

Industry best practice guidance Biodiversity Net Gain

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Outline of presentation

- Environmental Net Gain – Multiple Benefits - CIRIA BEST tool

- Biodiversity Net Gain
Background to CIRIA/
CIEEM/ IEMA Project

- The principles

What good looks like

- Measurement
- Delivery
- Application



- Freely available spreadsheet-based valuation tool
- Provides estimate of benefits of SuDS and NFM
- Can be applied at programme or scheme level
- Helps to engage stakeholders/potential funders
- Robust, simple to use, best use of available info

The logo for BEST (Benefits Evaluation Tool) consists of the letters "BEST" in a bold, sans-serif font. The "B" and "E" are blue, while the "S" and "T" are green. The logo is enclosed in a white rectangular box with a thin grey border.

BEST

Benefits Evaluation Tool – for SuDS and NFM

The logo for ciria features the word "ciria" in a white, lowercase, sans-serif font, set against a solid green square background. The logo is positioned in the bottom right corner of the slide, overlaid on a background illustration of a residential area with trees and a road.

ciria

The multiple benefits of SuDS and NFM



download BeST here
susdrain.org/resources/best.html

HEALTH

SuDS can play a role in greening streets, neighbourhoods and cities which can contribute to health and wellbeing. They can improve quality of life by reducing pressure on health services and increasing productivity. **Use of vegetated SuDS can provide as much as £400,000 in health-related benefits per 100 adults.**



RAINWATER USE

Harvested rainwater can be used for everyday use where drinking water quality is not needed eg. watering gardens and flushing toilets. **Collecting rainwater and using it in 1,000 properties can save up to £300,000 for water companies, and provide a similar value to customers through reduced water usage.**



WATER QUALITY

SuDS can improve water quality in rivers and water courses. They reduce water pollutant loads and divert these pollutants from combined sewers that are found in many cities, by reducing overflow spills. **Improving a 1km stretch of watercourse from a poor to moderate water quality classification, can result in benefits of over £250,000.**



FLOODING & BIODIVERSITY

Distributing SuDS across green infrastructure networks can reduce flood risk by intercepting rainfall, holding, conveying and storing surface water runoff. Managing water on the surface can cost significantly less than below ground infrastructure. Through good integrated design, SuDS can deliver other benefits. **The creation of 5,000m² of wetland habitat can provide up to £9,000 of benefits through enhanced biodiversity and habitat connectivity.**



AIR QUALITY & CARBON SEQUESTRATION

SuDS that include trees and vegetation can absorb air pollutants and help to remove noxious gases. **1,000 medium sized trees planted in an area with air pollution can absorb up to 80kg of nitrogen dioxide (NO₂) and store 2,500 tonnes of carbon dioxide (CO₂). Over 50 years this can bring £170,000 benefits from reduced damage to health and sequestered carbon.**



EDUCATION

SuDS provide a rich learning environment for students if constructed within or near to school grounds. **Just 200 students visiting a SuDS scheme every year can provide educational benefits equivalent to £50,000.**



BUILDING TEMPERATURE

Green roofs help manage flooding and pollution. They also keep buildings cool in summer and warm in winter. **An 800m² green roof can generate benefits worth £3,500 by reducing CO₂ emissions, and £6,000 by reducing energy costs.**



AMENITY

SuDS can enhance the attractiveness and desirability of urban areas. **Property prices can increase by 3-10% and the value of greening streets with SuDS could be worth £25,000 to nearby residents.**

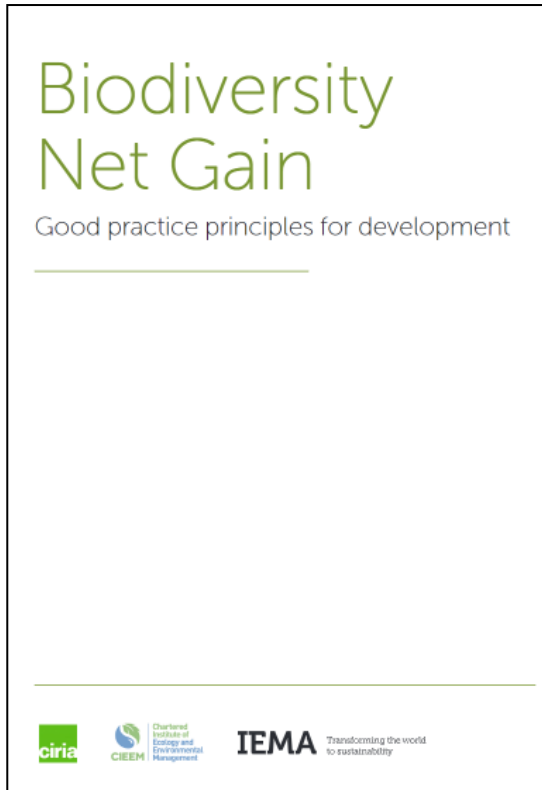


GROUND WATER RECHARGE

Infiltrating rainwater into the ground replenishes groundwater. This increases water availability, reduces abstraction and treatment costs. **Infiltrating runoff from five streets, each 200m long, can provide £16,000 of benefits.**



Biodiversity Net Gain Principles



www.ciria.org/netgain

Apply the mitigation hierarchy

Avoid losing biodiversity that cannot be offset elsewhere

Be inclusive and equitable

Address risk

Make a measurable net gain contribution Achieve the best outcomes for biodiversity Be additional

Create a net gain legacy

Optimise sustainability

Be transparent

Part A: Introduction and overview

1

INTRODUCTION

- About this guide
- The good practice principles
- Key stakeholders
- Applying the mitigation hierarchy

2

OVERVIEW

- What good practice looks like
- Each project lifecycle stage (in a nutshell)

Parts B & C: Benefits and business case

Part B: Local Authorities

Part C: Developers

3

Understanding and maximising the public (sector) benefits

5

The business case for developers

4

Incorporating biodiversity net gain into local plans and strategies

Part D: -Main guidance section

Processes

Life-cycle stages

6

Developing corporate strategies

7

Quality Assurance

8

Stakeholder engagement

9

Feasibility

10

Ecological impact assessment

11

Design

12

Construction

13

Maintenance and monitoring

Part E: Technical Notes

Case Studies

Biodiversity Net Gain

Good practice principles for development

✓ **Measurement**

✓ Delivery

✓ Application

Measurement

Habitat Parcel	Distinctiveness	Condition	Hectares	Biodiversity Unit
Lowland Meadow	6	2	6	$(6*2*6)$ 72 biodiversity units
Scattered trees: broadleaved	6	2	1	$(6*2*1)$ 12 biodiversity units

✓ **Business buy-in**

❖ **Clarify limitations**

❖ **Avoid a single total number**

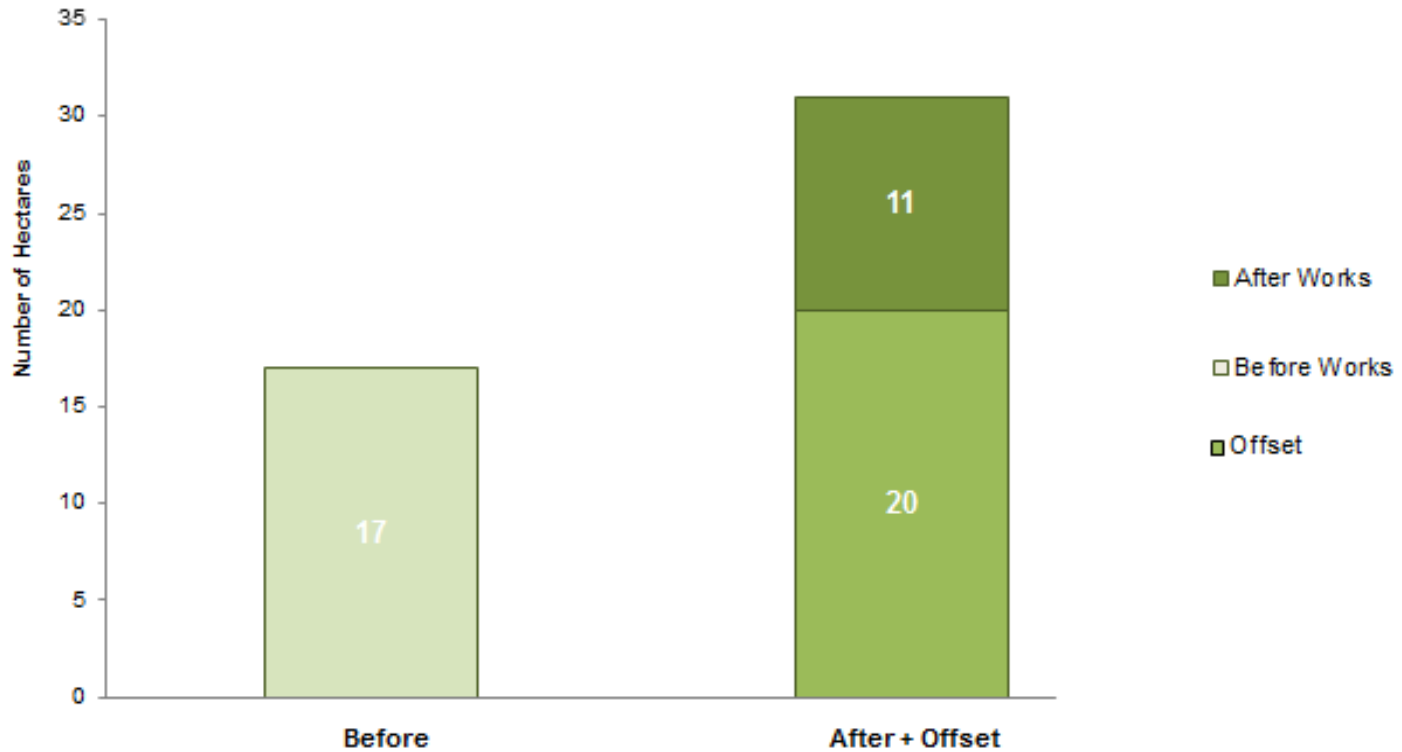
Biodiversity Net Gain for individual features

Table 1. An example of calculating biodiversity units for a project's impacts on biodiversity

Baseline (before works)	Type of Impact	After completion of works	Loss	Gains
1 hectare of woodland generating 12 biodiversity units	Permanent loss of woodland	0 biodiversity units	-12 biodiversity units of woodland	n/a
0.5 hectares of scrub generating 4 biodiversity units	Permanent loss of scrub although the area is seeded with a wildflower/grassland mix after works	0 biodiversity units from the loss of scrub	-4 biodiversity units of scrub	n/a
		3 biodiversity units generated by the wildflower/grassland mix assuming it will be in moderate condition within 5 years		3 biodiversity units from wildflower / grassland

Use this to design & demonstrate Biodiversity Net Gain

Chart 1 **Hectares of habitat before and after works**



Biodiversity Net Gain but losing green space?

Combine biodiversity units with qualitative assessments





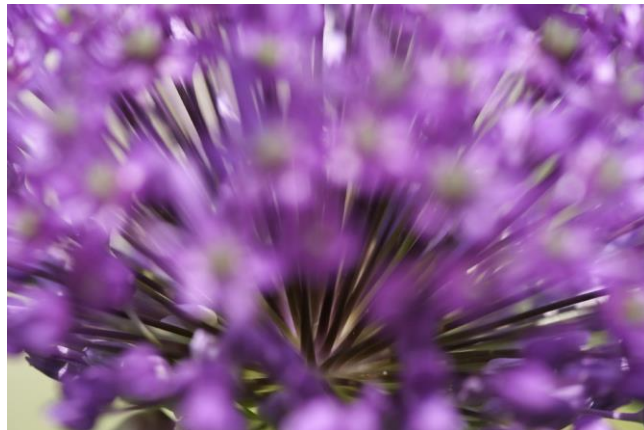
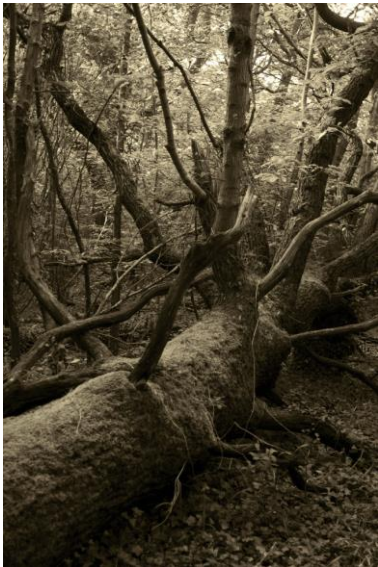
Biodiversity Unit

$$(6 \times 2 \times 6)$$

72 biodiversity units

$$(6 \times 2 \times 1)$$

12 biodiversity units





Biodiversity Net Gain

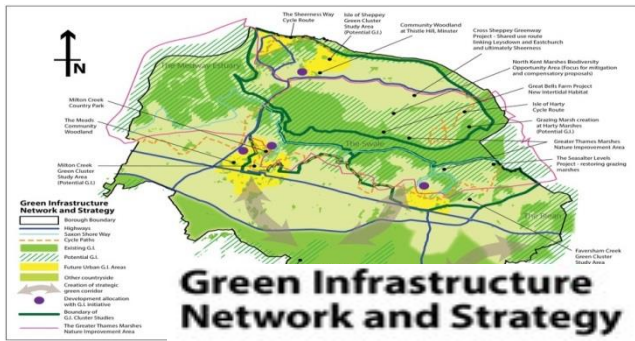
Good practice principles for development

- ✓ Measurement
- ✓ **Delivery**
- ✓ Application

A Green Future: Our 25 Year Plan to Improve the Environment



**National Infrastructure
Delivery Plan 2016–2021**



Make a contribution

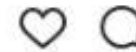




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Wormsley Estate

chilternsociety A huge well done to 30 of our #volunteers who came along to @wormsley_estate on Tuesday to help with the next phase of an exciting Box Woodland project. @Networkrail has awarded £50,000 towards this amazing conservation project which will see thousands of new trees planted on site. We return again in a few weeks to get planting! 🌱 #conservation #nature #woodland #environment #countryside #trees #teamwork #chilterns #oxfordshire #charity



41 likes

APRIL 12



COMPENSATORY CONSERVATION WORKING GROUP

From biodiversity offsets to target-based compensation



BBOP Webinar: 23 October 2018



Biodiversity Net Gain

Good practice principles for development

- ✓ Measurement
- ✓ Delivery
- ✓ **Application**

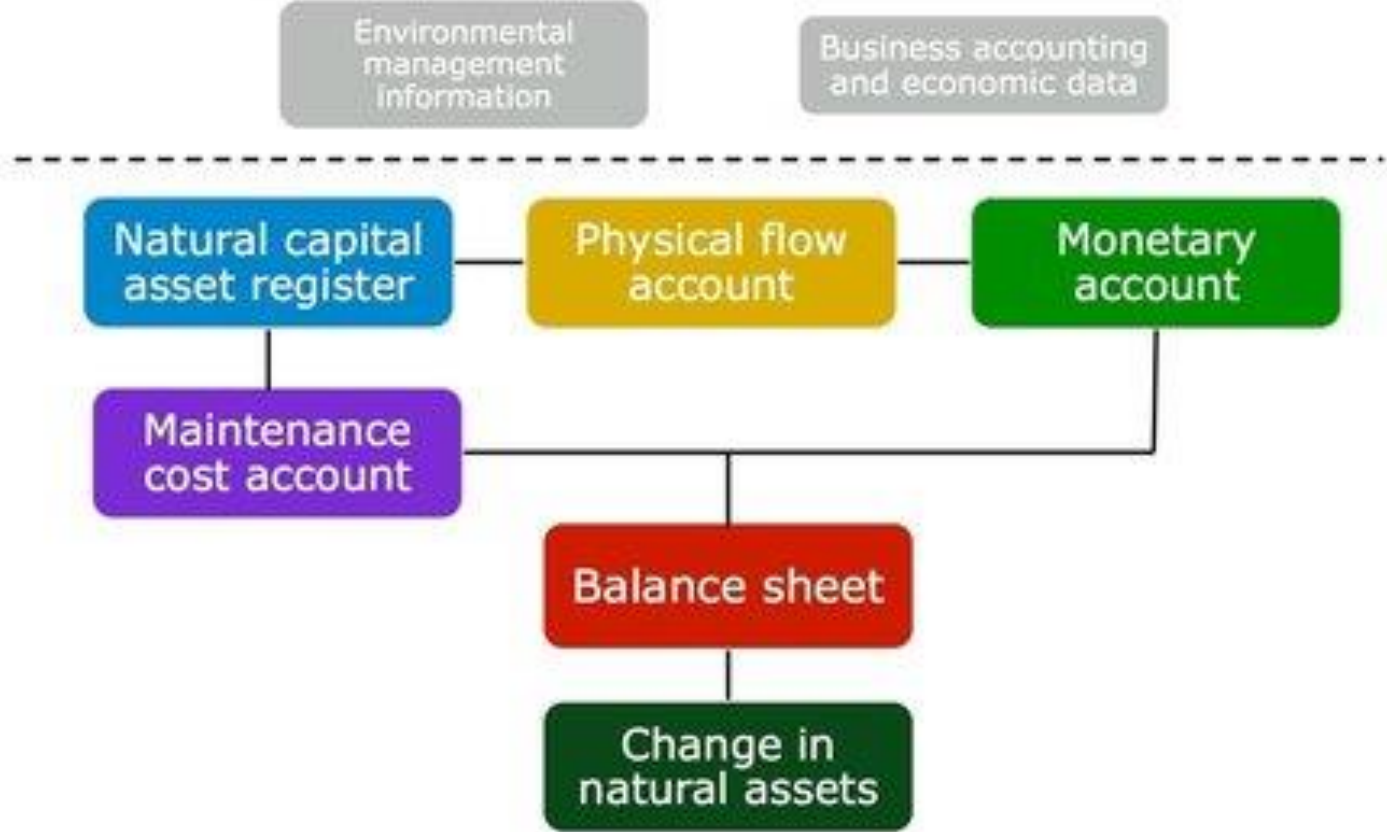
**& environmental
net gain?**



Principle 9. Optimise sustainability

Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.

Social Value of Biodiversity Net Gain



Social Value of Biodiversity Net Gain

The end result of the project in terms of **biodiversity** and the associated **community benefits** from Natural Capital are:

A small increase in biodiversity from **181 to 183** biodiversity units



An increase in net natural capital value from **£4.9m to £5.2m**

<https://www.balfourbeatty.com/media/317116/natural-capital-benefits-of-biodiversity-net-gain-infographic.pdf>

eftec
economics for the environment



What's Next ☞

- ✓ Biodiversity net gain practical guide
- ✓ Professional training courses
- ✓ New international social principles for Biodiversity Net Gain (20th Nov)
- ❖ Emerging practice....
 - Static or dynamic baselines?
 - Counterfactuals?