Natural Capital Guide for the Development Sector

This guide is for local organisations with an interest in natural capital, economic development and prosperity such as local authorities, combined authorities, local enterprise partnerships (LEPs) and local nature partnerships (LNPs).

In line with the 25 Year Environment Plan, the Environment Agency uses a natural capital approach to deliver more benefits for people and wildlife – creating climate resilient places, thriving wildlife, improving people's health and wellbeing and supporting a sustainable economy.

The economy depends on natural capital and the ecosystem services that flow from it through:

- provisioning and regulatory services including carbon reduction, food, clean air and water.
- productivity gains, such as the positive impact of green space on people's health and wellbeing and designing more liveable places.
- creating places that attract and retain a talented workforce.
- the avoidance of future costs to the economy caused by degraded natural capital such as poor soil quality, damaged visitor attractions or risk from hazards such as flooding.

Natural Capital Approach

Disclaimer: This guide does not include an exhaustive list of tools. Other tools may be appropriate for the user's needs. The Environment Agency does not endorse how you use these tools, nor does it provide a comparative assessment. It is your responsibility to assess the relevance and robustness of tools you intend to use.

Natural Capital Guide for the Development Sector

We asked some development sector users their views on taking a natural capital approach in their work and the kind of information that might help support their decisions.

This guide reflects their feedback and includes freely available tools, information and case studies that support collaborative decision-making and a 'place-based' natural capital approach to economic planning.

This interactive guide uses the environmental planning and delivery steps (similar to the 'place-based' approach described in ENCA) to help navigate a selection of the evidence and tools available to understand the value of natural capital and ecosystem services and how they can contribute to recovery, prosperity and levelling up in your area. The cycle is based on the plan-do-review approach so it should help you, either using the cycle in full or going straight to part that you are working on. Against each step, we highlight helpful approaches, useful tools and further information along with case studies.

Tools key:

Excel
Word
GIS
PDF
Web

Natural capital planning and delivery framework

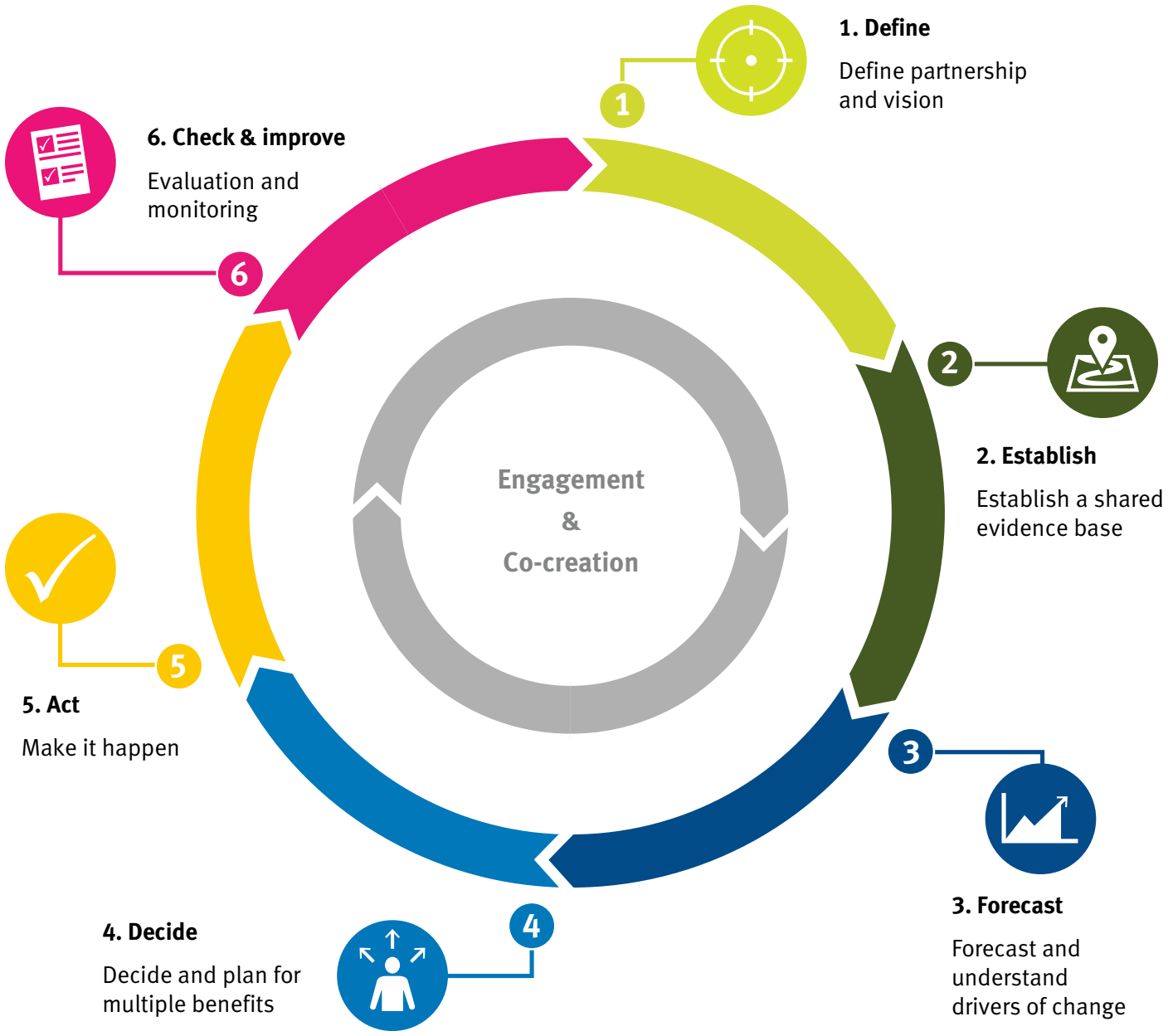


Image: Fishing © Environment Agency

Our user survey said

"There's a real need to increase collaboration and knowledge sharing between LEPs around natural capital. At the moment, it feels like we're all trying to do the same thing, but working in isolation".

1 Define the vision

Develop a common vision for outcomes through collaborative partnerships

It is recognised that no one organisation can manage the environment by itself. We need to work collaboratively with partners to protect and improve natural capital. In order for these collaborations to be successful, they need to coalesce around a common purpose. Identifying a **joint vision** for outcomes for a place is key to successful **collaborative working**. The outcomes may not be purely environmental, as social and economic outcomes may be significant drivers for some stakeholders.

Tools | Application

How might this help the local economy?

- This part of the cycle explores how to define a vision for a place which includes natural capital alongside improving the local economy.
- When agreeing a vision and outcomes it is important to integrate environmental objectives with social and economic objectives for maximum impact.
- Taking a natural capital approach is at the heart of the 25 Year Environment Plan and the Plan is the main source of environmental policy objectives in England. Build Back Better: our plan for growth brings together headline UK economic and social policy objectives. The UN Sustainable Development Goals are a good reference point for the range of sustainable development considerations when setting local visions and outcomes. The Levelling Up White Paper recognises the importance of quality of life and liveable communities.
- Co-creating a vision and plan with environment, business and development partners will make success more likely. Collaboration with partners helps build consensus on the needs and opportunities in a place, develop better cases for investing in nature and identify joint funding opportunities.

1 Define the vision

Develop a common vision for outcomes through collaborative partnerships

Image: Kidbrooke Village © Natural England

Image: Woodberry Spring Park © Susdrain

Tools

- The LEED Toolkit

The Local Environment and Economic Development (LEED)Toolkit is designed to help LEPs and local authorities understand their economy's relationship with the environment to both maximise benefit and minimise risks. This allows LEPs to make sense of the range of environmental information available and organise this into actionable points.

- Catchment-based approach

The Catchment Based Approach (CaBA) is a community-led approach that engages people and groups from across society to help improve the water environment.

Application

- OXCAM LNCP

To help define the vision the project ran several workshops with over 100 organisations from sectors across the Arc.

- The Marches Nature Partnership

The Marches Nature Partnership used the Local Environment and Economic Development (LEED) toolkit which helped highlight economic and natural capital dependencies and led to the co-funding of a baseline ecosystem assessment: Marches Ecosystem Assessment. They have also designed summaries for the business sector and health sector and A Natural Prospectus for The Marches Local Enterprise Partnership.

Further information

Ecosystem Approach Handbook

Ecosystem Knowledge Network can provide ideas and advice for your project or partnership.

Natural Capital Evidence Handbook

Natural England's Natural Capital Evidence Handbook offers guidance on how to gain a shared strategic understanding of the natural environment in any one place, using evidence of nature's value. It follows a 'place-based' approach to natural capital decision making and provides further detail on many of the steps included in this guide.

Image: Spiders web © Natural England

The Greater Manchester Combined Authority estimates that the city's current natural capital will provide £9 billion in avoided health costs over the next 60 years.

2 Establish

Establish a shared evidence base

Illustrating the spatial distribution of natural capital and ecosystem services helps to create a visual overview of assets, services and risks in context. Producing maps helps assemble evidence, see potential data gaps, but also builds discussion with stakeholders about the needs and opportunities in a place. The intended use is within strategic planning through to site-specific assessment. Understanding who **benefits** from ecosystem services and identifying the interests of local business is important in terms of understanding the opportunities for financing and sustainable business models.

Tools | Application

How might this help the local economy?

- At local planning and urban scales, the understanding of nature as an interconnected set of assets that provide a range of benefits frequently uses the language of 'green infrastructure' as defined in Annexe 2 of The National Planning Policy Framework 'a network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities and prosperity'.
- Once the asset baseline has been established, it's important to consider risks to the economy from environmental dependencies for example, between productivity, clean air and water and the avoidance of costly hazards such as flooding and heatwaves.
- Producing a natural capital register and account can help identify 'gross value added' generated by sectors with a focus on natural capital assets such as the agri-food sector, tourism and renewable energy.
- The interaction between natural capital, social, health and economic objectives is recognised. Natural capital valuation tools help to measure benefits people receive from natural assets such as woodland, parks and street trees. It helps us monitor change from the asset baseline, inform decision making and protect the assets for future generations.
- A place-based, equalities, or distributional appraisal (Annex 2 and 3 The Green Book (2020)) may allow you to link your natural capital proposal more accurately and convincingly to specific policy objectives such as levelling-up.

2 Establish

Image: Meadow © Environment Agency

Further information

The links between the natural environment and inequalities

State of the environment

The Importance of green and blue infrastructure

Green infrastructure

Establish a shared evidence base

Tools

- Natural England Natural Capital Atlas: Mapping indicators

Off the shelf natural capital asset baseline and some ecosystem service maps for England at a 5 km grid square resolution.

- Environment Agency's Natural Capital Register & Account tool

A tool that semi-automates the creation of natural capital registers and accounts for different places and at different scales (catchment, sub-catchment and local authority). It systematically and transparently sets out quantitative information about the quantity and quality of natural assets in a place, the flow of services and the value of the benefits.

The tool and supporting reports, guidance and training video can be accessed from the Environment Agency's Natural Capital team by emailing naturalcapital@environment-agency.gov.uk

- ORVal

ORVal predicts the number of visits to existing and new greenspaces in England and estimates the welfare value of those visits in monetary terms. Users can examine the recreational value of existing green space and test how the number of visits and the value of these visits might change if the land cover was changed or if new green spaces were created. Results can be grouped by local authority area or catchment and can be split by socio-economic group.

- Green infrastructure mapping tools

Green Infrastructure Mapping is a baseline of GI across England with multiple data sets that assist in planning GI strategically at different scales and targeting investment where it is most needed. The mapping shows the green spaces that are available to be accessed, and the potential demand for them from demographic data.

- National biodiversity climate change vulnerability model

A GIS model that provides an assessment of the vulnerability of priority habitats in England to climate change based on principles of adaptation for biodiversity.

2 Establish

Image: Woodberry Spring Park © Susdrain

Image: Hyde Park, London © Environment Agency

Establish a shared evidence base

Application

- Tees Valley Natural Capital Account

Using Natural England's Natural Capital Indicators, the Tees Valley Natural Capital Account illustrates, through maps and tables, the state of the natural capital in the area and highlights how it provides benefits to people.

- New Anglia LEP

Application of LEED toolkit by the New Anglia LEP identifies ten opportunities and threats for the LEP area from environmental dependencies, the urgency of these, potential actions that can be taken to maximise the opportunities and minimise the threats, together with any spin off benefits and associated costs of these actions.

- Beam Parklands natural capital account

Beam Parklands is a multi-functional green space in the London Borough of Barking and Dagenham, one of the most deprived areas in the country. After re-development it is now a highly successful blue-green infrastructure investment. It includes flood protection, valued at £591,000 a year, and as well as a multi-use open space it contributes to the conservation of important habitats and wildlife such as great crested newts and dragonflies. The Environment Agency worked in partnership to reduce the risk of flooding to over 570 homes and 90 businesses.

- Millennium and Doorstep Greens

Millennium and Doorstep Greens are parks created as part of initiatives to support local communities in creating, improving and restoring greenspaces. The Outdoor Recreation Valuation Tool (ORVAL) estimates the welfare value of all Millennium and Doorstep Greens nationwide to be £45.8 million per year.

Image: Waves hitting sea wall © Environment Agency

3 Forecast

Forecast impact of climate change and other drivers of change

To adapt to the climate crisis and other pressures such as population growth, land use change, invasive species and new chemical pollutants, we need to plan for the future state of the environment, not just the current state. Drivers (direct and indirect) describe the factors that cause ecosystem change. They may be natural or human-induced, direct or indirect.

Tools | Application

How might this help the local economy?

- Reflect how long-term drivers of change for places such as urban development, policy change, economy and demography changes along with climatic and biotic factors may affect natural capital and the ecosystem services it provides.
- Consider how these impacts can be managed or reduced and what opportunities they present for recovering natural capital.
- Ensure the approach is integrated, so that pressures are addressed together, rather than individually.

The Government is committed to building up to 300,000 new homes a year by the mid 2020s. Homes must be supported by new infrastructure and jobs to create prosperous places and reduce inequality. Improving natural capital through new development is essential to reduce climate change, create resilient places and support nature.

3 Forecast

Image: Dry ground © Environment Agency

Further information

OXCAM LNCP have done a summary review of existing pressures and likely future issues affecting the natural environment across the Arc.

Environmental Pressures and Risks PDF

Forecast impact of climate change and other drivers of change

Tools

- The Government's Futures Toolkit (GO-Science 2017)

Provides a range of practical tools and approaches to explore futures thinking in a strategic way.

- The Climate Impacts Tool

The Environment Agency has developed a tool to help people understand climate risks and address them in strategies and plans. The Climate Impacts tool provides a simple description of potential future challenges.

- RSPB and NE's The Climate Change Adaptation Manual

Is a resource to support practical and pragmatic decision-making, by bringing together science, experience and case studies, and is an accessible entry point to a range of available resources and tools.

- The UK National Ecosystem Assessment

Shows the relative importance of, and trends in, the impact of **direct** and **indirect drivers** on the 8 broad habitat types that are usually used to categorise natural assets.

Direct drivers: changes in land and sea use; direct exploitation of organisms; climate change; pollution; invasive alien species.

Indirect drivers: demographic changes; economic growth; socio-political changes, especially in policies; cultural and behavioural changes; advances in science and technology.

Application

- Kidbrooke

At the Kidbrooke Village Site the Environment Agency is working with Berkeley Group to ensure that resilience to climate change is designed into this 109 hectare scheme from the start. The scheme is split into 6 phases over 20 years to provide 5,000 new homes, shops, cafés, health care facilities, schools, green spaces and a new railway station. Resilience measures include 35 hectares of high-quality green spaces and SuDS including ponds and wetlands. Central to the Kidbrooke Village master plan is the new Cator Park which will link with Sutcliffe Park to provide a 'green spine' through the development.

4 Decide

Decide and plan for multiple benefits

The output of this stage is a **high-level strategy** for a place describing a programme of the most cost-effective or highest value interventions required over the short and longer term. Land use change scenario tools and opportunity mapping help to identify the services and local outcomes that the interventions deliver. This programme will achieve the desired outcomes described in Stage 1: Define.

Tools | Application

Image: Ellis Meadows © Environment Agency

Our user survey said

"There is a need to bring the business community and development community on board and embrace their priorities and objectives which can shape both better understanding of the opportunities as well as seizing the potential for fresh approaches and innovation as part of place planning".

How might this help the local economy?

- This step can help the local economy by bringing together existing environment, society and economic strategy themes and demonstrate how they can be delivered in an integrated way.
- The best interventions will deliver multiple benefits – for example climate resilience, natural flood management and health outcomes. These can then be embedded in local policies, programmes and projects.
- Interventions that deliver environmental net gain (development or land management that leaves natural capital in a measurably better state) should be sought wherever possible.
- Land use change scenario tools and opportunity mapping can help to identify ecosystem services and how they relate to desired local outcomes, ensuring interventions occur in the right place.
- Local Nature Recovery Strategies (LNRS) will provide a focal point for a broad range of land use and management activity and will be used to direct investment from both public and private sectors, including net gain delivered through development and infrastructure.

4 Decide

Image: © Environment Agency

"Urban green and blue spaces that are restored and improved, increase natural capital and create habitat for wildlife and plants and can also have direct benefits for local businesses if they attract more customers to an area".

Environment Agency State of the Urban Environment Report, 2021

Decide and plan for multiple benefits

Tools

Land use change tools that can help steer benefit delivery at a project level

- The Environmental Benefits from Nature Tool (EBNT)

Can be used alongside the Biodiversity Metric to enable some of the wider natural capital impacts of development to be understood at a project level. The EBNT may be used when delivering biodiversity net gain to facilitate better design. The tool uses a habitat-based approach to provide a common and consistent means of considering the direct impact of land use change across 18 ecosystem services. It helps understand the wider natural capital implications of land use change and how it might affect the benefits that society enjoys from nature.

- Natural Environment Valuation Online (NEVO)

A web based tool, drawing on multiple underlying models, that values the change in ecosystem services related to land management actions.

Appraisal tools

- The Green Book

Is the main appraisal guidance used across Government and will guide you through the appraisal process.

Use the Excel worksheet template to appraise the potential effects of a policy or project on natural capital. It follows the 4-step approach:

1. Describe the context.
2. Consider biophysical effects.
3. Consider welfare effects.
4. Consider uncertainties and optimise outcomes.

Use the worksheet alongside Section 3 of the ENCA guidance.

Valuation tools

- Valuation tools

Tools such as CIRIA B£ST offer a quantitative cost-benefit analysis of environmental interventions on the delivery of ecosystem services in a place/project scale. Originally developed for SuDS benefits, but now also looks at wider blue-green infrastructure and natural flood management benefits.

ENCA services data book

- ENCA services data book

Provides biophysical and valuation evidence for ecosystem services such as food production, flood regulation and recreation and environmental impacts such as air pollution and noise.

4 Decide

Image: Invertebrate kick sampling © Environment Agency

Further information

The North Devon Landscape Pioneer used a root cause analysis to identify environmental problems and scope strategic, preventative interventions.

North Devon Landscape Pioneer

Root Cause Analysis

Decide and plan for multiple benefits

Application

- Otterpool Park, Kent

A new Garden Town scheme on largely agricultural greenfield land covering over 700 hectares in Kent, with proposed 8,500 homes and associated infrastructure. The natural capital approach was used in the design and planning of the town and also to demonstrate overall net gain for both biodiversity and the environment.

- Application of the B£st tool in the North of England

This construction industry led project involved qualifying, quantifying and monetising the benefits of integrated water management at developments in Roundhay Park, Leeds and Killingworth and Long Benton in Northumbria.

- Re-development of Smithfield in Birmingham

A sustainability framework incorporating natural capital as one of its KPIs to help direct a regeneration project at Smithfield, in Birmingham. An assessment of development options against 10 ecosystem services was based on the Natural Capital Planning Tool (now NATURE Tool). Analysis of the costs and benefits of natural capital allowed the inclusion of natural capital design solutions, including green roofs, rain gardens and pocket parks.

- The Washlands Project, East Staffordshire

A natural capital approach was used in East Staffordshire on 630 hectares of flood plain and green infrastructure to document the habitat type, extent, quality and ecosystem service provision. An ecosystem service assessment and valuation described the changes to service provision with land use change. Incorporating local indices of deprivation demonstrated potential flow of benefits to society and highlighted the range of beneficiaries. In the business case, natural capital valuation attached an economic benefit to nature restoration of £2.66m, which attracted £2.5m investment specifically for the environmental enhancements.

- Gloucestershire Natural Capital Mapping Project

The project is managed by Gloucestershire Local Nature Partnership (GLNP) and commissioned by GLNP partners and GFirst Local Enterprise Partnership. Maps were developed to show the county's natural capital resources and the opportunities for ecosystem service benefits.

Image: Sutcliffe Park © Environment Agency

Image: Brandon Hill © Unsplash

5 Act

A natural capital investment approach considers the **funding** sources, **finance** structure, and the **revenue** streams and mechanisms to deliver outcomes. By co-creating the vision and investment plan with the organisations and local user groups who have a stake in achieving the outcomes (the beneficiaries identified in Stage 2: Establish), a joint funding/financing pot and revenue streams and mechanisms can be developed. The output is an **investment proposal** – a pipeline of public and private co-funded actions that help deliver the outcomes set.

Tools | Application

How might this help the local economy?

- To encourage private investors whose goals are linked with natural capital, a business case for investment needs to be made that reflects these goals. This can be challenging and to increase the chances of success must relate the result of investment to benefits such as:
  - reducing the cost of operations and business risk by increasing long term resilience and security of supply.
  - creating revenues through new or increased economic activity.
  - fulfilling delivery of regulatory requirements or corporate and social responsibility obligations.
- Involving potential private investors alongside other beneficiaries in collaborative strategic planning helps ensure their goals are recognised and could encourage local investment.
- Innovative funding or 'green finance' approaches that blend private and public investment include green bonds, carbon and nutrient credits and habitat banking. Green finance can maximise the potential for making new links between beneficiaries and investment.

5 Act

Our user survey said

"It's about doing the right thing in terms of our responsibility to manage the demands of climate change – not every business decision is about money – social value and acting responsibly is also a factor. I think once we get this right the economic benefits and prosperity will work hand in hand with developing the natural capital landscape".

Tools

- Microeconomic Evidence for the Benefits of Investment in the Environment 2 (MEBIE2) – NERR057

Natural England produced an evidence review called The Microeconomic Evidence for the Benefits of Investment in the Environment 2 (MEBIE2). It is an evidence package designed to help the user make robust, evidence-based arguments for the benefits offered by the natural environment. It demonstrates that investment in the environment represents a rational use of limited funds and uses a simple evidence chain to link an environmental improvement with a benefit to society.

Further information

OxCam Natural Capital Funding and Investment Guide

Funding and Investment Guide

The Five Case Model

Business cases need to provide evidence across five interdependent areas. This is known as the Five Case Model (HM Treasury 2018)

Five Case Model

Green Finance

The Valuing Nature Network's Demystifying Green Finance Paper (Ozdemiroglu 2019) provides a useful introduction to the challenges and opportunities in the area of green finance. Demystifying Green Finance | Valuing Nature Network (valuing-nature.net) The Green Finance Institute has a wealth of useful information, including about the:

Natural Environment Investment Readiness Fund

Funding Streams

Government funding for growth and economic recovery can provide a catalyst to lever private investment. Government strategies and budget statements are a good starting point for what is available from linked grants and public funding:

National Lottery from DCMS;

Levelling Up Fund

UK Shared Prosperity Fund

Landscape Recovery Funds from Defra

The Levelling Up White Paper and associated policy is the most recent statement on growth and funding from Government.

Levelling Up White Paper

Philanthropic and trust funds are also useful sources of investment for place-based outcomes. These can be accessed through online funding search engines, and also facilitated by My Funding Central.

Image: © Environment Agency

5 Act

Image: Lake District © Unsplash

Application

- The IGNITION project

Is a ground-breaking project that aims to develop innovative financing solutions for investment in Greater Manchester's natural environment.

- Landscape Enterprise Networks (LENs)

LENS puts business and landscape interests together by talking to and understanding the interest of local business – linking opportunities for investment and the protection of natural assets.

- South West Water Upstream Thinking

Upstream Thinking applies natural landscape-scale solutions to improve water quality and supply.

- Greater Manchester Natural Capital Investment Plan

Natural Capital Investment Plans are plans that make the business case for 'green investments' to tackle climate, biodiversity and natural resource pressures by setting out the environmental and related social impacts of investment and any associated returns.

- Natural Course – Our Water. Our future.

Is a programme that aims to better understand and overcome some of the biggest barriers to improving the water environment in the north west of England. It is a collaboration between the Environment Agency, Natural England, Greater Manchester Combined Authority, the Rivers Trust and United Utilities. The project focussed on aligning investment to carry out big, multi-benefit projects. Projects have led to innovation in areas such as local governance of the water environment, embedding a natural capital approach, SuDS and the financing of natural flood management. This collaborative way of working has influenced £41 million worth of activities that benefit the environment, from an investment of £12.5 million.

- Case Study – Green Bonds

In August 2017, Anglian Water issued the first GBP green bond worth £250 million. The proceeds from the bond are to be spent on capital and maintenance costs of sustainable water management and recycling projects to reduce climate footprint and to use nature-based solutions.

Image: © Environment Agency

Our user survey said:

"Natural capital makes a vital contribution to improving the 'liveability' of our region. Economic benefits include tourism and the attraction of skilled labour. It also plays an important role in decarbonisation, combating climate change and reducing flooding".

6 Check and improve

Evaluation and monitoring

Evaluation is an objective process of understanding how a policy or other intervention was implemented, what effects it had, for whom, how and why. You should build evaluation into your project from its earliest design stages, to ensure that you are able to generate informative, high-quality evidence.

Tools | Application

How might this help the local economy?

- This stage will help you carry out a systematic assessment of the impact of your policy or other intervention.
- Factor in relevant indicators for improving the economy such as increasing productivity, improved prosperity, addressing climate change and improving quality of life.
- A 'Theory of Change' can align actions, outcomes and monitoring indicators, distinguishing between 'process evaluation' (assessing effectiveness of what is delivered) and 'impact evaluation' (assessing whether objectives have been achieved) and identifying key assumptions and risks.
- Monitoring and evaluation should be proportionate and realistic with the aim of feeding back lessons and providing evidence for future decision-making and funding.

6 Check and improve

Image: Goldfinch © Natural England

In 25 years' time, the UK population will have grown by over 5 million and more people will live in urban areas. A growing population and smaller family units mean the number of households is forecast to increase by 23%, putting more pressure on the production and consumption of resources.

Evaluation and monitoring

Tools

- The Magenta Book (PDF)

Provides guidance on the key principles and methods for evaluation.

- Better Evaluation

Useful website with a range of information on how to do evaluation.

- Ecosystem Approach Handbook (PDF)

Chapter 5 contains advice on proportionate monitoring and evaluation of both the delivery of a plan and processes of the partnership.

Application

- Monitoring and Evaluation Framework (PDF)

A Monitoring and Evaluation Framework was established for Defra and Natural England's Nature Improvement Areas (funded 2012-2015). The framework includes a selection of indicators under the themes of biodiversity, ecosystem services, partnership working, social and economic.

- Warrington Flood Alleviation Scheme

Natural capital accounting methods were applied to the scheme retrospectively to evaluate the wider benefits, both pre and post-construction and the differences between these. It also looked at a 'betterment' scenario, which tried to understand if the scheme could have been delivered differently if natural capital benefits were included in the decision making process.

Where to go for further information

Acknowledgements

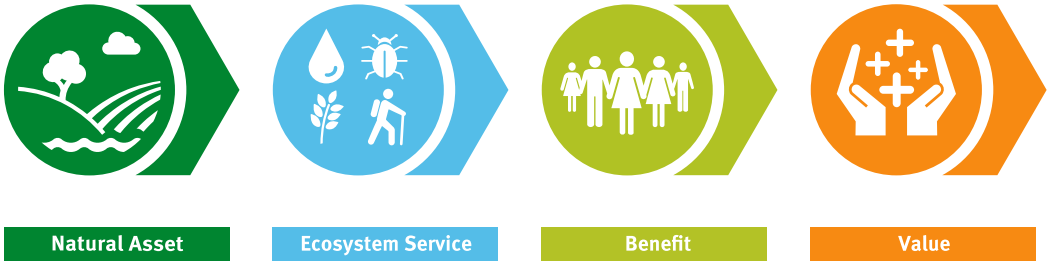
This guide was produced by the Environment Agency with support from Defra and Natural England.

Further information

To access further tools we recommend:

- The Ecosystem Knowledge Tool Assessor
- Enabling a Natural Capital Approach Tool Catalogue
- Natural Capital Protocol Toolkit

If you use assistive technology (such as a screen reader) and need a version of this document as a word doc please email sustainableplaces@environment-agency.gov.uk



Natural Capital Approach