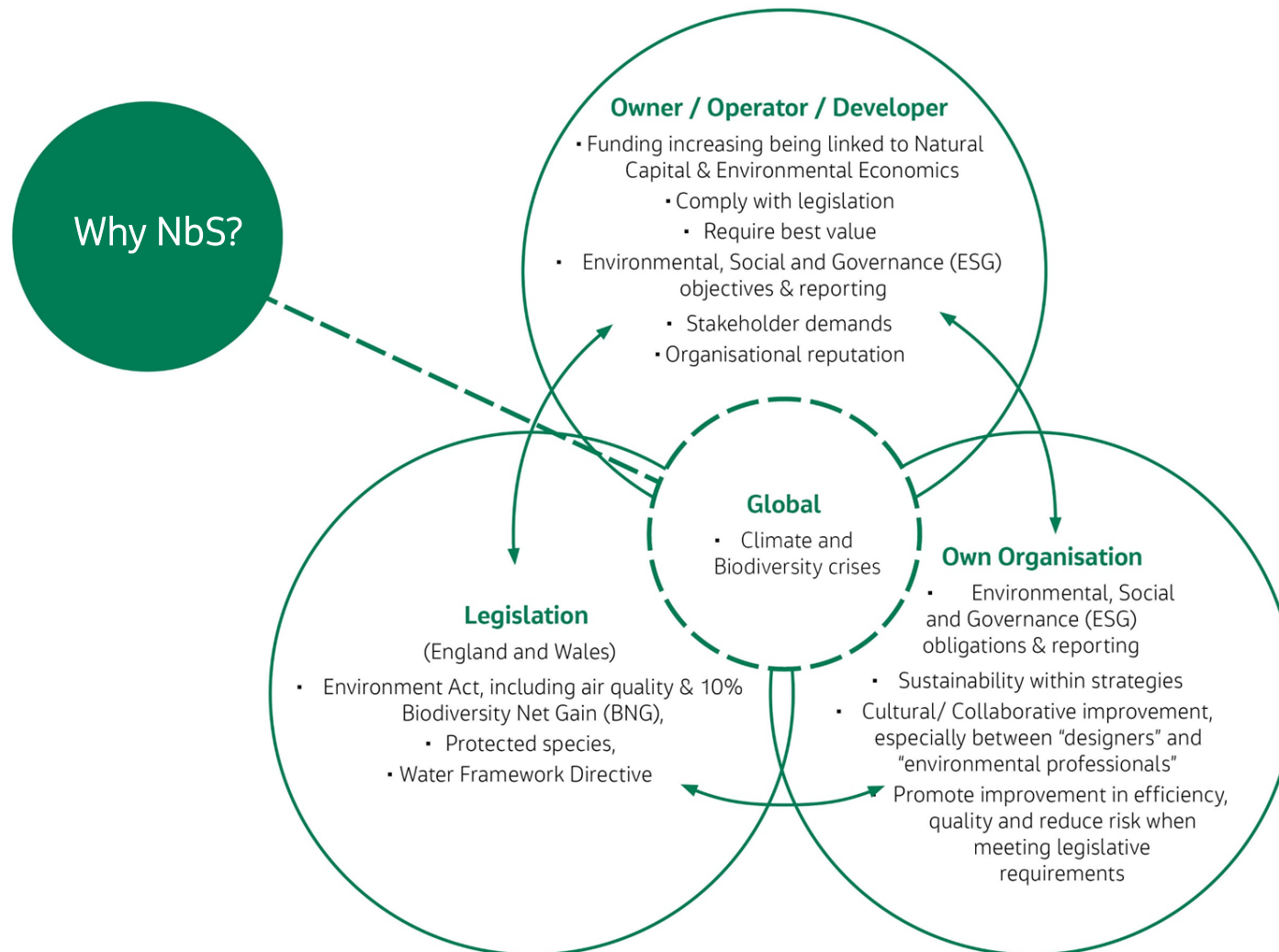


Exeter Flood Defence Scheme – Relief Channels



HS2 - Soils Innovation Project
Colne Valley Western Slopes – Rewilding Principles

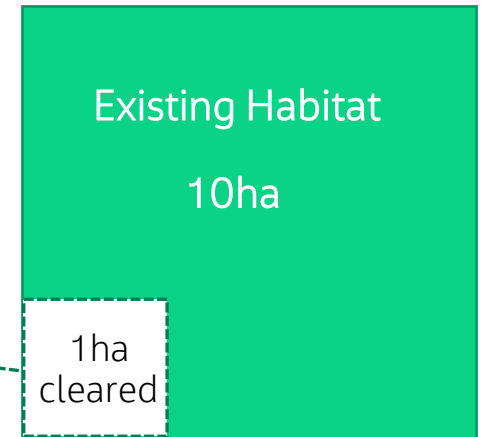
Why use them?



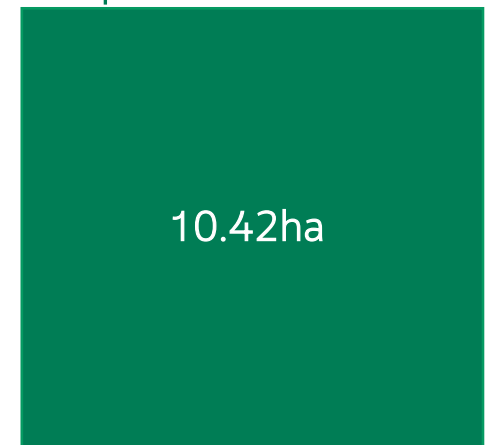
If low distinctiveness woodland such as a highway verge plantation

1.88ha

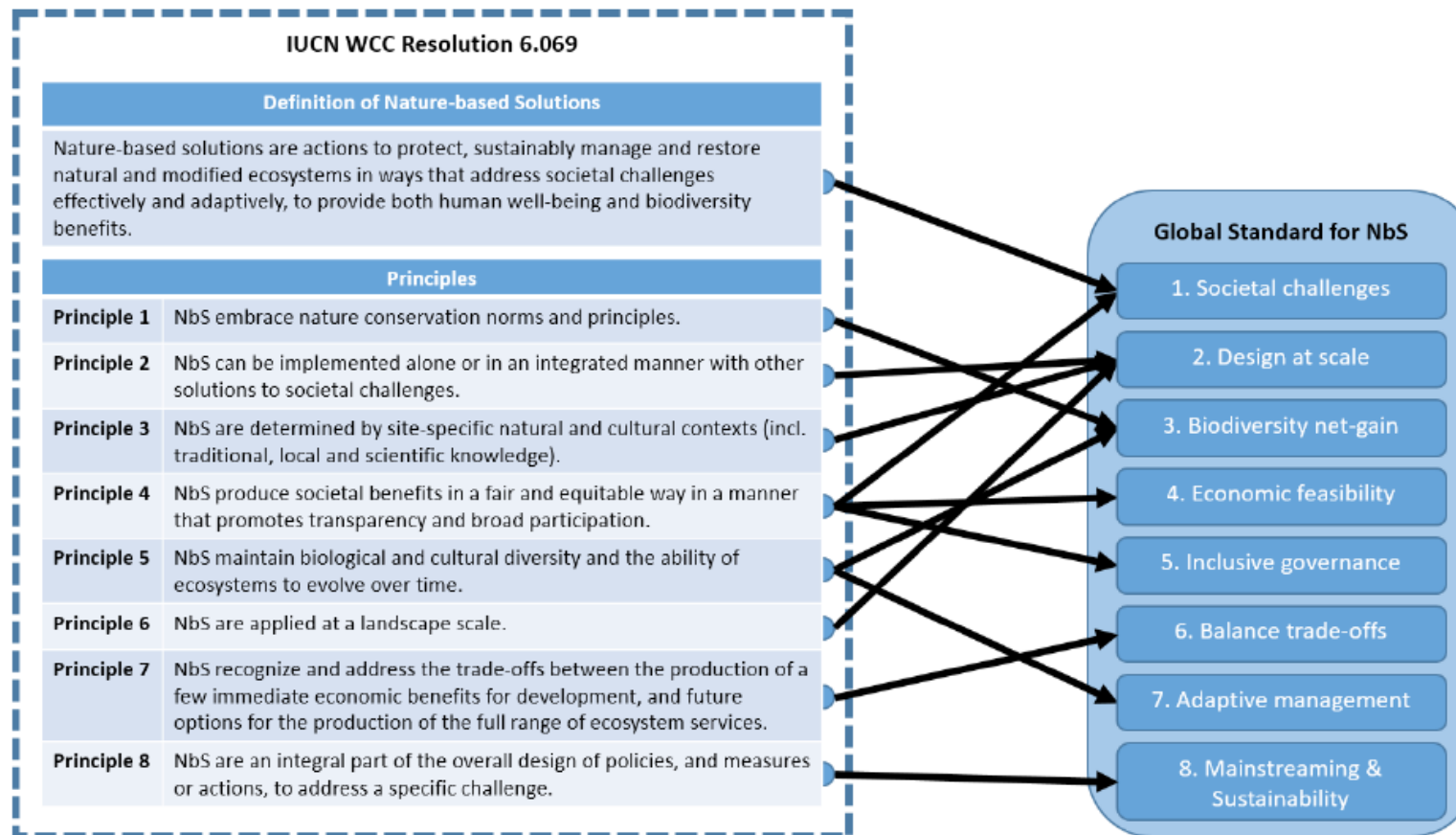
Impact of BNG to clients



If high distinctiveness woodland such as a lowland mixed deciduous woodland (fairly common priority habitat)



Principles



From IUCN documentation

IUCN Principles for NbS, which also link to the eight criteria for the Global Standard

The HS2 Culvert!

- Original culvert **630m**, with maintenance shafts every 50m.
- Reduced to **28m**, with no requirement for any maintenance shafts.



- Sustainable benefits: 97% carbon saving, BNG, ecological connection, public space
- Project benefits: Reduce risk, operational maintenance, H&S risk, cost

Thank you for joining Questions?

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