The Environmental Impacts of New Housebuilding



Figure 1 - New development north of Abingdon, Radley Reach, being blamed for flooding (Nimmo, 2024)

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Olivia and Minori are both Geography students who were selected by One Planet Abingdon to complete a week-long internship at the beginning of December 2024. Their task was to research the environmental impacts of new housebuilding as well as analyse the results of a survey published by One Planet Abingdon to investigate local and national attitudes towards new housebuilding. The following report represents their findings of the week.

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Introduction

We are currently experiencing the most rapid expansion of built infrastructure in history, with an estimated >230 billion m^2 of additional built floor area to be added to the global building stock by 2060, equivalent to the built area of Japan each year (UNEP and IEA, 2017). In a particularly high-profile case, China is attempting to link 65 countries, representing two-thirds of the global population, in a network of transport and energy infrastructure, spatially overlapping with 1,700 sites with conservation designations through its "Belt and Road Initiative" drive for more infrastructure (Ascensão et al., 2018).

Infrastructural expansion can be an important mechanism for alleviating poverty and delivering economic growth but is also a key driver of biodiversity loss and greenhouse gas emissions. At a global scale, one-third of all threatened species on the Red List are threatened by infrastructure including around half of all threatened amphibians and birds (55% and 46%, respectively) (IUCN, 2019). Furthermore, emissions from housing and construction contribute approximately 27% of all annual global carbon dioxide emissions (UNEP, 2020).

The UN's Sustainable Development Goals (SDGs) influence global debates and policy agendas with the aim to "end poverty and other deprivations" whilst simultaneously tackling climate change and preserving biodiversity ("THE 17 GOALS | Sustainable Development," n.d.). However, when placed in the context of the housing crisis, such environmental equilibrium seems impossible to achieve. Unless the environmental impacts of economic expansion fall at a rate considerably faster than at any point in human history over the coming decades, then there will be trade-offs between the environmental and economic objectives of the SDGs (Zu Ermgassen et al., 2022, p.1).

England represents a particularly salient case study, as it simultaneously has abundant housing stock, unmet housing need, and legally-binding environmental policy goals reflecting national contributions to addressing key planetary boundaries. A recent estimate suggests up to 7.9 million people currently experience some symptoms of unmet housing needs in England; predominantly because England has one of the highest rates of housing unaffordability which for years, governments have been attempting to tackle (Downie, M. et al., 2018).

Upon their election in July, the Labour Government has begun to carry out plans to "build 1.5 million new homes over the next parliament" (Labour Manifesto, 2024). As part of this "reform", councils have been updating their local development plans, which set out how the new building will take place across England, with the Government prioritising building on brownfield sites but also re-designating greenbelt areas more strategically in order "to build more homes in the right places" (Labour Manifesto, 2024). Naturally, this interference with Green Belt areas (designated natural boundaries between towns and cities designed "to protect the countryside from urban sprawl and to retain the character of towns and cities") has faced much opposition by Conservationists who fear that building on Green Belt will significantly worsen the already diminishing national biodiversity (CPRE/Natural England, 2010, p.1). At the same time, there is significant concern that building on this scale will not

only be detrimental to the environment but will set the UK on a path of non-alignment to the crucial target of reducing carbon emissions to net zero by 2050.

The following report will explore the environmental impacts of house building more widely, using a combination of primary data collected via the One Planet Abingdon open survey, as well as secondary material. We will explore this under four main sections, namely: carbon; biodiversity; sustainable housing; and briefly consider the alternatives to house building as a ‘solution’ to the housing crisis.

Section 1: Carbon

What is the significance of carbon when it comes to understanding the environmental impact of building new houses?

When it comes to understanding the environmental impact of building new houses, a good place to start is with carbon. Carbon emissions from new house building is a unique environmental impact in that it is legally restricted on a national level. In theory, whatever the economic or social 'necessity' for new housing to be built, development in Britain would be limited by the Government's promise to reduce carbon emissions to net zero by 2050, in line with the Paris Agreement, although the reality of extremely limited accountability measures makes this promise easy to break. In fact, the failure to adhere to this promise by the Labour Government's plan to build 1.5 million new homes before the next election has contributed to the significant traction which the idea of stopping new house building in Britain has gained over recent years. The fact of carbon emissions' international and legal weight, combined with the reality that housing sector is one of the largest emitters of carbon dioxide or equivalent globally, demonstrates carbon's significance when it comes to understanding the environmental impact of building new houses. Throughout this section on carbon, we will explore this further, understanding the role of carbon in the atmosphere and the secondary environmental impacts resulting from this increased atmospheric carbon. As well as understanding the journey of carbon emissions in the building process in terms of operational versus construction carbon emissions.

The Paris Agreement is a "legally binding international treaty on climate change" which aims to maintain "the increase in the global average temperature to well below 2°C above pre-industrial levels", preferably to 1.5°C (UNCC, Paris Agreement, https://unfccc.int/process-and-meetings/the-paris-agreement). Exceeding this advised 1.5°C threshold would "risk unleashing far more severe climate change impacts including more frequent and severe droughts, heatwaves and rainfall" (UNCC), all of which are secondary implications of increased carbon in the atmosphere. The Paris Agreement itself represents a milestone for international climate change cooperation as the first "binding agreement (which) brings all nations together to combat climate change and adapt to its effects" (UNCC). As part of the UK's commitment to the Paris Agreement, the British Government plan to reduce emissions by 68% by 2030 and "has set interim 'carbon budgets' which cap the emissions within different carbon budgetary periods". For example, "the current fourth carbon budget requires a 52% reduction in emissions by 2027, while the sixth carbon budget requires a 78% reduction by 2037" (Burnett *et al.,* 2024, House of Commons https://commonslibrary.parliament.uk/research-briefings/cbp-9888/).

According to the IPCC Climate Change Report on mitigation strategies (Cabeza *et al.,* 2022), recent statistics have shown housing to make up a large proportion of global greenhouse gas (GHG) emissions. In 2019, "21% of global GHG emissions" could be attributed to housing, a total of "12 GtCO2-equivalent" produced that year. Of this, 57% was from "indirect CO2 emissions from offsite generation of electricity and heat", 24$ was from "direct CO2 emissions produced on-site" and 18% was "from the production of cement and steel used for construction and/or refurbishment of

buildings". A report by the Office for National Statistics following the 2021 Census, described how "households…account for 26% of total emissions in the UK" (Watkins, 2022).

Understanding carbon in the housebuilding process

When it comes to talking about carbon in the housebuilding process, emissions can be understood in two ways, referred to in this report as 'operational and 'embodied' carbon. Operational carbon includes the "emissions associated with energy used to operate the building or in the operation of infrastructure, including heating, hot water, cooling, ventilation, lighting systems, equipment and lifts. This is often what people will focus on when thinking about how to make a building more sustainable." (UKGBC, 2023, https://www.ecosia.org/search/?q=operational+and+construction+carbon+in+housebuilding&addon=safari&addonversion=4.2.1.51)That said, operational carbon represents only part of the overall emissions of a building.

Embodied carbon is described by the UK Green Building Council as "the remaining emissions associated with materials and construction processes throughout the whole lifecycle of a building or infrastructure". They explain how embodied carbon "is typically associated with any processes, materials or products used to construct, maintain, repair, refurbish and demolish a building" (2023). Embodied carbon emissions themselves can be broken down further into 'upfront embodied carbon', 'in-use embodied carbon' and 'end-of-life embodied carbon', defined as follows:

1. **Upfront embodied carbon** - "the emissions caused in the materials production and construction phases of the lifecycle before the building or infrastructure begins to be used" (UKGBC, 2023).
2. **In-use embodied carbon** – "the emissions associated with materials and processes needed to maintain the building or infrastructure during use such as refurbishments" (UKGBC, 2023).
3. **End-of-life embodied carbon** – "the carbon emissions associated with deconstruction/demolition, transport from site, waste processing and disposal phases of a building of infrastructure's lifecycle which occur after its use" (UKGBC, 2023).

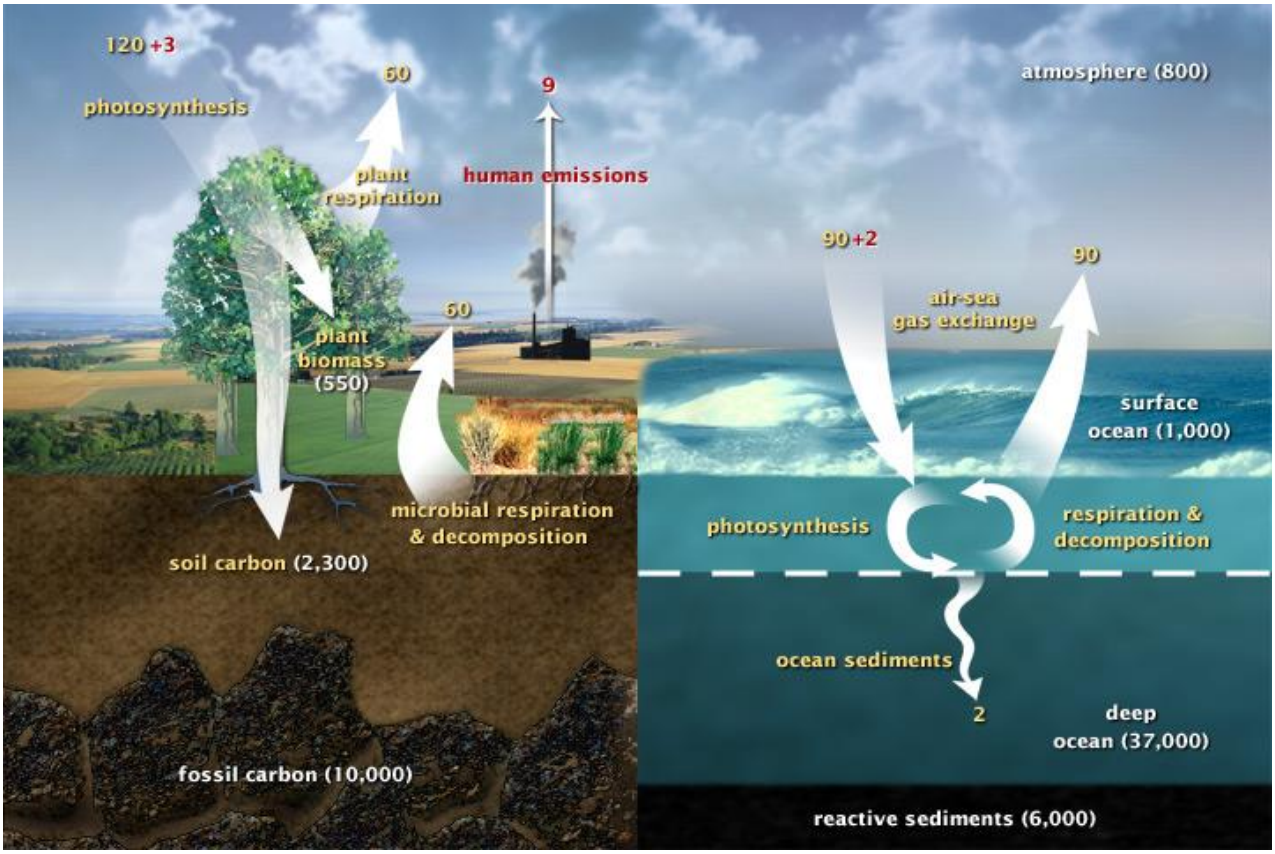
Although all the different names may seem arbitrary or confusing, understanding the various aspects of a building's carbon emissions is crucial to curating specific emissions-reduction strategies.

How carbon interacts with our earth systems

The element, Carbon, is formed from the extremely hot temperatures at the centre of stars as they progress throughout their lives. It is the "fourth most abundant element in the Universe", with most carbon being stored locked up in rocks ("about 65,500 billion metric tonnes". The remainder of the Earth's carbon is stored in "the ocean, atmosphere, plants, soil and fossil fuels" (Riebeek, 2011, NASA Earth Observatory).

Carbon interacts with crucial earth systems determining the state of our climate, atmosphere, oceans and land. When the concentrations of carbon in the atmosphere increase, all other systems are affected, and this web of interacting systems is known as the carbon cycle. "Any change that in the cycle that shifts carbon out of one reservoir puts more carbon in the other reservoirs. Changes that

put carbon gases into the atmosphere result in warmer temperatures on Earth". The following diagram lays out the "flows" of carbon "between each reservoir in an exchange" (Riebeek, 2011, NASA Earth Observatory):



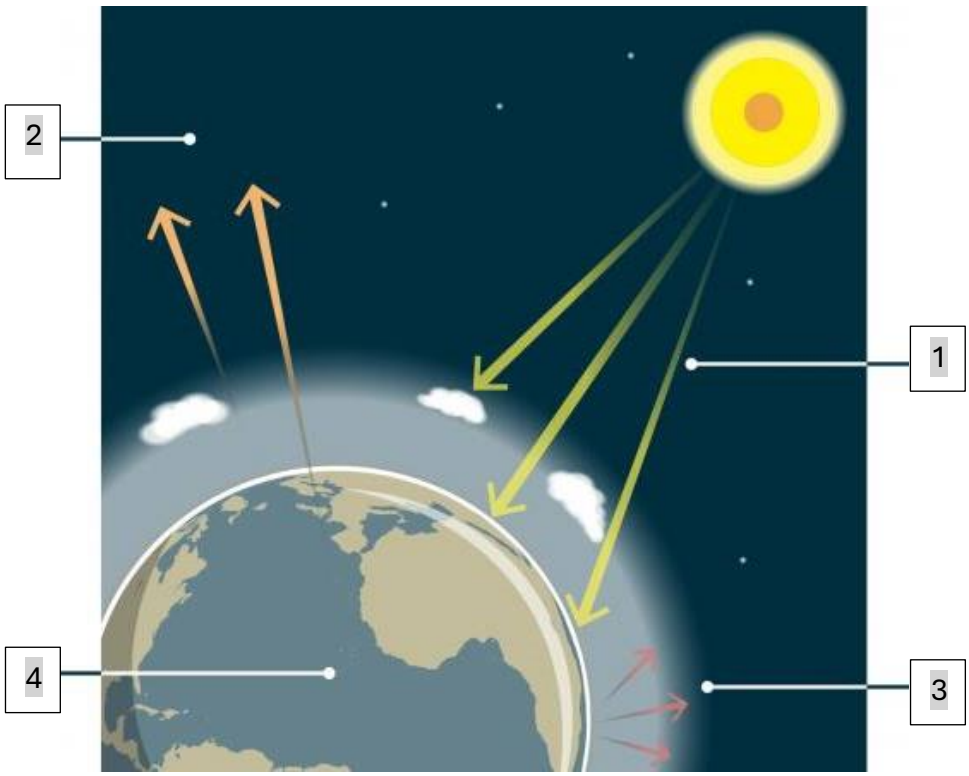
This diagram, adapted from the U.S. Department of Energy Biological and Environmental Research Information System, illustrates the "fast carbon cycle", showing "the movement of carbon between land, atmosphere and oceans". The numbers in yellow represent "natural fluxes", whilst those in red are "human contributions" and those in white show "stored carbon". Numerical measurements are taken in annual gigatonnes of carbon per year (Riebeek, 2011, NASA Earth Observatory).

Across longer planetary timescales, the purpose of the carbon cycle is to maintain a state of dynamic equilibrium, in which the carbon entering atmospheric, oceanic and land stores is roughly equal to that leaving these stores so that the net carbon in these stores does not change. Maintaining this equilibrium maintains the relative stability of the Earth's temperature. However, when carbon concentrations in the atmospheric store increase, global temperatures also increase because of carbon's property as a greenhouse gas.

The greenhouse effect

Carbon's property as a greenhouse gas (GHG) means that it absorbs the Sun's infrared (heat) radiation. Other greenhouse gases include methane, nitrous oxide and water vapour. 'Greenhouse gases' themselves are essential for life to be present on planet Earth since they prevent the escape of all of the heat from the Earth's surface straight out into to space. The following diagram shows the greenhouse effect, with yellow arrows showing the infrared radiation from the sun entering the climate

system (1), the orange arrows showing the outgoing solar radiation reflected by the Earth and the atmosphere out to space (2) and the red arrows showing the infrared radiation emitted by the surface of the Earth (3). Arrow 4 alludes to the remained of the solar radiation which is absorbed by the surface of the Earth, resulting in it warming (British Geological Survey, 2024, https://www.bgs.ac.uk/discovering-geology/climate-change/how-does-the-greenhouse-effect-work/).



However, when higher concentrations of GHGs are emitted into the atmosphere by anthropogenic (human induced) activity than can be released into space or sustainably taken up by other stores, too much heat is absorbed, and the temperature of the Earth begins to increase at an abnormal rate which is outside of the normal fluctuation of glacial (ice ages) and interglacial periods. This global warming results in a multitude of secondary environmental implications including climate instability, biodiversity loss, ocean acidification, rising sea levels and a decreasing in the ocean's salinity as a result of melting freshwater ice sheets.

A case study of the environmental impacts of a warming planet on the UK, carried out by Greenpeace, highlights the increased prevalence of "extreme weather" which the UK is already experiencing in the form of heatwaves and storm surges. Simultaneously, increased storm surges is leading to flooding, the effects of which can be seen in the recent floods of Oxfordshire when the ground becomes too saturated to hold rainfall and rivers overflow. Flooding poses a particular risk to seaside and riverside communities, resulting in erosion, particularly at the coast. For example, "storms have led to the collapse of coastal railway lines in Devon and Cornwall". This damage highlights the threat posed by

increasing sea levels to infrastructure. Furthermore, the increased variability of the weather and lack of regularity in the seasonal variations of temperature and rainfall is having a significant detrimental impact on species, with endemic populations struggling to survive in changeable conditions and ultimately leading to biodiversity loss. This will be explored further in the next section.

Section 2: Biodiversity

According to a WWF-ZSL Living Planet Report, since 1970 we have had a 73% reduction in global vertebrates (WWF, 2024). Our nature-depleted country ranks in the 10% worst in the world.

The Environment Act of 2021 legally binds us to reversing the decline in nature by 2030. We are not on-track to do this. Land use change is the major driver of nature loss mainly through farming and development. For example, the addition of 649 km of new road in Pennsylvania, USA, for oil extraction purposes is causing great worry due to its potential for causing forest fragmentation (Drohan et al., 2012). This can result in population decline or even extinction for some species that are highly dependent on these habitats. When green areas are broken up into smaller pieces by cities and highways, species that normally have large movements to find food, breed, or move between habitats can become isolated and struggle to survive. This can reduce the biodiversity of the region. Furthermore, housing development can also lead to increased air and water pollution from motor vehicles and domestic and industrial waste that typically accompany urban development (Irwan et al., 2023). This pollution can negatively affect water and soil.

The dominant infrastructural threats to biodiversity are residential and commercial development, followed by mining and extraction and then other infrastructure types, as seen in Figure 2

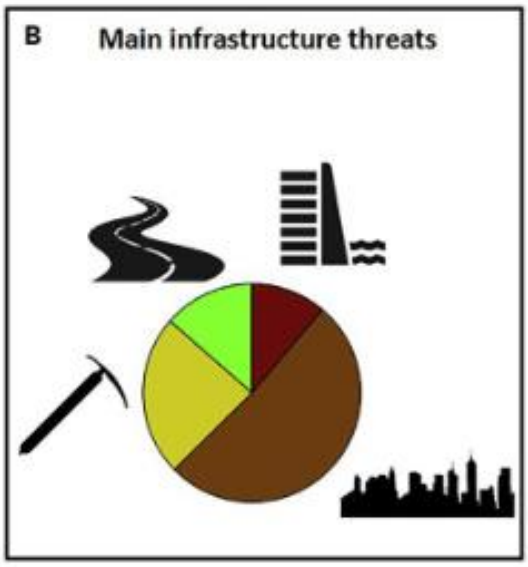


Figure 2 – Breakdown of the main source of infrastructural threats facing all infrastructure threatened species on the IUCN Red List (zu Ermgassen et al., 2019)

Light Pollution as a biodiversity threat

In addition to habitat transformation due to new housebuilding and infrastructure, light pollution poses a significant threat to biodiversity. Although artificial lighting has enhanced the quality of human life at night and is positively associated with security, wealth and modernity, its rapid global increase at 6% per year is associated with fundamental transformations in nightscapes over the past six decades.

Most organisms, including humans, have evolved molecular circadian clocks controlled by natural day-night cycles which play key roles in metabolism, growth and behaviour. More so than in the past, there is a substantial proportion of global biodiversity that is nocturnal (30% of all vertebrates and >60% of all invertebrates) and for all these organisms, this behaviour has been promoted by their highly developed sense, including specially adapted eyesight. It is thought that nocturnality is an important step in the evolution of vertebrates, so it is of great concern that this behaviour is seemingly under threat by urbanisation and its associated pollution of artificial light.

Light pollution can threaten biodiversity though changed night habits such as reproduction and migration, such as insects which actively congregate in around light sources until they die of exhaustion. This will reduce their population sizes and have potential effects further up the food chain.



Figure x – Flies surrounding two lampposts ("Why Are Bugs Attracted to Light?," n.d.)

Migratory fish and birds can become confused by artificial lighting, causing excessive energy loss and spatial impediments to migration which can reduce their migratory success and cause temporal behavioural changes. Similarly, for plants, artificial light at night can cause early leaf out, late leaf loss and extended growing periods which could impact the composition of the floral community.

With extended illumination from urban areas, daytime feeders may be active for longer, increasing predation pressure on nocturnal species.

There are also concerns about the loss of cultural ecosystem services such as aesthetic values like the visibility of the Milky Way.

The effects of the loss of darkness are relatively under-researched. With the rapid expansion of urban areas, it is therefore important to prioritise a better understanding of how artificial lighting affects biodiversity.

Changing predator-prey dynamics

The dramatic reductions and fragmentation of wildlife habitats associated with human development are thought to be especially problematic for large and wide-ranging carnivores whose populations will decline. We expect to therefore see a reduction of competitive interactions between carnivores due to low density and increased prey base (Parsons et al., 2019). Instead, in response to the decrease of large predators, we are seeing an increase in the smaller predator populations, resulting in the decline of smaller prey and hence more intense competition between smaller carnivores over increasingly scarce food. This is also important in forest fragmentation which concentrates less urban-adapted carnivores (e.g. bobcats, coyotes) into the remaining green space, leading to higher levels of spatial interaction between urban-adapted species (e.g. grey and red foxes). Urban development plays a critical role to structuring carnivore communities, with available green space as a mediating factor.



Figure x – A red fox in a residential area (Fox, 2020)

Within all this, prey species have also been using urban spaces to their advantage by using humans as shields. There has been a recent decade-long modification to the birth places of moose neonates to be closer to paved roads where traffic-averse brown bears will be scared off from (Berger, 2007). This was even recognised by John Muir, a Scottish-born naturalist, in 1910 who stated, “Most of the animals seen today were on the Athi Plains (Kenya) and have learned that the nearer the railroad the safer than are from the attack of either men or lions”.

What used to be the strict interaction of only native prey and native predator has now been modulated by the global dissemination and explosive growth of humans. It is now a complex, three-way community-level interaction involving people, predators and prey.

A solution? No Net Loss policy

SDGs 14 and 15 aim to “sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts” and “protect and prevent the extinction of threatened species by 2020”, but infrastructure and housing’s rapid development is making that difficult. In order to specifically mitigate development’s biodiversity impacts, “No Net Loss” (NNL) policies have become increasingly apparent and influential. These policies mandate that all new developments leave biodiversity better off than they found it, as measured using the Biodiversity Metric, a simple habitat-based biodiversity indicator. NNL is commonly operationalized through the application of a mitigation hierarchy to development impacts (e.g., avoid, minimize, restore, offset) and predicated on a strict preference for the first stage (to avoid biodiversity impacts wherever possible).

NNLs are often involved with Environmental Impact Assessments (EIAs) which provide information on the possible impacts of developments as well as potential mitigation strategies. The addition of NNLs set clear overall biodiversity goals and apply the "global mitigation hierarchy" (i.e. avoid, minimise, restore, offset) to set out in quantitative terms what actions need to be taken in order for the expected residual losses from the development to be at least matched through compensatory actions including biodiversity offsetting. In this way, if ecological theory determines that no net loss cannot be achieved in a certain context, NNL policies provide the rationale to prevent those projects from going ahead. However, in practice, these core principles are rarely respected and the quantitative nature of NNL does not free it form the influence of uneven power dynamics or vested interests. For example, the New South Wales Native Vegetation Act in Australia aimed to "prevent broad-scale clearing unless it improves or maintains environmental outcomes", but the policy included exemptions that enabled almost 87% of vegetation clearing to be uncompensated.



Figure x – An aerial view of Sydney Harbour in New South Wales, Australia (Willoughby, 2022)

The GIBOP database shows that only 23% of the countries enabling or requiring biodiversity compensation (offsets) require that compensation be used strictly as a "last resort" after the rest of the mitigation hierarchy. Yet, compensation is one of the most widespread biodiversity mitigation policies with over half of the world's new infrastructure up to 2040 expected to fall within countries with some existing form of mandatory compensation policy, so it is likely to play a key role at the global scale in biodiversity conservation.

It has been suggested that NNL and offsetting policies have been designed by policymakers and influenced by the private sector to “sell” the narrative that infrastructural expansion and environmental protection can go hand in hand. There are also legitimate concerns that governments may use offset systems as excuses to reduce their own spending on conservation as well as concerns around the social justice aspect of NNL where the most marginalised people tend to be those bearing the largest livelihood costs and see the fewest benefits from offset delivery.

For NNL policies to really be effective, it is important for “no-go” situations to be strictly protected where development shouldn’t happen at all due to the irreplaceable nature of the biodiversity in a certain area. Developers need to be incentivised to achieve NNL by being convinced of the necessity for positive biodiversity impacts. There are few recorded examples of developers receiving financial penalties for failing to achieve their biodiversity offset obligations but could be a simple step to improve compliance as there is evidence of its effectiveness through firms being prosecuted more broadly across polluting industries.

Although the compatibility of the SDGs about development and biodiversity conservation seems impossible to manage, there is room for transformation of NNL policies to close this gap. Enthusiastic policy uptake globally of compensatory policies is some evidence to be optimistic. For this to work, however, transforming the scope and implementation of biodiversity compensation policies needs to be a priority.

Section 3: ‘Sustainable’ housing

What does doing housing ‘sustainably’ actually look like?

Considering building houses ‘sustainably’ features often in the language of the Government when talking about the issue as a way of seemingly promoting an environmental agenda. However, what does building houses sustainably actually look like?

Retrofitting

In a conversation with Dr Sue Roberts, Chair of EcoMorph, a green deal advocacy organisation, and former Councillor at South Oxfordshire District Council, she explained how retrofitting homes is key to ensuring that they function sustainably with the minimum carbon footprint and maximum energy efficiency. In a 2022 letter on the “Urgent Policy on Housing Retrofit”, Dr Roberts describes what retrofitting involves, pointing out the final aim of energy “self-sufficiency” for homes through the adaptation of existing buildings to reduce energy wastage (Roberts, 2022, p.1). Dr Roberts’ own home, a “1960s detached property”, was retrofitted, resulting in a “carbon saving” of 62%. The retrofit included installing an air source heat pump, draught-proofing, external wall, floor, loft and roof insulation, as well as using low energy appliances and lighting. The house also used solar PV panels as the main energy generation (SuperHomes, 2024, https://superhomes.org.uk/homes/dr-sue-roberts/).



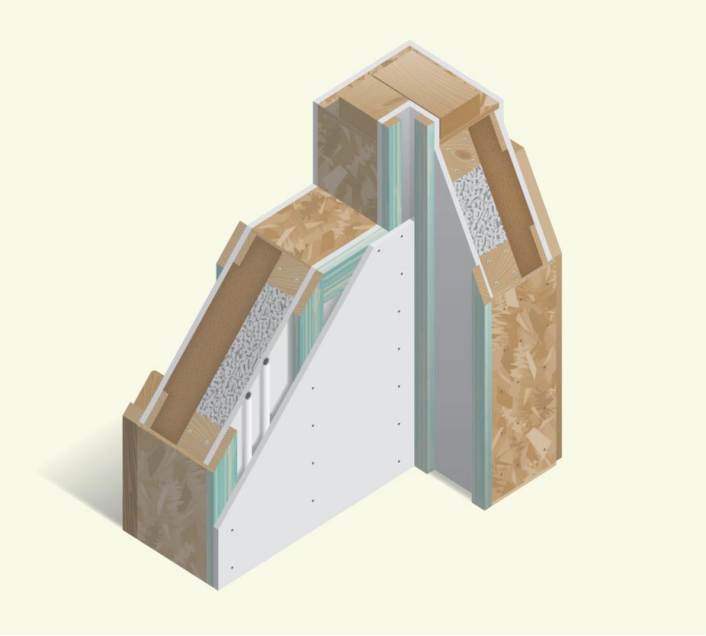
Dr Sue Roberts at her retrofitted home in Wallingford (SuperHomes website, 2024)

However, Dr Roberts highlighted the significant costs required to retrofit new homes, pointing out that it is not feasible to retrofit as many homes as are being built without significant government investment (Roberts, 2024). She points out that the speed and scale at which the retrofit strategy would have to be implemented by the British government for the necessary emissions reduction would be around "1,000,000 homes a year" in what Dr Roberts calls a "moonshot approach" (Roberts, 2022, p.2).

Zero carbon housing

Whilst retrofitting is a strategy used to decarbonise existing housing stock as well as newly built housing, there are also ways to carry out development in ways which have a negligible to non-existent carbon footprint. Zero Carbon development already exists in small-scale case studies such as at Marmalade Lane in Cambridge (explored in the following section), although the ways in which zero carbon is reached can vary.

For example, housing companies like Greencore integrate insulated timber panels into the structure of their houses in order to ensure that "each superstructure locks up more carbon than it emits", ensuring that the embodied carbon of their homes is net zero by making buildings very energy efficient and powered by renewable energy to create what they call "Climate Positive homes" (Greencore website, 2024, https://greencorehomes.co.uk/what-we-do/). The insulated timber panels used by Greencore are key to their buildings' net zero nature. The panels, labelled by the company as a "Biond panel", compose a "closed timber frame panel insulated with natural materials" and sourced sustainably. Consequently, "a typical external wall panel locks up over 30kg of CO2e per square metre" (Greencore website, 2024, https://greencorehomes.co.uk/what-we-do/).



'Biond' panel used by Greencore to ensure net zero embodied carbon of their constructions (Greencore website, 2024)



Example of a Greencore home using sustainably sourced ‘Biond’ panels for the superstructure and powered by renewable energy (Greencore website, 2024)

Section 4: Looking to the future

Is there really a lack of housing?

Despite the environmental threats being well known by governments and policymakers, they continue to push for more housebuilding to tackle the "housing crisis". It is a common claim that new housebuilding has failed to keep up with population growth. Yet in 1996, there were 660,000 more dwellings than households in England, increasing to 1.1 million in surplus in 2018 (Mulheirn, 2019). These are a mixture of second homes, foreign-owned investment homes, and other classes of empty homes. Rather than being treated as a public bad like in some countries, in the UK, second home ownership is incentivised through council tax exemptions. In places like Singapore and Vancouver, second homeowning is actively discouraged in order to free up stock to meet housing needs (Cheshire and Hilber, 2021)

The "crisis" is therefore not one of supply, but affordability (Roberts, 2024). UK house prices have jumped from around 4.5 times the median household income in 1996 to around 8 times in 2019 (Mulheirn, 2019). The housing market isn't a simple supply-demand market, mainly because demand is practically infinite as homes have been commodified as an investment product. So, the government's promise of 300,000 more houses every year will do little to tackle the crisis, estimated as cutting house prices by 10% over the course of 20 years, an order of magnitude smaller than the price rises of recent decades. Sue Roberts said that "The government has been unequivocal in stating that the point of housebuilding is for economic growth – they scarcely mention housing people anymore".

Other evidence portraying the scale of this affordability crisis, is the number of young adults now choosing to live with their parents. There are now one million more 20-to-34-year-olds living with their parents than there were in 2002 due to the unachievable prices of housing. Unrelated to general housing supply, this is more so to do with weak wage growth, particularly since the financial crisis, and housing benefit cuts which have disproportionately affected young people. In addition, the erosion of social housing as an option for young people had led to 700,000 more of them having to decide between paying market rents or living with their parents compared to 1996. Tackling these distributional problems directly is likely to be a far more effective strategy to help young people than additional market supply.

Solutions?

Various tax regimes have been suggested to disincentivise the consumption of housing space for second homes. Cheshire and Hilber (2021) propose the replacement of various existing, regressive property taxes such as council tax with an Annual Proportional Property Tax, including a 25% surcharge on second homes. However, such regimes cannot always guarantee that housing space is not overconsumed in a market with insatiable demand. Baden-Baden in Germany, for example, taxes second homes up to 35% of imputed (or contract) rent - on top of a (low) property tax - yet the number of second homes has been increasing.

Furthermore, there is little evidence to show that increases in housing space consumption are related to an improvement in the subjective wellbeing for those who already have sufficient housing space. Evidence instead suggests that people moving into larger homes quickly habituate and experience no or little long-run improvements in subjective wellbeing. This means that voluntary reductions in the consumption of housing space could come with little adverse impact on wellbeing if embedded within high quality neighbourhood services, such as through co-housing.

We gathered the thoughts of people in the Abingdon area and further away about co-housing and sharing as a solution to the housing crisis.

Survey on the impact of new housebuilding

In response to the Abingdon Town Council's Green Forum theme being the impact of new housebuilding, One Planet Abingdon designed a survey to gather attitudes towards the housing crisis and its solutions from local and national perspectives.

The results found that 21.5% of respondents were being affected by a lack of suitable and decent housing, and 100% of them deemed this to be due to affordability, with just 35% suggesting it was to do with availability.

In order to avoid the environmental impacts of new housebuilding, house sharing has been suggested as an alternative. Where 69.9% of surveyees thought that greater efforts should be made to balance the size of houses with the size of households, 52.8% of respondents indicated that they themselves would be willing to consider sub-dividing an existing property instead of starting from scratch (see Figures 8).

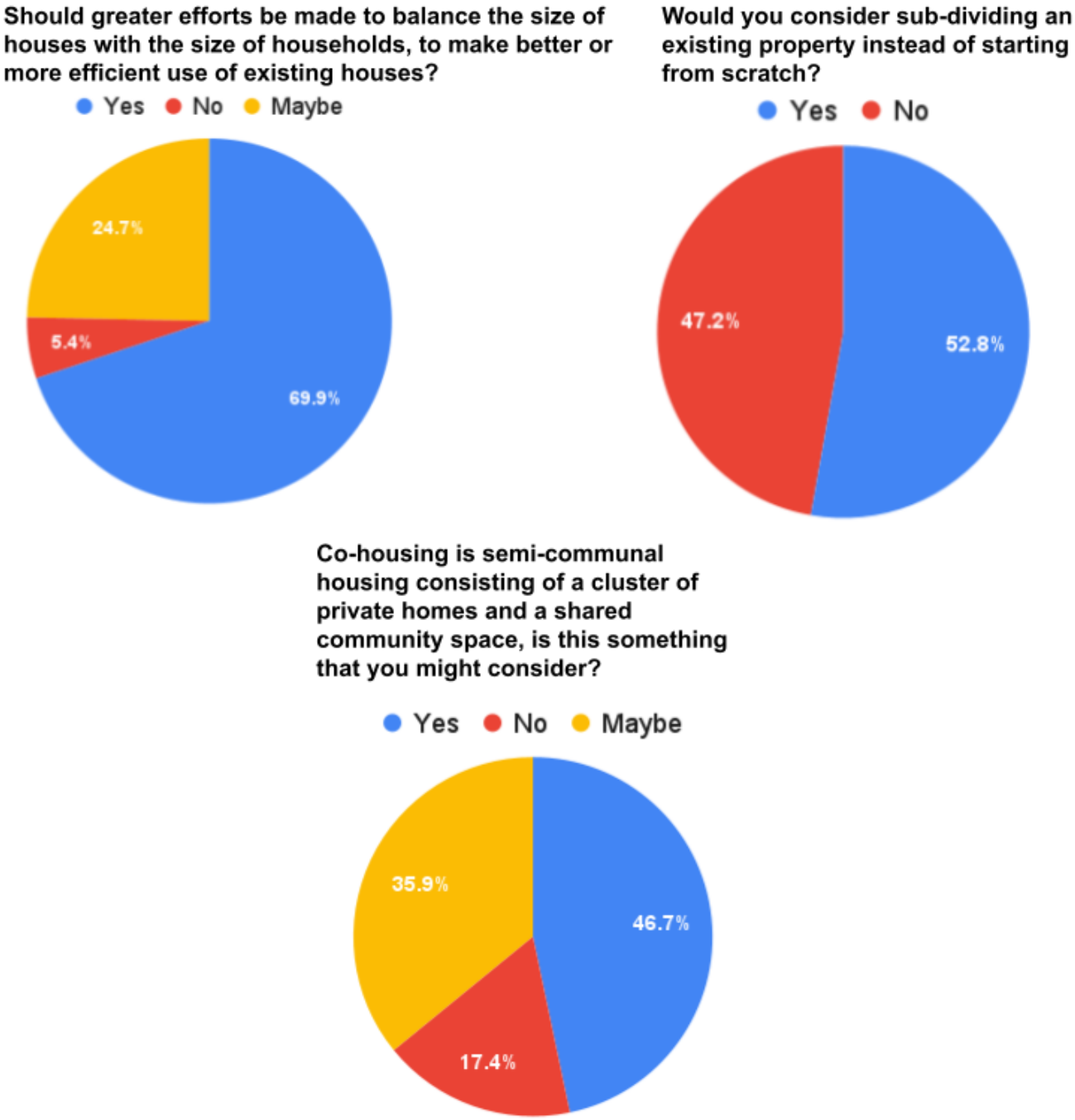


Figure 8 – 3 graphs showing respondents thoughts on various living situations. Based off the results from the One Planet Abingdon "The Impacts of New Housebuilding" survey

Furthermore, 46.7% of people suggested that they would be interested in the concept of co-housing.

Co-housing is s setup where “the majority of members live in self-contained units but share many other facilities (gardens, workshops, laundries etc)” (Diggers & Dreamers, n.d.). A successful example of this is Marmalade Lane in Cambridge which hosts energy-efficient, architect-designed modern homes and where residents benefit from extensive shared facilities and a large, shared garden.



Figure 7 – Marmalade Lane, Cambridge, an example of co-housing (Diggers & Dreamers, n.d.)

This suggests that there is some willingness to change and there are solutions ahead. Meeting society’s housing needs within an environmentally-conscious framework will rely on satisfying greater housing need through the existing housing stock via retrofitting and new innovations like co-housing. Political and economic pressures for environmentally-neglectful new housing means that to truly solve the housing crisis within the Earth’s planetary boundaries, a significant change will be required from the business as usual strategy.

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