



# Irish Green Building Council Submission to the Citizens' Assembly on Biodiversity

*26<sup>th</sup> August 2022*



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## About the Irish Green Building Council

The Irish Green Building Council (IGBC) provides leadership for a sustainable built environment. IGBC is a registered charity with over 300 corporate [members](#) drawn from all parts of the value chain, from occupiers, design professionals, contractors, suppliers, academics and public authorities and affiliated with a global network of 70 national councils within the [World Green Building Council](#). This allows us to create workable solutions and tools to deliver transformative change towards a sustainable built environment.

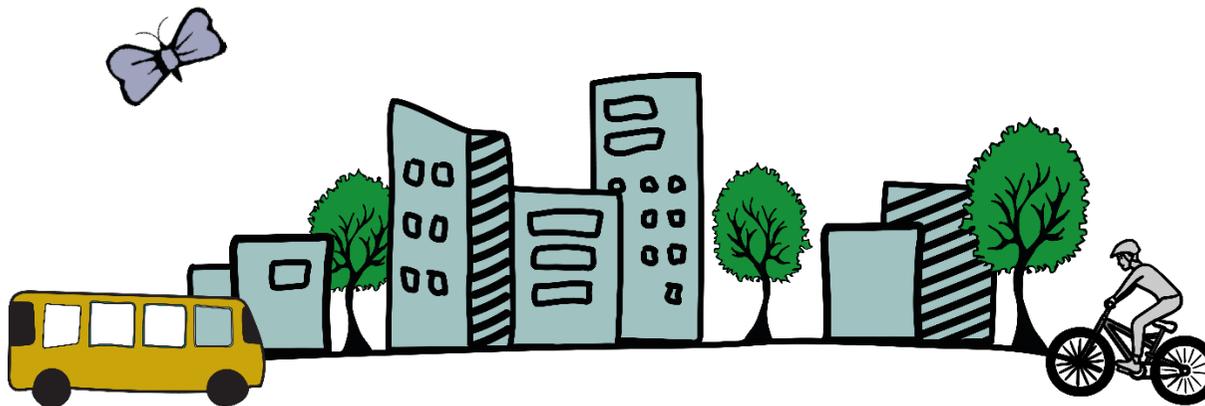
In particular, the IGBC has developed the [Home Performance Index](#), Ireland’s national certification for sustainable residential developments. The HPI goes well beyond the Building Energy Rating (BER) and takes account of other impacts, such as air quality, water efficiency, biodiversity, and the sustainability of the location. Over 10,000 homes have registered for certification to date.

Another key mission of the IGBC is to educate the industry for a more sustainable built environment. A section of our [learning hub is dedicated to biodiversity and the built environment](#) (this includes webinars and guidance documents) and a course mail on "[Nature & Biodiversity in the Built Environment](#)" was adapted from a version developed by the UK Green Building Council.

***This submission was developed in close cooperation with our members.*** A survey was first sent to our membership in May 2022. Forty-eight stakeholders responded to it. This allowed us to develop a first draft of our submission which was discussed at a workshop in June 2022. A second iteration of the draft submission was discussed at a final workshop on August 12<sup>th</sup>. These workshops were attended by developers, contractors, building professionals, researchers, and construction product manufacturers.

**At a time of biodiversity emergency, the IGBC believe that all policies, regulations and government's expenditures must align with the objective of enhancing biodiversity, or at the very least of preventing biodiversity loss.**

The [first part of our submission](#) highlights why biodiversity loss cannot be addressed without considering construction and the built environment. We subsequently make recommendations on [new build and planning](#), [existing buildings](#) and [ex-situ impacts](#). As all these actions will require [awareness raising and education](#) (of the general building and of the industry), a specific section is dedicated to this topic.



## Summary



The construction and built environment sectors are highly reliant on biodiversity and ecosystem services and have a significant impact on nature. **There are clear links between four of the five main sources of biodiversity loss identified by the IPBES and the built environment**, namely **changes in land use, climate change, pollution, and invasive alien species**. These impacts happen on site (e.g., habitat destruction and fragmentation) and off site as construction materials are produced.



**Urban land expansion in Ireland is among the highest in Europe and characterised by the formation of scattered, remote urban structures**. Based on the density recommendations included in the National Planning Framework and current patterns of development, it is estimated that **a land surface equivalent to a third of County Dublin will need to be urbanised by 2030 to deliver the 400,000 new homes planned in Ireland 2040**.



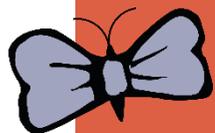
**Addressing habitat destruction and fragmentation associated with our built environment is a priority**. This requires **more ambitious rules in relation to density and the minimum percentage of new homes to be built within the built-up footprint of existing settlements and a better use of the existing stock**.



At national level, a target should be set for soil sealing (e.g., Net Zero Soil Sealing by 2050) and a roadmap of existing and potential wildlife corridors developed.



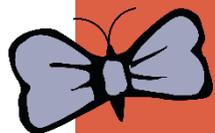
All projects should consider biodiversity, and projects over a certain size, as well as infrastructures proposed under the National Development Plan should employ an ecologist and reach an onsite or offsite biodiversity net gain of at least 10%.



To facilitate the first, **simple, highly practical guidance documents** should be developed for different types of developments.



**Impacts on biodiversity associated with the production of construction materials and the construction of buildings should also be addressed.** A first step would be to **mandate the measurement of the carbon impact of new buildings and infrastructures across their whole life cycle.**



**Coordinated awareness raising campaigns** will be needed to ensure biodiversity is understood and isn't treated as a "tick-the-box" exercise in the built environment. **Multiple messages and strategies will be required to better target various segments of society, e.g., building users, planners, design teams and facility managers.**



**Practical guidance documents, toolkits and high-quality case studies** should be developed and made widely available.

## 1 BIODIVERSITY LOSS AND THE BUILT ENVIRONMENT – SETTING THE SCENE

**The construction and built environment sectors are highly reliant on biodiversity and ecosystem services.** Nature provides our sector with the water and raw materials that we need to manufacture construction materials and construct buildings. Trees and other plants contribute to improving air and water quality in our cities, preventing floods, and cooling our environment during heat waves. Many social and commercial benefits are also associated with the preservation of biodiversity in urban settings. For instance, vegetation cover and afternoon bird abundances are positively associated with a lower prevalence of depression, anxiety, and stress<sup>i</sup>; and urban house value is boosted by proximity to public green space<sup>ii</sup>.

**Ecosystem services:** Ecosystem services are the many and varied benefits to humans provided by the natural environment and from healthy ecosystems.

Despite the reliance of our sector on biodiversity, **current spatial patterns of development and methods of construction often have a negative impact on biodiversity.** The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

(IPBES) has identified changes in land and sea use, direct exploitation of organisms, climate change, pollution, and invasive alien species as the main sources of biodiversity loss (in descending order).

**The main source of biodiversity loss associated with our sector is linked to habitat destruction and fragmentation** both onsite (*in-situ impacts*) and off site (*ex-situ impacts*) to produce construction materials (e.g., quarrying). The expansion of urban space is a common trend across Europe, with built-up areas growing at a faster pace than population<sup>iii</sup>. **The trend towards urbanisation of land is especially pronounced in Ireland, where urban land expansion is among the highest in Europe and characterised by the formation of scattered, remote urban structures<sup>iv</sup>. This type of sprawl developments can have various negative environmental impacts.** For instance, residents in this type of development are more likely to live in large detached single-family houses dependent on cars, resulting in higher carbon emissions and resources use. Many of the environmental changes associated with sprawl result from the use of impervious construction materials<sup>v</sup>. These impermeable surfaces replace vegetation, fragment habitats, and alter the terrestrial water cycle. Sprawl also affects biodiversity in several ways and is commonly associated with habitats degradation and fragmentation. In particular, it increases traffic-related wildlife mortality, impedes the movement of animals in the landscape, increases the likelihood of inbreeding and reduces genetic diversity, which in turn leads to higher extinction rates<sup>vi</sup>. Urbanisation is also a major

cause of biodiversity homogenisation<sup>vii</sup> and leads to light pollution<sup>1</sup>.

It is estimated that [400,000 homes must be built in Ireland by 2031](#). Based on the density recommendations included in the National Planning Framework and current trends, **349km<sup>2</sup> are needed to build these homes, or a third of County Dublin** (an estimate which does not even include the land required to build associated infrastructure<sup>2</sup>). Recent figures from the CSO are even more worrying, with almost 16% of the Planning Permissions for dwellings granted to one off houses in the last 2 years.

**There are also links between three of the other main sources of biodiversity loss, namely climate change, pollution, and invasive alien species and the built environment.** Some of these damages happen onsite during the construction phase (in-situ impacts), but many more relate to the supply chain (ex-situ impacts). Examples of in-situ impacts include onsite pollution (e.g., soil erosion and waterway contamination) or the accidental introduction of invasive alien species. In terms of ex-situ impacts, it's worth highlighting that **construction and built environment sectors account for 37% of Ireland's emissions, equalling agriculture**. Heating, cooling, and lighting our buildings account for 23% of our national emissions, with the remaining 14% being attributable to producing and transporting construction materials,

as well as constructing buildings and infrastructure<sup>viii</sup>. The built environment also requires vast amounts of resources and accounts for about 50% of all extracted material, and 33% of all water used in the EU.

The construction and built environment sector is both carbon and resource intensive and has a huge impact on nature. It is also very much part of the solution when it comes to addressing biodiversity loss, as highlighted by the [EU Biodiversity Strategy for 2030](#). **It is hence critical that buildings and infrastructures are fully covered in the next National Biodiversity Action Plan.**

To ensure the recommendations included in this submission have a real impact, resources will need to be allocated to biodiversity protection and enforcement. In particular, every local authority should employ an ecologist.

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<sup>1</sup> 88% of Europe land surface experience light-polluted night. [Read more](#).

<sup>2</sup> [With 23 km of road per 1,000 inhabitants, Ireland has one of the highest rates in the EU](#). The land area required to build the infrastructures associated with these 400,000 homes could be significant.

## 2 NEW BUILD AND PLANNING

### 2.1 General principles

Given land use change is the main source of biodiversity loss and Ireland's residential development patterns, **addressing habitat destruction and fragmentation associated with our built environment is a priority.**

The IGBC call for **more ambitious rules in relation to density and the minimum percentage of new homes to be built within the built-up footprint of existing settlements within the National Planning Framework (NPF). A better use of the existing stock is also critical.** A recent report commissioned by the IGBC to UCD shows that reusing at least 100,000 vacant properties is key to reaching our 2030's climate targets<sup>ix</sup>. This could also have a significant impact on land-use, reducing the amount of land required to deliver 400,000 homes by 2030 by a quarter. These actions will require clear **guidelines** (including on "compact growth"), **stricter enforcement of existing rules, and incentives to support a better use of the existing stock**<sup>3</sup>.

As the public sector must lead by example in this transition, the IGBC believes that **all publicly funded projects (including social housing) should comply with the EU Taxonomy "Do no significant harm" criteria for biodiversity.** In particular, **new**

**construction should not be built on "arable land and crop land with a moderate to high level of soil fertility and below ground biodiversity as referred to the [EU LUCAS survey](#)".**

The **EU taxonomy** outlines the key criteria to be met for an economic activity to be regarded as "green" or "social", with a view to tackling greenwashing. In simple terms, the more environmentally friendly a project is, the easier it should be to obtain funding at a lower interest rate.

Another useful action would be to **set clear targets for soil sealing** as already done in France and Germany. E.g., **Zero Soil Sealing by 2050.** Local authorities could subsequently be required to develop strategies to reduce soil sealing by 2030 and reach zero soil sealing by 2050. Another option may be a tax on soil sealing as already implemented by several [German municipalities](#). This would ensure a clear focus on maximising development within existing underdeveloped built-up areas.

**Soil sealing** is where the ground is covered with an artificial impervious layer - such as concrete. Soil sealing is considered among the most dangerous of land degradation processes. The negative impacts of soil sealing are numerous, from decreasing biodiversity to modifying the microclimate and increasing flood risks

<sup>3</sup> See [IGBC's 2023 Pre-Budget Submission](#) for further information.



Soil sealing (Credit: [Ciro Gardi](#))

Finally, to support the development of more biodiversity-friendly schemes and regeneration, **existing and potential wildlife corridors should be mapped.**

A **wildlife corridor** is an area of habitat connecting wildlife populations separated by human activities or structures. They enable movement of wildlife and dispersal of plant species, and facilitate seasonal migration, reproduction, feeding and adaptation to environmental change.



"Bat Bridge" over Galway's M18 motorway (Credit: [Engineers Ireland](#))

## 2.2 Enhancing biodiversity on site

**Biodiversity must become part of the conversation for all new developments and regeneration.** While in the longer term, this could be better achieved through the integration of biodiversity into building regulations, some more immediate actions should be taken.

**All projects should consider biodiversity, and projects over a certain size** (e.g., 3,000sqm for commercial buildings and 10 units for new residential developments<sup>4</sup>), **as well as infrastructures proposed under the National Development Plan should employ an ecologist**, develop a pre-development survey **and reach onsite or offsite biodiversity net gain of at least 10%**<sup>5</sup>. In particular, they should consider how the project integrate with existing and potential wildlife corridors.

**Simple, highly practical guidance documents should be developed for different types of developments.** This would be particularly useful for smaller projects, and could integrate information on specific actions that can be implemented such as using permeable surfaces, choosing the right vegetation as part of landscaping, incorporating bat sensitive lighting principles, fencing and wildlife dispersal, etc. Specialist building products (built-in or attached) have been developed to assist with biodiversity through habitat provision. Information on how to

<sup>4</sup> The thresholds should be higher for infill developments to further discourage greenfield developments.

<sup>5</sup> The reporting system should be developed to be aligned with the requirements of the Corporate Sustainability Reporting Directive.

communicate to end-users why some features have been installed should also be included.

Finally, the IGBC believes that **Section 40(1)(a) of the Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000 and the Heritage Act 2018 should be reviewed**. While under the act, it is an offence to destroy vegetation on uncultivated land between the 1<sup>st</sup> of March and the 31<sup>st</sup> of August each year, this section provides an exception to the rule for “clearance of vegetation during road or other construction works or in the development or preparation of sites on which any building or other structure is intended to be provided”.

### 3 EXISTING BUILDINGS

The greenest building (and the one with least impact on biodiversity) is often the one that already exists. As previously highlighted **a better use of empty and under-used buildings should hence be prioritised**.

**Highly practical guidance documents covering various project types should also be developed**. This should for instance include information on removing hard landscaping and mitigating flood risk and would be most useful for smaller projects. **For renovation projects over a certain size, an ecologist should be employed,**

**and an onsite or offsite biodiversity net gain of at least 10% achieved.**

To successfully enhance biodiversity, building users, facility managers and building designers must be fully engaged and aware of the actions they can take – [See section on awareness raising and education](#).

In many suburban areas there are excess areas of open spaces, including playing pitches, with poor ecological quality. While some of them may be considered for development, **a strategy for underused land and open space (e.g., linking them with wildlife corridors) should be developed to enhance their ecological value.**



*Barn Owls nest in a building (Credit: [BirdWatch Ireland](#))*

## 4 EX-SITU IMPACTS: PRODUCING MATERIALS AND CONSTRUCTING BUILDINGS

As highlighted in the introduction, the construction and built environment sector is both carbon and resource intensive. **Making the construction process** (from raw materials quarrying to construction materials production and building construction) **more sustainable is key in addressing land-use change, climate change, pollution, and alien invasive species.**

A number of actions are suggested to reduce these negative environmental impacts. First and foremost, the **carbon impact of new build and infrastructures across their whole life cycle must be measured and reduced** as already done in the Netherlands and the Nordic Countries. Despite accounting for 13% of our national emissions, the emissions associated with the production of construction materials and the construction of buildings (embodied emissions) are not currently regulated in Ireland. **Regulating embodied carbon should support a better use of the existing stock, hence reducing land take and emissions associated with the construction of new developments.** This should be supported by actions to encourage the **development of a low carbon construction materials industry, as well as a reuse and recycle industry.** The latter would also reduce quarrying requirements and its negative impacts on biodiversity.

Only chain of custody certified timber (FSC/PEFC) should be used. To improve transparency in the market, any product manufacturer and supplier whose marketing communications contain environmental claims should be required to produce an [Environmental Product Declaration \(EPD\)](#) or equivalent as evidence of such claims.

SEAI's EXEED programme has been highly successful in promoting innovation in reducing operation emissions in the built environment. An EXEED inspired **capital grants scheme could be introduced for project developers engaged in innovative, measurable actions to enhance biodiversity.**

## 5 AWARENESS RAISING & EDUCATION

Biodiversity awareness remains low at all levels of Irish society. **Coordinated awareness raising campaigns will be needed to ensure biodiversity is understood and isn't treated as a "tick-the-box" exercise.** These campaigns must target **building users, planners, design teams, contractors and facility managers.** They could be developed in close cooperation with successful initiatives such as the [All-Island Pollinator Plan](#) which have already developed high quality guidelines on topics such as [hedgerows](#).



Whitethorn, Naas: Sift Tower and information panel for a sown wildflower meadow (Credits: [Cairns Homes](#))

**Actions should be taken to ensure citizens are at the centre of this transition.** For instance, the potential to replicate initiatives such as No Mow May, [One sqm for biodiversity](#) in all back gardens or the “Permis de végétaliser” should be explored. Although these

**Permis de végétaliser:** Implemented by a number of Dutch and French cities, this allows citizens to plant flowers between their homes and pavement – 15-20cm, and in some other under-used areas (e.g., at the bottom of a tree).

actions may have limited direct impacts on nature preservation, they are highly visual and can support citizens' engagement.

Finally, **preserving and enhancing biodiversity in the built environment will require significant awareness raising and upskilling of planners, building designers, contractors and facility managers**, so that they can gain a better understanding of what can be done (e.g., importance of native species for landscaping and of eliminating pesticides for maintenance). **Practical guidance documents, toolkits and high-quality case studies should be developed and made widely available.** This could be supported by the launch of an Exceed like programme for biodiversity (see previous section) or an initiative, such as an annual biodiversity capital competition. This could for instance be based on the [French capital for biodiversity initiative](#) which has been running for 12 years and has supported a greater share of best practices.



Credits: [Lecriduzebre.org](#)



Some examples of green infrastructures. From top left: roadside swale seeded with native wildflowers in Greystones; Wildflower Meadow within a riparian corridor in Naas; Green wall seeded with native wildflowers in Greystones; hedgerow reinstatement planting in Maynooth. (Credit: Cairns Homes)



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<sup>i</sup> Daniel T. C. Cox, Danielle F. Shanahan, Hannah L. Hudson, Kate E. Plummer, Gavin M. Siriwardena, Richard A. Fuller, Karen Anderson, Steven Hancock, Kevin J. Gaston, Doses of Neighborhood Nature: The Benefits for Mental Health of Living with Nature, *BioScience*, Volume 67, Issue 2, February 2017, Pages 147–155, <https://doi.org/10.1093/biosci/biw173>

<sup>ii</sup> Office for National Statistics, Valuing green spaces in urban areas: a hedonic price approach using machine learning techniques, 2019. Available at <https://www.ons.gov.uk/economy/environmentalaccounts/articles/valuinggreen-spacesinurbanareas/ahedonicpriceapproachusingmachinelearningtechniques>.

<sup>iii</sup> Marcello Schiavina, M. Melchiorri, C. Corbane, S. Freire & F. Batista e Silva (2022) Built-up areas are expanding faster than population growth: regional patterns and trajectories in Europe, *Journal of Land Use Science*, DOI: 10.1080/1747423X.2022.2055184.

<sup>iv</sup> Achim Ahrens, Seán Lyons, (2019), Changes in land cover and urban sprawl in Ireland from a comparative perspective over 1990–2012, *Land*, Vol. 8(1), January 2019, pp. 1-14.

<sup>v</sup> European Environment Agency (2016), Urban sprawl in Europe. Available at <https://www.eea.europa.eu/publications/urban-sprawl-in-europe>.

<sup>vi</sup> Idem

<sup>vii</sup> McKinney, M. L. (2006) Urbanization as a major cause of biotic homogenization. *Biological Conservation*, VL - 127

<sup>viii</sup> Richard O'Hegarty, Stephen Wall, Oliver Kinnane (2022), Whole Life Carbon in Construction and the Built Environment in Ireland. Available at: <https://www.igbc.ie/wp-content/uploads/2022/05/22-WLC-IGBC-Build-Green-Now-P1-and-P2.pdf>.

<sup>ix</sup> Idem