

CIEEM

Briefing Paper

# Biodiversity Net Gain in Ireland

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# Introduction

In simple terms, Biodiversity Net Gain (BNG) is about designing developments in a manner that leaves biodiversity in a better state than before. This is achieved by avoiding impacts on ecological features of high value, minimising unavoidable impacts, enhancing the value of existing features, and providing new ecological features that were not previously present.

A number of similar terms and acronyms have been used to describe similar processes. No Net Loss (NNL) requires negative impacts on biodiversity to be offset by gains elsewhere, thereby achieving a neutral effect. For Biodiversity Net Gain the gains should exceed the losses, resulting in a positive effect. Biodiversity Enhancement (BE) can refer to elective measures when there are no impacts to offset. For ease of reference we will use BNG as an umbrella term in this document to include assessments of these types.

A pioneering approach to BNG was taken in England, where the Environment Act 2021 introduced a legal requirement for all new developments to achieve a 10% increase in biodiversity units. This is calculated using a metric developed by the Department for Environment, Food and Rural Affairs (DEFRA) that compares habitats before and after development. Scotland and Wales are also developing frameworks, implemented under planning policy rather than legislation.

However, there is currently no formal legislation or policy regarding BNG in the Republic of Ireland or Northern Ireland. In this Briefing Paper we discuss approaches to BNG for use in the Republic of Ireland and Northern Ireland. We hope that it will contribute to a broader discussion about the best approach for Ireland, and will assist policy-makers in each jurisdiction when developing national guidance.

This document has been prepared by the Ireland Policy Group of the Chartered Institute of Ecology and Environmental Management (CIEEM). CIEEM is the main professional body for ecologists in Ireland, with 530 members across the island. We are a cross-border group, so this document represents our view both for the Republic of Ireland and Northern Ireland.

This document may be of interest to the following groups:

- Public authorities responsible for guidance and policy on BNG
- Ecologists designing and assessing BNG assessments for new developments.
- Biodiversity Officers, Planners and other specialists reviewing BNG assessments
- Developers, Architects and Planning Consultants that wish to understand the process
- Members of the public who wish to review and/or critique BNG assessments





# Existing Policy Regarding BNG in Ireland

In the absence of national guidance, a number of public, semi-state and private organisations have started to develop policy regarding BNG. Some examples to date are presented below:

- Many county/city/local development plans now include commitments to implementing BNG for new developments. For example, policy BD7 of the *(Draft) Sligo County Development Plan* 2024-2030 is to *"Require development proposals on sites of 0.5 ha and over to demonstrate a site-specific biodiversity net gain (BNG) ... The same approach will be encouraged, although not required, on sites under 0.5 ha"*. Similarly, policy GI16 of the *Dublin City Development Plan 2022-2028* states that *"Opportunities should be taken as part of new development to provide a net gain in biodiversity"*
- Dún Laoghaire Rathdown, Fingal and Dublin City councils have included the development of Biodiversity Net Gain guidance as an action of the biodiversity plans for each county.
- The *(Draft) Derry City and Strabane Local Development Plan 2032* includes the following: *"where possible, developments will be expected to include suitable measures to contribute positively to overall biodiversity net gain in the District or to mitigate harm caused by development through measures including additional and compensatory tree planting"*.
- Action 3.9 of The Office of Public Works Biodiversity Action Plan 2022-2026 is the *"Development of a suitable approach to Biodiversity Net Gain as a policy principal within flood scheme decisions"*.
- Objective 3 of Irish Water's *Biodiversity* Action Plan is to *"Ensure 'no net loss' of biodiversity when carrying out activities, or delivering plans or projects"* and *"actively seek opportunities for biodiversity net gain by identifying opportunities for biodiversity enhancement at both existing and proposed Irish Water sites"*. To measure this quantitatively, Irish Water has developed an in-house metric based on habitat extent and quality.
- Engineers Ireland produced an issues paper in 2021 titled *'Protecting Biodiversity: The role of Engineers'*, which noted that: *"To halt the loss of biodiversity through development, a project should leave the environment in a better state than before. Aiming for Biodiversity Net Gain should form the basis of all engineering projects."*
- SSE Renewables *"is targeting Biodiversity No Net Loss from 2023 and Biodiversity Net Gain from 2025 on newly-consented large onshore projects"*. They have published internal guidance on Biodiversity Net Gain on new onshore wind energy projects in Ireland and Scotland, which is adapted from English guidance and the Defra metric (see below). They highlight an ambition to improve biodiversity at all new sites, despite *"an absence of a recognised framework in Scotland and Ireland"*.
- The Irish Green Building Council has developed the 'Home Performance Index', which awards certificates for the standard of a home's design, construction and environmental sustainability. Category EN5 refers to Ecology, and awards points for developments that achieve slight, moderate, or significant Biodiversity Net Gain, to be determined by an independent ecologist.

Based on the examples provided above, it is apparent that BNG has already arrived in Ireland. It represents current planning policy in several local authorities, and is expected to be promoted more widely in the next iterations of development plans. Many semi-state bodies have committed to NNL or BNG for all of their projects. A number of private companies (e.g. SSE Renewables) are voluntarily committing to BNG on all new projects.

CIEEM has held recent events on BNG in Ireland, including a webinar in January 2023 and a panel discussion at the Annual Irish Conference in April 2023. Members were asked whether they had carried out a Biodiversity Net Gain assessment, and more than half of the attendees indicated that they had. Most had used the English BNG approach and the Defra metric.

In this context, there is now a clear requirement for national guidance on BNG in Ireland. In the absence of such guidance, different organisations are using different approaches, including adapting methods from England. This is far from ideal, because there is no consistency in approach, nor any agreement

on what would constitute a legitimate enhancement. We strongly encourage the relevant authorities in the Republic of Ireland and Northern Ireland to develop national guidance, to ensure that all methods and outcomes are comparable.

CIEEM is the largest professional body of ecologists in Ireland and Northern Ireland. As such, we wish to provide some comments on the approaches that could be implemented in Ireland. The aim of this is to ultimately assist the relevant authorities when developing national guidance. This document includes the following sections:

- A review of the approaches used in England, Scotland and Wales
- Criteria for a competent ecologist
- Outlining of the approaches, the quantitative approach (a biodiversity metric), the qualitative approach (professional judgement), and the combined approach
- How to incorporate BNG into other ecological assessments
- Ecological features that may be considered 'irreplaceable'
- Categories of development for which BNG could be mandatory, recommended or exempt
- Feasibility of ex-situ compensation
- Timescale for implementation, and monitoring
- Key considerations for habitat enhancement
- Some suggested biodiversity enhancements for urban and suburban projects







# Approaches to Biodiversity Enhancement in Britain

### CIRIA-CIEEM-IEMA Guidance

CIEEM in association with Construction Industry Research and Information Association (CIRIA) and the Institute of Environmental Management and Assessment (IEMA) published *'Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide'* in 2019. It is a very comprehensive guide, and should be the first source of guidance for any BNG assessment. The key considerations of the guidance are summarised as follows:

- Ecologists should be engaged at the very start of the design process. They should visit the site and identify any important ecological features, so that they can be taken into account during the preliminary design phase.
- The mitigation hierarchy should always be applied sequentially. The ecologist's first approach should always be to avoid impacts on ecological features. Where this is not possible, they should mitigate/minimise negative impacts. As a last resort, impacts can be compensated elsewhere.
- Avoid losing biodiversity that cannot be offset elsewhere, e.g. designated sites, irreplaceable habitats.
- Engage stakeholders early, and involve them in scoping and implementing BNG approaches.
- Interventions must be implemented and monitored in the long-term, usually 25 - 30 years.

### Varying approaches in England, Scotland and Wales

The CIEEM-CIRIA-IEMA guidance applies to all of Britain and Ireland, but slight variations in national guidance have been adopted in England, Scotland and Wales. There is currently no formal guidance in the Republic of Ireland or Northern Ireland.

### The English approach: Biodiversity Net Gain

Under the Environment Act 2021, the English government introduced a mandatory legal requirement that new developments must achieve a 10% net gain. The law will come into force from January 2024.

The English approach is quantitative, using the Defra Biodiversity Metric (further details are provided below) to mathematically calculate changes in the extent, distinctiveness and condition of habitats between the pre-construction and post-construction scenarios. It should be noted that this refers only to habitats, and not to any other ecological features (designated sites, protected species, invasive species, etc).

Where the 10% biodiversity net gain cannot be met within a development site, provision is made to compensate for impacts outside the development site. The Environment Act 2021 provides a legislative basis for a register of 'biodiversity gain sites', which are managed solely for the purpose of biodiversity enhancement. The Act also creates a system of national 'biodiversity credits', which formalises the means by which developers can make financial contributions to biodiversity gain sites. However, on-site gain will always be favoured over off-site gain.

Exemptions to the 10% net gain are provided for householder applications and other small-scale developments, as well as for sites consisting only of buildings and artificial surfaces (i.e. zero baseline ecological value). With these exceptions, the 10% net gain applies to all developments, regardless of scale.

As an aside, we note that the term 'Biodiversity Net Gain' does refer to a specific English approach. Different terms have been used in Scotland and Wales (see below) to avoid confusion between distinct approaches. We also note that 'Biodiversity Net Gain' is a term commonly used in Ireland, however, it is important to distinguish the approach used in Ireland from that in England and it may be preferable to adopt a term / title in the future that refers only to the Irish methodology.

### The Scottish approach: Positive Effects for Biodiversity

The Scottish Government has opted to deal with BNG using policy (The Fourth National Planning Framework 'Policy 3: Nature Crisis') rather than legislation. NPF4 does not specify or require a particular assessment approach or methodology, although the policy does make clear that best practice assessment methods should be utilised. Assessment may be qualitative or quantitative and — where relevant — should align with

existing statutory and other assessment requirements.

In September 2023, the Scottish Government published SRUC research titled, Measuring biodiversity: research into approaches. It concluded that *"with refinement, Natural England's Biodiversity Metric 3.1 could be adapted for planning and development use, and as part of a wider set of metrics within a biodiversity framework. These refinements include the coverage of habitats, and adjustments to condition assessment and multipliers to reflect Scottish contexts."* At the same time, the Scottish Government made a commitment to the development of a biodiversity metric or measurement tool in Scotland that could unite multiple related sectors: natural capital markets, planning and development, biodiversity conservation and monitoring and agriculture.

The Scottish Government commissioned NatureScot to develop a biodiversity metric for use in the Scottish planning system. The metric is intended to support delivery of NPF4 Policy 3b by applying a consistent approach to measuring biodiversity and thus enabling the delivery of appropriate biodiversity enhancement in Scotland. NatureScot's work focuses on adapting England's statutory metric to better reflect Scotland's different legislative, policy and environmental context. A key issues consultation was conducted by NatureScot and ended in May 2024.

In November 2023, the Scottish Government published Biodiversity: Draft Planning Guidance, which states that, *"It will be for the applicant to demonstrate, through the planning application, those ways in which biodiversity will be left in a 'demonstrably better state' than before intervention."* (Policy 3b (National / Major / EIA Development): 4.6)

While a biodiversity metric is in development, the Biodiversity: Draft Planning Guidance states that, *"...the absence of a universally adopted Scottish methodology/tool should not be used to frustrate or delay decision making, and a flexible approach will be required. Wherever relevant and applicable, and as indicated above, information and evidence gathered for statutory and other assessment obligations, such as EIA, can be utilised to demonstrate those ways in which the policy tests set out in NPF4 have been met. Equally, where a developer wishes to use an established metric or tool, the planning submission should demonstrate how Scotland's habitats and environmental conditions have been taken into account."*

Therefore, at present, different qualitative and quantitative approaches are being used across Scotland.

### The Welsh approach: Net Benefits for Biodiversity

The Welsh Government's Net Benefits for Biodiversity (NBB) approach has the same intent as Biodiversity Net Gain in England – to deliver an overall improvement in biodiversity - but does not utilise a metric.

In Wales, Section 6 of the Environment (Wales) Act 2016 imposes a duty on public authorities in Wales to maintain and enhance biodiversity and promote the resilience of ecosystems. Biodiversity considerations were embedded in the planning process in Planning Policy Wales 11 (PPW 11), which required that, *"development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity."*

In 2024, the Welsh Government released Edition 12 of Planning Policy Wales (PPW 12). which provides further clarity on securing NBB through the application of the stepwise approach (see paragraph 6.4.14), including the acknowledgement of off-site compensation measures as a last resort, and the need to consider enhancement and long-term management at each step.

PPW 12 (paragraph 6.4.16) does not specify that NBB be applied to particular scales of development, rather it states that, *"All development must deliver a net benefit for biodiversity and ecosystem resilience from the baseline state (proportionate to the scale and nature of the development proposed)."*

Ecologists are encouraged to take a whole system approach when conducting assessments including an understanding of:

- the biodiversity value of a site;
- its ecosystem resilience, described using Natural Resources Wales' DECCA approach (Diversity, Extent, Condition, Connectivity and Aspects);
- the ecosystem services or benefits provided, and;
- its existing and potential linkages with the wider green infrastructure network – before and after as a result of the development proposal.

Atkins is in the process of developing criteria for Net Benefits for Biodiversity in collaboration with the Welsh Government and CIEEM. These will relate to the attributes of the DECCA framework, and adhere to the stepwise process as outlined in PPW 12.

# Key considerations for BNG on the Island of Ireland

In this section we describe key considerations for the implementation of BNG on the Island of Ireland. In general terms, we consider the CIEEM-CIRIA-IEMA Good Practice Guidance to provide the best over-arching framework for BNG, and we recommend that it should be considered as the main reference text for all BNG assessments. However, within this framework there are a number of key considerations, which we outline below.

### Engaging a competent ecologist

Developers should ensure that ecologists are suitably-qualified to carry out a BNG assessment. We consider the following qualifications and experience to be the minimum requirements for the lead ecologist on a BNG assessment:

- A Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM) or similar professional body, and subject to a published code of conduct
- A minimum of 3 years experience as an ecologist
- Demonstrable experience and training in any specialist surveys required (e.g. bats, birds, botany)
- A qualification in ecology or a related subject

Although aspects of BNG can be designed and/or implemented by other environmental disciplines (e.g. a landscape architect, environmental consultant), the assessment must always be coordinated and reported by a competent ecologist.

The ecologist must be engaged at the start of the design process, and should carry out a survey of the development site before any work commences. This provides an initial baseline against which any future gain can be measured, and is essential to the process. This will ensure that any important ecological features (e.g. irreplaceable habitats) can be identified at an early stage, and ideally avoided.

The ecologist will then provide iterative assessment over the course of the design process, culminating with a planning assessment. After planning is secured, the ecologist will often need to advise the developer during the construction process, and to monitor ecological features when the development is operational.

### Measuring Changes in Habitats: Qualitative vs Quantitative Approach

When carrying out a BNG assessment it is necessary to determine the 'importance' of ecological features. This valuation process can be complex, as it is influenced by a range of variables, such as the extent of a given ecological feature in the region, the condition of that feature at the time of survey (e.g. anthropogenic degradation), and the longer-term national trends in its conservation status. CIEEM guidance on Ecological Impact Assessment sets out a framework for ecologists to value and identify features of ecological importance. In Ireland, EPA Guidance for Environmental Impact Assessment Reports provides additional terminology based on context, character, significance and sensitivity. These are qualitative assessments based on an ecologist's professional opinion of the information available to them.

As an alternative to the qualitative approach, the UK Department for Environment, Food & Rural Affairs (DEFRA) developed a Biodiversity Metric for England, which is a habitat-based approach used to calculate an area's value. The metric assigns a score (referred to as 'biodiversity units') for each habitat based on its area, distinctiveness and condition. The ecologist must judge which category to select, using pre-determined scores assigned by the metric. By comparing biodiversity units between the pre-development and post-development scenarios, the metric then determines the change in ecological value of a site.

By representing habitat features using numerical values, the metric allows a quantitative rather than a *qualitative* approach. This is necessary when applying numerical targets to BNG: for example, the Environment Act 2021 requires a minimum 10% net gain (calculated using the biodiversity metric) for all new developments in England, or when using biodiversity credits to trade for off-site compensation. It provides a standardised approach that facilitates comparisons of habitats between different sites. It also allows a finer level of assessment at a site level than is provided by qualitative assessments. There is also an increased interest in this approach due to the imminent introduction of the EU Corporate sustainability Reporting Directive that was adopted in Nov 2022.

A quantitative approach may seem preferable to a qualitative approach in certain circumstances, as it can be seen to reduce subjectivity of ecologists' conclusions and provide a standardised approach. However, ecosystems are inherently complex, and any attempt to represent them numerically will involve a series of assumptions and simplifications. For example, a metric will apply the same score to a habitat (e.g. heath or bog) wherever it occurs in Ireland, whereas an ecologist could use their professional judgement to account for regional differences, e.g. heath and bog is relatively widespread in oceanic regions of Ireland but rare in the south-east.

Furthermore, a metric does not entirely remove subjectivity from the assessment. The Defra metric requires a condition score for all habitats using a five-point scale (poor, fairly poor, moderate, fairly-good, good) and applies a multiplier of between 1 and 3. Subjective differences between ecologists (e.g. moderate vs fairly poor) will influence the outcome of the model, and may be the difference between a net gain and a net loss.

In summary, it is clear that metrics can have a role in Biodiversity Net Gain assessments, and allow certain analyses that are not possible using qualitative assessments (e.g. biodiversity credits and off-site compensation). However, it is important to recognise the limitations of metrics, and that they do not supersede an ecologist's professional judgement.

### Should we use a biodiversity metric and/or numerical target?

We are aware that the Defra metric has been used for BNG assessments in Ireland, either using the original UK habitat classification, or adapted to the Irish habitat classification system (Fossitt, 2000). Some organisations in Ireland have also developed alternative metrics to be used in their assessments. It is understood that other metrics specific to Ireland are currently in development.

Some limitations associated with using metrics can include:

- To date all metrics are based solely on habitats, and do not consider other ecological features such as protected species (e.g. bats, fish, rare flora), invasive species, ex-situ designated sites, etc. A development could have a positive effect on habitats and a negative effect on species, but only the former would be counted by the metric. It is important to note that some protected species favour habitats of relatively low intrinsic value (e.g. built structures for roosting bats, or pre-thicket conifer plantations for Hen Harriers)
- The Defra metric has been developed for use in England, based on several years of consideration and consultation. We note that Irish adaptations of the Defra metric have matched Fossitt categories with the *UK Habitat Classification* scheme, however, it will also be necessary to adjust the distinctiveness scores to reflect differences in the relative importance of some habitats between England and Ireland. For example, beech woodland is native in England but non-native in Ireland. The adaptation process would require research, consultation and trialling.

Any assessment of fauna, designated sites, invasive species, etc., must be based on expert qualitative judgement.

In all cases, the ecologist's decision should be evidence-based, including specialist or expertise input where required, and include facts and figures that justify their conclusion, e.g. 100m of existing non-native hedgerows will be removed, and 200m of new native hedgerow will be planted, resulting in a net gain in the quantity and quality of hedgerow habitat.

Another option is a 'hybrid approach' in which a metric is used to assess certain habitat features, e.g. to demonstrate that proposed habitat management measures would achieve net gain in comparison to habitats that will be removed. However, any such calculations would be used in support of a broader qualitative assessment, and would not be the primary focus.

Finally, we welcome the development of a metric specifically for an Irish context, and we urge ecologists to acknowledge and understand the limitations of any metric and consider how these limitations can been taken into account.

### How can BNG be incorporated into other ecological assessments?

Most aspects of a BNG assessment are covered in an Ecological Impact Assessment (EcIA) or Biodiversity Chapter of an Environmental Impact Assessment Report (EIAR), such as the description and valuation of baseline features, assessment of potential impacts, addressing impacts using the mitigation hierarchy, and consideration of residual impacts. The 'Residual Effects' section of an EcIA involves a review of the positive or negative impacts of a development after mitigation measures, and thus is effectively a

judgement of whether a development results in a biodiversity gain or loss.

In this context, we think the following additions to an EcIA could be made to incorporate a qualitative BNG approach:

- It would be declared clearly in the introduction of the EcIA that the aim is to achieve biodiversity net gain. Relevant national or local policies (e.g. County Development Plans) would be quoted. The ecologist would outline their approach to assessing BNG.
- In the 'Mitigation' section of the EcIA, the ecologist would discuss all impacts using the mitigation hierarchy. In the first instance they should aim to avoid impacts, and then to mitigate/minimise impacts. Where this is not possible, compensation is the last option. An evidence base for all avoidance, mitigation and compensation measures would be provided
- Separate to the compensation process, an ecologist may propose measures whose only purpose is to enhance the ecological value of a site, e.g. providing bat or bird boxes, reducing frequency of mowing grassland habitats. This is different from mitigation, because it is not linked to any impacts - these measures would be presented under a separate heading
- In the residual impacts section, the ecologist would summarise the impacts on each Important Ecological Feature and conclude whether the impacts are negative, neutral or positive. This process should be honest and transparent so that third parties can understand the ecologists' rationale. At the end of the process the ecologist would provide an overall conclusion for the development as a whole, using significance terms (e.g. slight, moderate, significant) and geographic terms (e.g. Local, County) as appropriate.

In this context, it may not be necessary to prepare stand-alone BNG assessments alongside an EcIA or EIAR Biodiversity chapter and have all relevant information included in one document rather than producing multiple repetitive documents. However, the ecologist should use separate headings to distinguish between, Ecological Impact Assessment, BNG and other relevant considerations.







# Additional considerations

### What habitats should be considered irreplaceable in Ireland?

Under CIEEM guidance, BNG cannot be considered for certain 'irreplaceable' habitats. This is defined in Technical Note T3 of the CIEEM guidance as follows: *"Irreplaceable habitat is habitat that, once lost, cannot be recreated elsewhere, within a reasonable timeframe. Ancient woodland, active peatland and limestone pavements are widely accepted as examples of irreplaceable habitats. There is less agreement or understanding of what other irreplaceable habitats are present within the UK."*

We do not consider it necessary to provide detailed guidance on what habitats should or should not be considered irreplaceable, because this is usually context dependent. Some features may be common and widespread in one part of the country, but rare and localised in another part of the country. However, in general terms, any features of national or international importance should be considered 'irreplaceable'. This would typically include ancient woodland, active peatland, limestone pavements, freshwater springs/ wetlands, coastal habitats (mudflats, saltmarshes, dunes), and perhaps the qualifying interests of designated sites. CIEEM Guidance on Ecological Impact Assessment provides a system for the valuation of habitats at different geographical scales, which takes all relevant factors into account.

Certain habitats may be common and widespread, but may be impossible or very difficult to replace. For example, curlew may nest in semi-improved grassland, and derelict buildings can support roosts of lesser horseshoe bat. It may be possible to replace these features, e.g. through management of surrounding grassland or construction of an artificial roost. However, in some circumstances a key feature for species may be considered 'irreplaceable' in the same manner as the habitats above.

The key is that ecologists should identify potential irreplaceable habitats at an early stage in the project design, and communicate their importance to the design team. Early consultation with statutory agencies (e.g. NPWS, NIEA) is strongly advisable in these cases. The priority should always be to avoid impacts on these habitats, followed by other steps in the mitigation hierarchy. Where impacts cannot be dealt with under the mitigation hierarchy, then impacts on irreplaceable habitats cannot be offset to achieve BNG.

### Should BNG be mandatory for all developments?

Large and moderate-scale developments such as infrastructure projects, flood alleviation schemes, renewable energy (wind farms, solar arrays) and large residential developments are likely to have opportunities to achieve BNG. Therefore, it would be reasonable and feasible for planning authorities to introduce a mandatory requirement for all such developments to achieve BNG, as is the case in Scotland.

However, it may not always be feasible for small and moderate-scale developments to achieve BNG. For example, many city-centre developments do not have any soft landscaping, which substantially limits opportunities for biodiversity enhancement (the English Biodiversity Net Gain approach has an exemption for sites consisting only of buildings and artificial surfaces). When redeveloping brownfield urban sites it may be necessary to clear large areas of ruderal vegetation, dry meadow or scrub; all of which could potentially be of local ecological importance in an urban context. It would be impossible to implement enough biodiversity enhancement measures to achieve a net gain, which would effectively make it impossible to develop the site. This may be counterproductive from an ecological perspective, as it is usually preferable to redevelop brownfield sites than to build on greenfield sites. Therefore, for small or moderate-scale developments BNG could be an expectation rather than a mandatory requirement. Pragmatic exemptions may be considered, notably where a brownfield site has been recolonised by vegetation.

However, reasonable evidence would still need to be provided when a developer requests an exemption from BNG. The process should always start with an ecologist's baseline inspection of a site, and liaison with the design team regarding the mitigation hierarchy and review of potential ecological enhancements. Where the ecologist considers it impossible to achieve a BNG, their case should be justified in writing (e.g. as part of an EcIA) and provided as part of a planning application.

### Should ex-situ offsetting be considered?

The CIEEM guidance acknowledges that BNG cannot always be achieved within a development site, in which case impacts can be offset outside the development site. This may involve purchasing additional land solely for the purposes of biodiversity enhancement, or

contributing financially to the enhancement of an area that is managed by a third-party. A formal framework for the latter has been developed in England, in which offsite lands used for BNG must be registered on a biodiversity gain register and their usage linked back to a specific planning permission, measured using a standardised biodiversity metric and legally secured for at least 30 years. Some sites are managed by local authorities, and others are managed by NGOs or private companies.

In principle we support this approach, as it increases the quantity and quality of land available for biodiversity. However, this system can only operate reliably when there is a system to coordinate and account for the management of these areas, and such a system does not currently exist in Ireland. Local authorities and the National Parks and Wildlife Service are unlikely to have the resources to coordinate or manage offsetting areas. We do not currently have a system to calculate biodiversity units or the amount of land required for offsetting. We also do not have the necessary systems in place to ensure that offsetting areas are managed appropriately in the long-term.

Therefore, for the Irish model of BNG we do not currently consider it feasible to propose financial contributions for ex-situ offsetting. This may become feasible in the future, but it would require a framework to be put in place, e.g. the 'biodiversity gain register' used in England. The framework should be developed at a national level by state authorities.

At present developers may choose to purchase additional land for biodiversity enhancement that they manage themselves. However, they should be providing clarity on the ownership of such land, on its long-term management and monitoring, and on the ecological personnel that will be involved in it. This land would typically be included in the red-line boundary for the planning application, and management commitments should be provided as part of the planning application. The public authority could use planning conditions to ensure that biodiversity enhancement areas are implemented as proposed.

Developers may also make financial contributions to the management of a natural area managed by a third party (e.g. an NGO). If this is the case, they would need to specify what the financial contribution would be, what it would be used for, and why it would be relevant to the ecological impacts identified in the BNG assessment. This is a rather indirect method of compensating for ecological impacts. In general terms, on-site protection is always preferable to off-site compensation.

### Marine environments

CIEEM's guidance on BNG was developed primarily for terrestrial and freshwater environments. It was acknowledged that marine environments have many differences from terrestrial / freshwater environments, because marine habitats are often highly dynamic, and marine fauna are highly mobile. Therefore, in 2022 DEFRA released consultation documents on Marine Net Gain, which will commence the approach from first principles.

It is likely that BNG in marine environments in Ireland and Northern Ireland will also require some adjustment from the measures used in terrestrial and freshwater environments.

### Timescale and monitoring

Ecological compensation and enhancement measures take time to implement, and must be managed and monitored in the long-term. In the CIEEM Good Practice Guidance it is stated that *"Biodiversity compensation should be planned for a sustained net gain over the longest possible timeframe. For development in the UK, the expectation is that compensation sites will be secured for at least the lifetime of the development (e.g. often 25 - 30 years) with the objective of net gain management continuing in the future."*

This is a key issue in ecology, because many ecological features require long-term maintenance to achieve the desired effect. For example, the ecological value of a grassland can be enhanced by managing it as a traditional hay meadow, by mowing it once per year in late - summer / autumn. Over 5 - 10 years the meadow will be colonised by a range of native wildflowers, and will become high quality habitat for pollinators and a range of other species. However, if the habitat is not mowed, it will become dominated by coarse grasses, and the coverage of native wildflowers will decrease. Over 5 - 10 years it will be colonised by scrub (e.g. brambles, gorse, willows), forming a very different habitat than was originally intended. This demonstrates the importance of long-term maintenance, and the periodic monitoring by an ecologist that can address any issues.

Therefore, all BNG assessments should include a timeline for the implementation of compensation and enhancement measures, including the following:

- Initial implementation of measures, typically during or immediately after construction
- Planned maintenance over the lifetime of the development, e.g. annual mowing of

meadows, spot-treatment of invasive species, cleaning droppings from bat roosts

- Monitoring of the effectiveness of BNG measures, initially on an annual basis, and then at intervals of 3 - 5 years
- Review and adaptation of measures that are not working as expected, to account for unplanned events (e.g. storms, fires), or advances in best practice

From a practical perspective, planning authorities must ensure that land set aside for ecological compensation / enhancement is reserved specifically for that purpose in the long-term. It is particularly important to distinguish between BNG areas and recreational areas, because the latter requires management (e.g. regular mowing) that is incompatible with BNG, and may involve activities that disturb fauna (e.g. dog walkers). It is also important that BNG areas are not simply re-developed after a few years.

Commitments to BNG must be recorded in a planning consent, and their implementation controlled using planning conditions. The following may be included as a planning condition: *"The Biodiversity Net Gain commitments will be implemented in full over the timeline set out in the [relevant ecological report]. The applicant will submit evidence that an ecologist and maintenance team have been engaged for the duration of this period. Evidence of ongoing monitoring and maintenance must be provided to the planning authority upon request. Any remedies required during the course of the implementation, monitoring and maintenance of the BNG measures will be addressed to the satisfaction of the Planning Authority"*

### Key considerations for habitat enhancement

As a general measure, we suggest that any habitat enhancements should be based primarily on plant species that are native to Ireland and of local provenance, as they have highest suitability for Irish fauna. Non-native plant species may have some value in certain circumstances (e.g. spring flowers for pollinators), but in general terms they have lower value than native species. Non-native shrubs and flowers should not be considered as BNG measures.

Retained habitats will almost always be of higher ecological value than newly-created habitats. Ecologists should aim in the first instance to retain and enhance habitats that are present at the baseline stage. For example, existing grasslands could be enhanced by reducing mowing and allowing them to develop as meadows. Mature trees should be retained rather than clearing a site and planting immature trees.

If starting with bare / disturbed ground, current best practice under the All-Ireland Pollinator Plan is to allow areas to recolonise naturally rather than sowing seed. Subsoil is often more suitable than topsoil for this purpose, as the low nutrient levels in subsoil favour the establishment of flowering plants rather than grasses. In some circumstances it may be appropriate to sow a native meadow seed mix: if so, it should consist only of native species of Irish provenance, include a mixture of perennial flowers and grasses, and be tailored to the sites' soils and hydrology. Non-native 'wildflower' seed mixes should never be used, as they are typically of low biodiversity value. The ecologist should review species lists for any seed mixes and determine whether or not they are native and appropriate to the site.

Measures should be realistic, implementable, and evidence based. They must include long-term management plans, and details of who will implement them. The developer should consider whether biodiversity areas are 'taken in charge' by a local authority, maintained by a management company, or managed directly by residents.



# Suggestions for biodiversity enhancements[EO1]

Suitable biodiversity enhancement measures for a site should be determined on a case-by-case basis depending on baseline habitat features that can be retained, other habitats surrounding the site, and any species of importance in the surrounding area. In this section we provide examples of some BNG that could considered for a small suburban site:

- Provision of bird boxes, including designs suitable for common garden birds (e.g. finches, tits, blackbirds), or species that nest on buildings (swifts, martins, swallows). Swift nesting boxes should be considered for tall buildings (at least 5 m in height)
- Provision of bat boxes suitable for crevice-dwelling species. These are only suitable if installed in a part of the site that will be in complete darkness, and that are directly connected to potential foraging areas (woodland, freshwater, parks, agricultural land)
- Provision of hedgehog boxes in areas of dense shrubs, and appropriate dispersal corridors (see below)
- Provision of wildlife dispersal corridors to connect green areas outside the site boundary. These would consist of continuous lines of dense shrubs and ground vegetation, which are not obstructed by walls / fences / roads and are not illuminated by streetlights. Gaps should be provided at the base of walls / fences to allow ground-dwelling fauna to move through the site.
- Creation of a pond or similar semi-natural wetland feature with native fringing vegetation. Ponds may also be suitable for frogs / newts. These measures may be feasible for above-ground SUDS features (e.g. attenuation ponds, swales)
- Inclusion of a range of native trees and shrubs, including species that provide berries for birds (e.g. hawthorn, rowan)
- Managing grassland areas as meadows, by mowing only once per growing season and removing cuttings. Guidance is provided in the All-Ireland Pollinator Plan (see above).
- Leaving sections of landscaping for natural succession, with little or no active management
- Removal of invasive non-native species, including both legally-restricted species (e.g. Japanese knotweed, Himalayan Balsam, three-cornered garlic) and other nuisance species (winter heliotrope, cherry laurel)
- Incorporating biodiversity features on the roofs of structures including apartment roofs, cycle shelters, sheds etc. Such features should use the site's soils, and have associated long-term maintenance
- Paths and cycleways should be located in central parts of a development, away from biodiversity features and other site boundaries where treelines / hedgerows / wildlife corridors are located, retained or might be created as part of the design. The infrastructure associated with pathways and cycleways, human disturbance, vegetation management, lighting, etc can substantially reduce the biodiversity value of these features.

# Conclusions

There is now a pressing need for national guidance on Biodiversity Net Gain in the Republic of Ireland and Northern Ireland. In this Briefing Paper we have reviewed the options available for this process, and set out some key considerations on its implementation in an Irish context. We hope that this will be considered by national bodies responsible for the development of BNG policy in the Republic of Ireland and Northern Ireland, as part of a broader national debate.

Overall, key considerations for the ROI / NI approach are:

- The primary reference document should be *Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide* (CIEEM-CIRIA-IEMA, 2019).
- A competent ecologist should be engaged from the start of the design process
- The mitigation hierarchy should always be followed sequentially. The primary emphasis should always be on avoidance.
- Could BNG assessments be incorporated into other ecological reports (e.g. Ecological Impact Assessment, Biodiversity Chapter of an EIAR) rather than issued as a stand-alone assessment?
- Should BNG be mandatory for all large-scale developments, e.g. infrastructure projects, renewable energy, or those that require Environmental Impact Assessment. Should BNG be expected for small and moderate-scale developments,or is it reasonable to provide exemptions in certain cases?
- Off-site compensation may be feasible in some cases, but without a national framework for the management of off-site compensation areas it should not be considered as standard practice?
- Ecological Enhancements will require long-term management and monitoring to ensure effectiveness.
- The importance of a qualitative assessment by a competent ecologist should be recognised and key to any BNG approach.
- Could a Hybrid approach be considered where quantitative assessments based on metrics may be used to support certain aspects of a proposal (e.g. habitat compensation), but be supporting an over-arching qualitative assessment?

Finally, we wish to emphasise that the context of this document is based on the current circumstances in Ireland. Our intention at this stage is simply to contribute to a broader discussion about the approach to BNG in the Republic of Ireland and Northern Ireland and we look forward to further engagement on the topic.

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