Exploring the Challenges and Opportunities in Biodiversity Net Gain Delivery: Insights from Developers, Conservationists, Local People and Authorities.

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Dissertation Declaration

I declare that this thesis is my own work and has not been submitted in whole or in part for any other degree. All sources of information have been specifically acknowledged by means of references. I further declare that artificial intelligence tools were used in a limited and transparent manner during the preparation of this thesis. ChatGPT (OpenAI, GPT-5.2) was used to support language refinement tasks only, including improving sentence clarity, reducing repetition, and assisting with word-count reduction. Research Rabbit was used to support literature discovery and citation mapping by identifying relevant academic publications and visualising relationships between studies. All sources identified through this tool were independently reviewed, selected, and cited by me.

I can also confirm that the online ethics checklist was completed in line with Bournemouth University's ethical Guidelines [Checklist ID: 65113]. Furthermore, I can confirm that any potential health and safety risks were assessed with a risk assessment.

Nazish Farooq Mir.

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Thank you all!

Abstract

Biodiversity Net Gain (BNG), introduced under the Environment Act 2021, represents a significant shift in English planning policy by mandating that development delivers a minimum 10% improvement in biodiversity value. While the policy framework is well defined, there remains limited empirical understanding of how BNG is experienced and implemented in practice, particularly during its early mandatory phase. This study addresses this gap by examining how key actors involved in BNG delivery interpret, negotiate and experience the policy in real-world planning contexts.

Using a qualitative, multi-actor research design, semi-structured interviews were conducted with 18 participants, including developers, local planning authority officers, conservation professionals and local residents. The data was analysed using reflexive thematic analysis, enabling comparison of perspectives within and across actor groups.

The findings reveal that BNG implementation is shaped by interconnected financial, institutional, ecological and social constraints. Developers face viability pressures and metric uncertainty that encourage minimum-compliance strategies, while local authorities identify capacity shortages as a critical bottleneck for validation and long-term monitoring. Conservation professionals express concern that metric-driven delivery risks undermining ecological quality, and local residents remain largely excluded from decision-making despite strong support for biodiversity enhancement once informed. Cross-cutting analysis highlights fragmented understanding of BNG requirements, reactive communication, and a shared demand for clearer guidance and accessible digital tools.

The study demonstrates that BNG outcomes emerge not solely from policy design, but from social and institutional processes that structure coordination, accountability and power. By

foregrounding lived experiences during early mandatory implementation, this research contributes empirical evidence to debates on environmental governance and offers actionable insights for improving the ecological effectiveness, procedural fairness and long-term legitimacy of Biodiversity Net Gain.

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List of Abbreviations

BNG – Biodiversity Net Gain

Defra – Department for Environment, Food and Rural Affairs

LPA – Local Planning Authority

NPPF – National Planning Policy Framework

NGO – Non-Governmental Organisation

NAO – National Audit Office

Chapter 1: Introduction

Biodiversity is declining globally at rates unprecedented in human history, driven primarily by habitat loss, land-use change, climate impacts and invasive pressures (Acharya et al 2025; Hald-Mortensen 2023). This crisis is evident across terrestrial, freshwater and marine ecosystems, where ecological degradation increasingly intersects with patterns of economic development and urbanisation (IPBES 2021). As global populations continue to concentrate in cities and demand for housing and infrastructure intensifies, land-use change associated with development has become one of the most significant pressures on biodiversity (Li et al. 2022). Reconciling economic growth with ecological integrity has therefore emerged as a central challenge for environmental governance, particularly in countries experiencing severe housing shortages and rapid urban expansion (Rifat et al. 2024). In the United Kingdom, this challenge is especially pronounced. Over 19% of species have declined since 1970, and 16% of assessed species face extinction (State of Nature 2023). Urban development has played a key role in this decline, fragmenting habitats, degrading ecosystem quality, and displacing wildlife populations across UK's increasingly urbanised landscapes (Lawton et al. 2011).

In response to accelerating global biodiversity loss, governments have introduced policy mechanisms intended to mitigate, offset or reverse ecological damage associated with development. International momentum for such approaches can be traced to the Convention on Biological Diversity, adopted in 1992, which commits signatory countries to halt biodiversity loss and integrate biodiversity considerations into sectoral policies, including land-use planning and development (Nummelin and Urho 2018). Over time, this has given rise to no net loss and biodiversity offsetting frameworks trialled in countries such as the United States, Australia and several European (Damiens et al. 2021). These approaches are premised on the assumption that ecological damage in one location can be compensated through habitat creation, restoration or enhancement elsewhere (Bull et al. 2013; zu Ermgassen et al. 2019). Proponents argue that offsetting enables development to proceed while maintaining environmental safeguards, whereas critics question its ecological validity, social legitimacy and capacity to deliver meaningful biodiversity outcomes in practice (Guillet et al. 2018; Gibbons et al. 2018). These debates have

intensified as offsetting schemes move from voluntary or pilot stages into statutory planning systems, shaping land-use decisions at scale.

England's Biodiversity Net Gain policy represents a significant evolution of this compensatory logic and a globally distinctive test case for mandatory, metric-driven biodiversity enhancement. Introduced under the Environment Act 2021 and implemented for major developments from February 2024, BNG requires developers to demonstrate a minimum 10% uplift in biodiversity value relative to pre-development baselines, calculated using a statutory habitat-based metric and secured through legally binding 30-year management agreements (Defra 2023; Stuart et al. 2025). In contrast to earlier voluntary offsetting schemes and aspirational no net loss commitments, BNG positions England as an international leader in legislating net-positive biodiversity outcomes within the planning system (Rampling et al. 2024)

Despite its strong policy framing, the practical implementation of BNG remains uncertain, complex and uneven (zu Ermgassen et al. 2021). Operating at the intersection of ecological science, governance, economic decision-making and social acceptance, BNG's effectiveness depends not only on the robustness of ecological metrics or technical guidance, but also on the capacity, understanding, coordination and motivations of the actors responsible for delivery (Edwards et al. 2024; Jones et al. 2019). These include developers, local authorities, ecologists, conservation organisations and local communities. Emerging research highlights substantial challenges in integrating these diverse perspectives into a functioning and equitable system of biodiversity enhancement (Atkins et al. 2025; Rampling et al. 2024). While the policy intent of BNG is clear, far less is understood about how it is interpreted, negotiated and experienced in practice at the local level.

1.1 From 'No Net Loss' to Mandatory Net Gain: The Evolution of BNG Policy in England

Biodiversity Net Gain in England has emerged through a gradual policy evolution, transitioning from voluntary experimentation to a mandatory regulatory framework over more than a decade. Early foundations were laid through the Natural Environment White Paper (2011), which signalled a shift towards embedding environmental considerations more explicitly within planning and development processes (cited by Robertson 2021). This was followed by a series of biodiversity offsetting pilot schemes coordinated by Defra between 2012 and 2014 across six

local authority areas (Defra 2012; Bull et al. 2017). These pilots tested whether development related biodiversity losses could be compensated through habitat creation or enhancement elsewhere, but produced mixed outcomes, revealing persistent tensions between ecological ambition, administrative capacity, and market feasibility (Stuart et al. 2025; Martinez-Cillero et al. 2023).

Insights from these pilots played a critical role in shaping subsequent policy development, particularly through the refinement of a biodiversity metric designed to quantify habitat losses and gains in a consistent manner. The metric underwent multiple iterations, reflecting ongoing attempts to balance ecological realism with usability in planning contexts, before being formalised as Biodiversity Metric 4.0 (Coralie et al. 2015; Stuart et al. 2025). Momentum towards statutory intervention was consolidated through the 25-Year Environment Plan (2018), which committed the UK government to delivering measurable environmental improvements through development. This commitment was ultimately translated into law through the Environment Act 2021, which mandated BNG for most new developments in England and established a national framework encompassing standardised metrics, legal agreements, site registers, and enforcement mechanisms (Stuart et al. 2026). The progressive development of this policy trajectory from pilot offsetting to mandatory net gain is summarised in Figure 1, which illustrates the key milestones in the evolution of BNG policy in England.

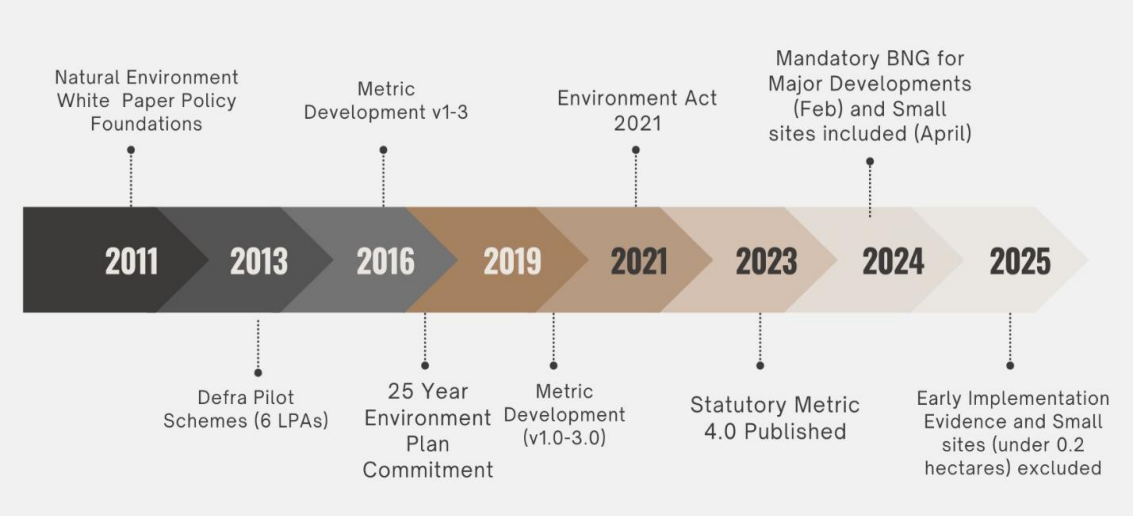

Figure 1. Key policy milestones in the development of BNG in England, from voluntary offsetting pilots to mandatory implementation (Adapted from Stuart et al. 2026; Defra 2023)

Crucially, the transition from a no net loss paradigm to a net gain requirement represents a substantive shift in policy ambition rather than a purely terminological change. No net loss approaches aim to maintain baseline biodiversity levels by ensuring that development impacts are fully compensated, implying an outcome in which ecological losses are balanced but not exceeded (Maron et al. 2018). Net gain policies, by contrast, require developments to deliver biodiversity outcomes that are demonstrably better than pre-development conditions (Knight-Lenihan 2020). England's statutory requirement for a minimum 10% uplift operationalises this principle, positioning BNG not merely as a damage-limitation tool but as an instrument intended to contribute actively to biodiversity recovery within developed landscapes (Defra 2023).

At the core of BNG implementation lies the statutory biodiversity metric, which translates ecological change into quantifiable 'biodiversity units'. These units are calculated as a function of habitat area, habitat distinctiveness (reflecting rarity and conservation importance), and habitat condition (assessed through field surveys) (Leon et al. 2025). By comparing pre-development and post-development unit values, the metric provides the evidential basis upon which developers must demonstrate compliance with the 10% net gain requirement. In practice, this calculation is embedded within a mitigation hierarchy that prioritises impact avoidance and minimisation, followed by on-site habitat restoration or creation, and finally off-site compensation or statutory biodiversity credits where on-site delivery is not feasible (Jones et al. 2019). This hierarchy, and the points at which different delivery options are triggered, are conceptualised in Figure 2, which illustrates the sequential logic underpinning BNG implementation.

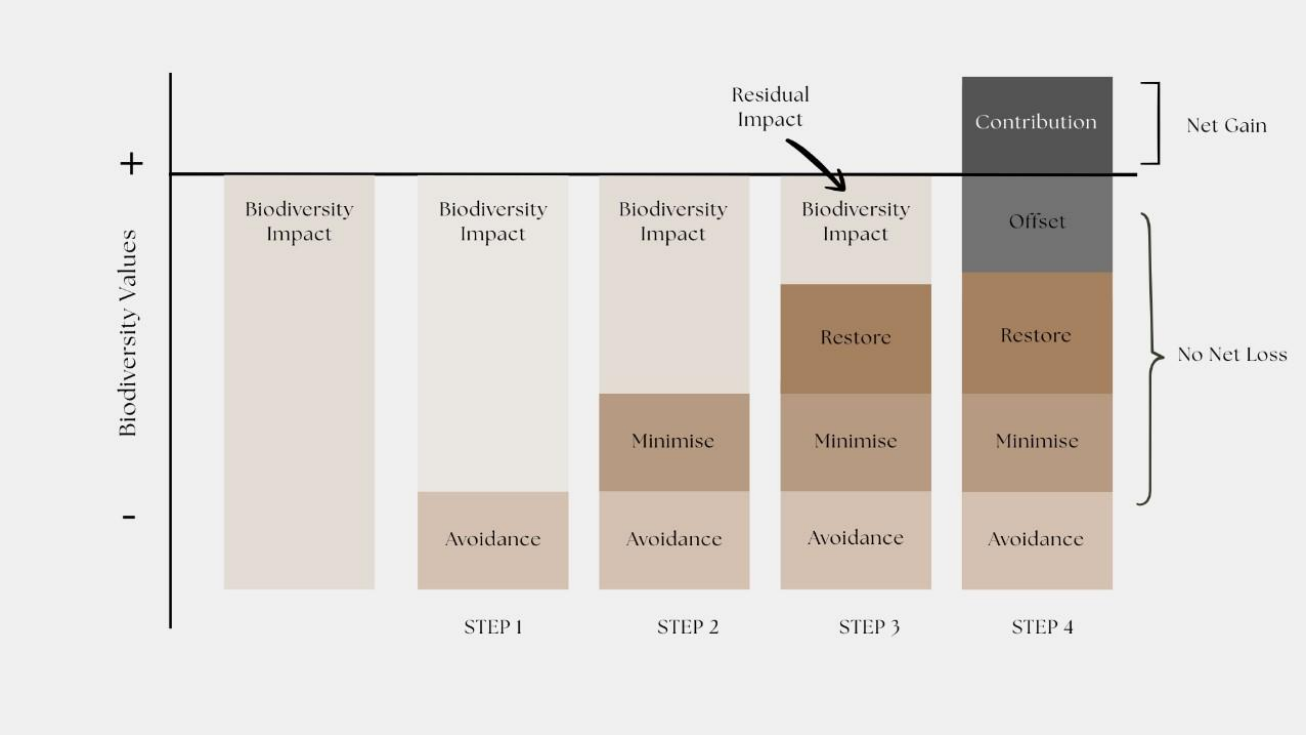

Figure 2. The Mitigation Hierarchy showing the four levels of actions to minimise, or reverse, the impact on biodiversity from development (Adapted from Jones et al. 2019)

To address concerns regarding temporal durability, BNG also introduces a statutory requirement for habitats created or enhanced to be managed for a minimum of 30 years (Baker 2025). This provision reflects ecological assumptions about the timescales required for habitat establishment, maturation, and species colonisation. However, emerging evidence from restoration ecology suggests that functional ecological outcomes particularly for complex habitats such as woodlands and wetlands may require substantially longer periods to develop fully (Kalliolevo et al. 2025). While the establishment of a national biodiversity gain site register seeks to enhance transparency and accountability by recording offset locations and management obligations, early evaluations indicate that local authorities often lack the resources and specialist capacity required for effective long-term monitoring and enforcement (Duffus et al. 2025b). As a result, questions remain about whether statutory permanence will translate into durable ecological outcomes in practice.

1.2 Implementation Challenges: Metrics, Governance and Market Pressures

BNG emerged within a broader context of continued biodiversity decline and longstanding tensions between environmental protection and development-led planning systems in England. Although planning policy has increasingly incorporated ecological mitigation and enhancement measures, concerns have persisted regarding weak implementation, monitoring, and long-term ecological delivery (Brummitt et al. 2024). Recent evidence from the Wild Justice report Lost Nature found that many ecological commitments associated with housing developments were either poorly implemented or absent altogether, highlighting wider governance and enforcement gaps within the planning system (Chapman et al. 2024). In this context, mandatory BNG can be understood not only as an ecological policy mechanism, but also as a response to broader concerns regarding the effectiveness of existing environmental governance frameworks in balancing biodiversity protection with development pressures.

As BNG transitions from policy design to mandatory implementation, a growing body of evidence highlights interlinked technical, institutional and market-based challenges that complicate its capacity to deliver meaningful ecological outcomes (Rampling et al. 2024). Central to these concerns is the statutory biodiversity metric, which provides a standardised mechanism for quantifying biodiversity change but necessarily simplifies complex ecological processes (zu Ermgassen et al. 2021). While the metric offers regulatory consistency, empirical testing suggests that it only partially reflects ecological reality, particularly in urban and highly modified landscapes. Studies comparing metric outputs with species-level data demonstrate weak correlations for birds, pollinators and invertebrates - taxa that underpin key ecosystem functions and are often highly valued by communities, indicating that developments may achieve numerical compliance without delivering substantive biodiversity improvement (Duffus et al. 2025a; Marshall et al. 2024). These limitations are compounded by methodological uncertainty in habitat condition assessments, where observer interpretation can substantially influence baseline scores and reported uplifts, creating scope for inflated gains that do not correspond to ecological change (Leon et al. 2025). Such variability is particularly problematic in planning contexts characterised by uneven ecological expertise, increasing the risk that technically complex calculations are accepted without rigorous scrutiny (Rampling et al. 2024).

The design of BNG also embeds market-based mechanisms intended to provide flexibility where on-site enhancement is infeasible, yet early evidence suggests that offset markets may reinforce

some of the metric's ecological shortcomings (Zlenko 2025). Analysis of England's biodiversity gain site register shows that a disproportionate share of registered offset area comprises low distinctiveness habitats such as neutral grassland habitats that are relatively inexpensive to create and score efficiently under the metric but are rarely of high conservation priority (Duffus et al. 2025b). These patterns raise concerns that BNG markets may prioritise unit generation and risk minimisation over ecological ambition, while remaining insufficiently responsive to development pressures.

Governance capacity within local planning authorities intersects with both metric and market challenges. Councils are responsible for validating biodiversity calculations, securing legal agreements and overseeing 30-year management commitments, yet multiple studies identify substantial resource and expertise constraints that undermine these functions (Agochukwu et al. 2024). Rampling et al. (2024) estimate that over a quarter of biodiversity units fall into governance gaps where responsibility for long-term oversight is unclear, while a significant proportion of planning applications contain calculation errors that are nonetheless approved due to limited technical capacity. The designation of BNG as a pre-commencement planning condition has further intensified administrative pressures, contributing to delays and inconsistent enforcement across regions (Robertson 2021). Although digital validation tools and biodiversity registers are increasingly promoted as solutions, their effectiveness depends on sustained institutional investment and training, which remain unevenly distributed (Vasiliev 2024). Recent policy adjustments, including exemptions for very small sites (below 0.2 hectares) introduced to accelerate housing delivery, underscore the political tensions shaping BNG implementation and raise questions about cumulative ecological impacts and regulatory coherence (Hussain 2025). Taken together, these challenges suggest that BNG's effectiveness depends not only on statutory ambition, but on the institutional conditions, market incentives and interpretive practices through which it is delivered in practice.

1.3 Social Dimensions and Actor Dynamics in BNG Implementation

Although BNG is formally presented as an environmental policy, its effectiveness is strongly shaped by social dynamics that influence legitimacy, compliance and long-term outcomes (Kopnina et al. 2025). Conservation policies operate within social and institutional contexts where perceptions of fairness, transparency and accountability play a critical role in determining whether

interventions are accepted or contested (Jones et al. 2019). As a result, BNG outcomes depend not only on ecological metrics or regulatory design, but on how the policy is interpreted and experienced by those involved in its delivery.

Social legitimacy is particularly important given the technical complexity and delayed nature of many BNG outcomes. Policies perceived as opaque or imposed risk undermining trust and weakening engagement, while those viewed as fair and responsive are more likely to foster cooperation and stewardship (Stuart et al. 2025). National survey evidence supports this, showing that while public support for the principle of BNG is relatively high, awareness of the policy remains low and trust varies markedly between actor groups. Conservation organisations tend to be viewed as credible, whereas developers and governing bodies attract lower levels of trust (Stuart et al. 2025). These findings suggest that BNG should be understood not only as a technical planning mechanism, but as a socially mediated governance process. Examining actor perceptions and interactions is therefore essential for assessing whether BNG can deliver ecologically effective and socially legitimate outcomes.

The term actors is used throughout this thesis to describe groups and individuals who play an active role in the implementation of BNG, through decision-making, regulation, technical input or local engagement. This usage follows established policy implementation and governance literature, where actors refers to those who exercise agency within institutional systems rather than passive recipients of policy (Hill and Hupe 2022; Stuart et al. 2025).

1.3.1 Actor Roles and Asymmetric Power in BNG Delivery

BNG outcomes emerge from interactions among multiple actors, each with distinct institutional positions, resources and interests.

Developers are central to the delivery of BNG, yet the literature indicates mixed levels of preparedness and engagement. Many developers particularly small and medium-sized enterprises, view BNG as an additional regulatory and financial burden, given their reliance on external ecological consultants and limited capacity to absorb new compliance costs (Griffiths et al. 2020; Butler et al. 2025). Uncertainty around metric interpretation, validation processes and long-term management obligations further complicates implementation (Bush et al. 2024; Atkins et al. 2025). Cost pressures strongly shape developer behaviour. Biodiversity unit prices can significantly affect

project viability, especially on small sites or on brownfield land, where delivery constraints are often greater due to existing development conditions and limited ecological opportunity (Baker 2025). Where brownfield sites support higher-value habitats such as Open Mosaic Habitat on Previously Developed Land (OMH), constraints can be particularly acute, as these habitats may carry higher biodiversity value and therefore higher mitigation or compensation requirements (Cox and Rodway 2022). These financial constraints are widely argued to incentivise minimum-compliance strategies, with developers aiming to meet the statutory 10% uplift at lowest cost rather than pursuing ecologically ambitious outcomes (Thornhill et al. 2025).

Delivering BNG also requires navigating evolving guidance, coordinating with under-resourced local authorities, and committing to long-term habitat management beyond typical development timelines (Rampling et al. 2024). While some developers recognise reputational benefits associated with high-quality green infrastructure, motivations and capacities vary widely across the sector (Griffiths et al. 2020). Overall, the literature portrays developers as operating within conditions of financial constraint and regulatory uncertainty, underscoring the need for empirical research into how these pressures shape BNG delivery in practice.

Local planning authorities act as key gatekeepers in BNG delivery, responsible for assessing compliance at the planning stage and overseeing long-term habitat management obligations. However, the literature consistently identifies councils as under-resourced and lacking sufficient ecological expertise to fulfil these roles effectively (zu Ermgassen et al. 2021; Thornhill et al. 2025). Budget constraints have led many authorities to reduce specialist ecology staff, increasing reliance on developer-commissioned assessments and limiting opportunities for independent scrutiny (Rampling et al. 2024). Existing planning enforcement systems, which are largely reactive, are poorly suited to monitoring 30-year biodiversity commitments, while political pressure to accelerate housing delivery may further constrain councils' willingness to impose stringent ecological requirements (Apostolopoulou 2020). Inconsistent interpretation of guidance and variable approaches to off-site compensation further contribute to fragmented implementation across England (Bush et al. 2024; Knight-Lenihan 2020). Despite these concerns, there remains limited empirical evidence on how local planning officers experience and navigate these challenges in practice, highlighting the need for qualitative research into council perspectives during early BNG implementation.

Conservation professionals play a crucial role in BNG implementation by providing ecological expertise and advocating for landscape-scale biodiversity outcomes. While many support BNG in principle, some have expressed concern that its marketized delivery risks prioritising metric compliance over ecological ambition, particularly where habitat banks favour low-cost interventions that score well numerically but deliver limited ecological value (Kalliolevo et al. 2025; Duffus et al. 2025a). A central critique is that the habitat-based metric inadequately captures species diversity, connectivity, and ecological processes, performing poorly for mobile taxa such as birds, pollinators and invertebrates (Marshall et al. 2024; Duffus et al. 2024). Conservationists also warn that reliance on off-site offsets can fragment ecological networks and displace biodiversity benefits away from affected communities (Apostolopoulou 2020; Carver et al. 2017). Although conservation practitioners act as informal watchdogs within the planning system, their influence is often constrained by limited formal authority, resource pressures, and potential conflicts of interest where consultants are embedded within development processes (zu Ermgassen et al. 2021; Rampling et al. 2024).

Local communities are increasingly recognised as important actors in BNG, yet their role remains weakly embedded within policy design and planning practice. Research shows that residents value green spaces for wellbeing, recreation and everyday encounters with wildlife, and that access, safety, aesthetics and maintenance strongly shape public acceptance of biodiversity interventions (Jones et al. 2019; Dunn-Capper et al. 2023; Faccioli et al. 2025). However, BNG schemes are typically designed within technical frameworks that prioritise metric optimisation over social values, risking interventions that meet numerical targets but fail to align with local priorities or cultural expectations (Stuart et al. 2025). This procedural exclusion raises concerns about social legitimacy, particularly where biodiversity gains are delivered off-site and disconnected from communities experiencing development impacts, reinforcing existing spatial and environmental inequalities (Butler et al. 2025). Scholars highlight that the commodification of biodiversity through tradeable units can obscure place-based relationships with nature, creating distributive justice challenges when ecological losses affecting one community are offset by gains elsewhere (Apostolopoulou 2020; Jones et al. 2019). Despite evidence that participatory and co-creative approaches can enhance both ecological outcomes and public support, meaningful community engagement in BNG remains rare and often limited to late-stage consultation processes (Rydin 2013). This gap suggests that local knowledge, lived experience and stewardship potential are under-utilised in current BNG delivery, highlighting the need for empirical research examining

how communities understand, experience and evaluate biodiversity interventions under England's emerging net gain framework.

1.3.2 Implications: Power Asymmetries and the Need for Integrative Governance

These actor profiles reveal fundamental asymmetries in power, resources and influence that shape BNG outcomes. Developers possess financial resources and legal expertise enabling them to shape proposals and navigate regulatory processes, while councils lack capacity for effective oversight (Stuart et al. 2025). Conservation professionals bring ecological knowledge but limited formal authority, while residents possess place-based expertise but remain procedurally excluded. BNG implementation thus reflects not collaborative governance but a hierarchical system where economic actors dominate, regulatory actors struggle, expert actors advise, and community actors are marginalised (Battisti et al. 2025; Valve et al. 2025)

Understanding these processes is essential for explaining implementation patterns - why some developments deliver genuine ecological improvements while others achieve minimum compliance, why governance failures persist despite regulatory mandates, and why social legitimacy remains contested. It also highlights the need for more integrative governance approaches that address capacity deficits, enhance procedural justice and enable meaningful multi-actor coordination.

1.3.3 Collaboration and Coordination in BNG Delivery

Effective delivery of BNG depends on coordination across actors operating within uneven institutional, informational and resource contexts (Rampling et al. 2024). Research shows that collaboration in environmental governance is often reactive rather than anticipatory, with engagement occurring after conflicts emerge, leading to delays, inefficiencies and adversarial relationships (Thornhill et al. 2025). These challenges are intensified by information asymmetries and inconsistent interpretation of the biodiversity metric, creating uncertainty and reducing regulatory predictability (Rampling et al. 2024).

Despite these constraints, the literature identifies opportunities to strengthen coordination through earlier engagement and shared platforms for data and decision-making. Recognition of common

constraints can create space for more integrated approaches, while pre-application dialogue have been shown to reduce fragmentation and improve transparency (Rampling et al. 2024). The effectiveness of BNG therefore depends on the development of collaborative governance arrangements that enable actors to navigate trade-offs, share expertise and coordinate action towards shared biodiversity objectives.

1.4 Research Gap: The Absence of Multi-Actor, Post-Implementation Empirical Evidence

Despite increasing scholarly attention to BNG, significant gaps remain in understanding how the policy operates in practice during its early mandatory implementation phase. Existing research has focused predominantly on policy design, biodiversity metric performance and theoretical or modelled ecological outcomes, offering limited insight into how BNG is interpreted, negotiated and delivered by the actors responsible for its implementation on the ground (Rampling et al. 2024; Duffus et al. 2025a; Duffus et al. 2025b).

Recent studies provide important technical critiques of the statutory biodiversity metric, highlighting limitations in ecological representation, assessment variability and early market behaviour (Duffus et al. 2025a). While these analyses are critical for understanding governance and measurement risks, they largely overlook the social processes through which BNG outcomes are produced, including professional judgement, institutional capacity and inter-actor negotiation.

Social research on BNG remains limited and fragmented. Choice-experiment studies demonstrate that local people value outcomes such as public access and species richness, yet these socially valued attributes are not explicitly prioritised within current BNG policy frameworks (Butler et al. 2025). However, such studies are largely hypothetical and do not examine how public preferences interact with developer incentives, council capacity constraints or ecological expertise during real planning processes.

Critically, no published research has examined multiple actor groups simultaneously during the post-February 2024 mandatory implementation phase. Existing studies typically focus on single actors - developers, local planning authorities or conservation organisations in isolation (Thornhill et al. 2025), limiting understanding of the relational dynamics through which BNG is enacted. This siloed approach obscures how outcomes emerge from interaction.

The transition to mandatory BNG represents a critical policy juncture that existing research has not captured. Mandatory compliance fundamentally alters incentives, governance pressures and market dynamics, yet qualitative, place-based evidence documenting actor experiences during this phase remains absent.

This gap matters because BNG outcomes depend not only on metric design and legal mandates, but on institutional capacity, procedural justice and coordination between actors. This study addresses this gap by examining the lived experiences of developers, local authorities, conservation professionals and local communities during early mandatory implementation. Through qualitative interviews and thematic analysis, it provides empirical insight into how BNG is enacted as a social process, revealing challenges and opportunities for strengthening collaboration and improving delivery in practice.

1.5 Research Aim and Objectives

The overarching aim of this research is to explore how Biodiversity Net Gain is experienced in practice by key actors, examining the financial, institutional, ecological and social dimensions that shape biodiversity outcomes.

To achieve this aim, the study addresses five specific research objectives:

Objective 1: To explore how developers perceive the financial and practical challenges of achieving BNG requirements.

Objective 2: To identify the key barriers conservation groups face in ensuring BNG effectively enhances biodiversity.

Objective 3: To evaluate how local authorities assess their capacity to monitor and enforce BNG regulations.

Objective 4: To understand how local people's preferences can be integrated into BNG strategies to enhance both ecological and social outcomes.

Objective 5: To investigate how collaboration between groups involved in BNG delivery can improve BNG implementation in future developments.

By addressing these objectives through in-depth qualitative inquiry with developers, councils, conservation professionals and local residents, this research makes three novel contributions. First, it provides the first empirical evidence on actor experiences during mandatory post-2024 BNG implementation. Second, it employs a comparative multi-actor design that reveals both group specific concerns and convergent challenges, enabling analysis of relational dynamics and coordination failures that single-actor studies cannot achieve. Third, it foregrounds the social dimensions of BNG delivery that technical and quantitative research often overlooks but which fundamentally shape whether policy translates into ecological reality.

Chapter 2: Methodology

2.1 Research Design and Approach

Qualitative methods are particularly appropriate for investigating policy implementation processes where outcomes are shaped by social interaction, institutional constraints and actor interpretation rather than by formal policy design alone (Bryman 2016; Yanow et al. 2017; Fischer and Maggetti 2017). BNG represents a complex, newly mandatory policy operating at the interface of ecological science, planning regulation and market mechanisms; understanding how it functions in practice therefore requires close attention to lived experience and decision-making contexts (McGee and Anderson 2025; Stuart et al.2025).

Semi-structured interviews were selected as the primary data collection method for three reasons. First, they allow participants to articulate experiences and perceptions in their own words, capturing nuance that structured surveys cannot access (Kvale 2009; Ginn and Munn 2019). Second, the semi-structured format provides consistency across interviews while allowing flexibility to pursue emergent issues relevant to different actor groups (Rubin and Rubin 2011). Third, interviews facilitate comparison across actors occupying different institutional positions, enabling examination of both divergent perspectives and shared implementation challenges (Alexiadou 2001).

The research focuses explicitly on the early mandatory implementation phase of BNG, following the policy's statutory introduction in February 2024. This timing is methodologically significant: participants were actively engaging with mandatory BNG requirements in live planning processes, rather than reflecting on hypothetical scenarios or voluntary pilot schemes. Capturing contemporaneous accounts enables analysis of how policy intent translates into practice under real regulatory, financial and organisational pressures (Jones et al. 2019).

The study is informed by an interpretivist epistemological stance, recognising that BNG implementation is a socially constructed process shaped by how actors interpret policy rules, negotiate trade-offs and exercise agency within institutional constraints (Schwartz-Shea et al. 2013). This perspective treats participant accounts as valid and valuable sources of knowledge about implementation dynamics, while acknowledging that perspectives are situated, partial and shaped by professional roles (Hamilton et al. 2019).

2.2 Participant Selection and Sampling

Participants were recruited using a combination of purposive and snowball sampling to identify information-rich cases relevant to BNG implementation (Patton 2015; Merkebu et al. 2025). Initial participants were identified through targeted online searches of planning authorities, environmental consultancies, conservation organisations and development firms involved in BNG, alongside professional contacts recommended by the research supervisor. Snowball sampling was subsequently used, whereby participants suggested colleagues or contacts with relevant experience, enabling access to practitioners willing to discuss implementation challenges candidly and helping to broaden perspectives across actor groups (Noy 2008; Valerio et al. 2016).

The geographical focus of the study was primarily Dorset and the wider south-west of England. Dorset represents an appropriate case study area due to active development pressures, early engagement with BNG policy, and the presence of diverse urban, peri-urban and semi-rural development contexts (Newton et al. 2019). Although findings are not intended to be statistically generalisable, the governance, capacity and coordination challenges identified are likely to be relevant to other local authorities operating under the same national BNG framework.

The study adopts a multi-actor comparative design, deliberately including four groups whose interactions shape BNG outcomes: developers, local planning authority officers, conservation professionals and local residents (Table 1). Levels of experience with BNG varied considerably across the sample. Developers, local authority officers, and conservation professionals generally had direct professional or policy-related engagement with BNG, ranging from familiarity with the metric and planning requirements to active involvement in implementation and decision-making processes. In contrast, local community participants had limited or no formal knowledge of BNG and were instead included based on an expressed interest in conservation and nature. This design enables analysis of how implementation outcomes emerge through interaction between actors rather than from isolated decisions (Flemming et al. 2019).

Table 1: Summary Table of Participant Characteristics.

Actor Group	Number of Participants	Participant IDs	Role/ Experience
Developers	4	D1 - D4	Strategic land managers, SME developers, landscape architects involved in residential developments with BNG requirements
Local Planning Authority Officers	5	LP1 – LP5	Planning officers, council ecologists, tree officers, designated BNG leads responsible for validation and enforcement
Conservation Professionals	5	C1 – C5	Ecologists, conservation scientists, NGO staff, environmental consultants with direct BNG implementation experience
Local Residents	4	L1 – L4	Community members and local residents interested in conservation and using green spaces on daily basis
Total	18		Interviews conducted June–July 2025 (15 months post-mandatory implementation)

2.3 Data Collection

Data was collected in June and July 2025 using semi-structured interviews conducted remotely via Microsoft Teams. Remote interviewing was selected for pragmatic reasons, including geographic dispersion of participants and professional time constraints, and reflects the normalisation of online communication in planning and environmental sectors (O'connor and Madge 2017). Interviews lasted between 30 and 45 minutes.

All interviews were audio-recorded with participant consent and auto-transcribed using Microsoft Teams. Transcripts were manually reviewed against recordings to correct errors and improve accuracy. This process also facilitated researcher familiarisation with the data prior to formal analysis (Bailey 2008).

An interview guide was developed to align with the study's five research objectives while allowing flexibility to explore emergent issues (Panyasai and Ambele 2025). Table 2 outlines the research focus and the associated interview questions included in the study. Core themes were consistent

across actor groups, but questions were tailored to reflect participants' roles and experiences. For example, developers were asked about financial viability, delivery options and metric interpretation, while residents were asked about awareness, perceptions and opportunities for engagement. Questions were open-ended and designed to elicit narrative accounts rather than yes/no responses (Appendix 6.1).

Data collection for actor groups with professional or policy engagement was conducted iteratively and continued until thematic saturation was reached, defined as the point at which no new themes or substantive insights were emerging from additional interviews (Weller et al. 2018). This approach ensured adequate coverage of perspectives among key actors directly involved in BNG delivery, while also incorporating a contrasting public perspective to capture broader societal attitudes toward conservation and development.

Table 2. Research focus, associated interview questions and actor groups

Research Focus	Associated Interview Questions	Actor Groups
Understanding of BNG policy and requirements	• What does Biodiversity Net Gain mean in your role? • How clear do you find current BNG guidance?	All actors
Financial and practical delivery challenges	• From your experience, what are the biggest challenge in implementation? • Are there any financial barriers that impact BNG delivery?	Council, Developers and Conservationists
Governance, validation and enforcement	• What constraints exist? • Is there any resource gap? • How is it assessed and enforced in practice?	Councils and Conservation Professionals
Community awareness and participation	• Is there any role of community engagement at any stage? • Should they be involved? • How do you think locals can be more involved?	All actors

Long-term management and monitoring	• How realistic is long-term monitoring? • Who should be responsible?	Council, Conservation Professionals and Developers
Cross-actor coordination and collaboration	• What could improve collaboration?	All actors

2.4 Data Analysis

Interview transcripts were analysed using reflexive thematic analysis following the principles outlined by Braun and Clarke (2006, 2019). This approach was selected for its flexibility and suitability for multi-actor qualitative research, allowing systematic identification of patterns within and across participant groups while remaining sensitive to contextual meaning (Terry et al. 2017). Analysis began with repeated reading of transcripts alongside audio recordings to achieve deep familiarisation with the data and to record initial analytic reflections (Byrne 2021). Transcripts were then coded line-by-line in NVivo, generating both descriptive codes capturing explicit content (e.g. credit costs, capacity constraints, public exclusion) and interpretive codes reflecting underlying meanings (e.g. minimum compliance, information asymmetry, procedural injustice). Coding was primarily inductive, allowing themes to emerge from the data, while being informed by sensitising concepts from the literature on environmental governance and biodiversity offsetting (Rivas 2012) (Appendix 6.2 and 6.3). Codes were subsequently clustered into broader candidate themes that captured recurring patterns relevant to the research objectives. These themes were iteratively reviewed and refined to ensure internal coherence and clear distinction between themes, resulting in a final set of within-group themes and cross-cutting themes spanning all actor groups (Braun and Clarke 2022). Throughout analysis, particular attention was paid to comparing perspectives across developers, local authorities, conservation professionals and residents in order to identify convergent challenges, divergent priorities and relational dynamics shaping BNG delivery. The final analytical output integrates thematic interpretation with illustrative quotations, enabling examination of how BNG is experienced, negotiated and enacted in practice during early mandatory implementation.

2.5 Ethical Considerations

Ethical approval was granted by the Bournemouth University Research Ethics Committee prior to data collection [Ethics ID number: 65113] (Bournemouth University 2024) (Appendix 6.7). All participants received an information sheet and agreement form outlining the research purpose, procedures and data use, and provided informed consent (Appendix 6.5 and 6.6). Participants were assigned anonymised identifiers (e.g. D1, LP2) and all identifying details were removed from transcripts. Data were stored securely on Microsoft One Drive. Interviews focused on professional experiences and avoided sensitive personal issues, minimising risk of harm. Participants were informed of their right to withdraw any time before analysis stage.

2.6 Research Quality and Reflexivity

As with all qualitative research, this study produces context-specific and time-bounded insights; however, trustworthiness can still be rigorously ensured through appropriate quality criteria (Miles et al. 2010). Research quality was assessed using the principles of credibility, dependability, transferability and confirmability (Athens 2010). Credibility was enhanced through triangulation across four actor groups, prolonged engagement with the data during iterative thematic analysis, and debriefing with the research supervisors (Darawsheh 2014). Dependability was supported by transparent documentation of analytical decisions, iterative re-coding and systematic use of NVivo, ensuring consistency in how themes were developed and refined. Transferability was addressed through detailed description of the policy context, actor roles and analytical process, allowing readers to assess the relevance of findings to other BNG or environmental governance settings. Confirmability was supported through reflexive practice and maintaining analytical focus on participants' accounts rather than normative assumptions (Nyathi 2019; Treharne and Riggs 2015) (Appendix 6.4).

Chapter 3: Results and Discussion

This section presents findings from semi-structured interviews conducted with four actor groups involved in BNG implementation. The final sample comprised 18 participants, including four developers, five local authority officers, five conservation professionals, and four local residents (Table 1). Data were analysed using thematic analysis following Braun and Clarke's six-phase framework, identifying eighteen within-group themes and five cross-cutting themes spanning all actor categories. Although qualitative research does not aim for statistical representativeness, data collection for actor groups with professional or policy engagement was continued until thematic saturation was reached, indicating that no new substantive themes were emerging across these interviews. The findings are therefore interpreted in relation to both saturation within expert actor groups and variation in participant knowledge of BNG. Developers, local authority officers, and conservation professionals provided policy- and practice-informed perspectives reflecting this saturated dataset, whereas local community participants reflected broader attitudes toward conservation and development due to limited prior knowledge of BNG. Consequently, comparisons between groups are framed as differences between expert actor perspectives and environmentally engaged public perceptions rather than equivalent levels of policy expertise.

3.1 Developer Perspectives: Financial Pressures and Strategic Compliance (Objective 1)

Developers consistently framed BNG as a significant financial and practical challenge that fundamentally shapes project viability and strategic decision-making. This finding directly addresses Research Objective 1 (exploring developer perceptions of financial and practical challenges) and aligns with Baker's (2025) analysis of BNG cost implications for project management.

3.1.1 Financial Burdens and Viability Concerns

A core theme emerging from developer accounts was the financial pressure introduced by BNG, particularly for smaller firms and marginal projects. Developers spoke repeatedly about additional

costs not anticipated in traditional planning processes. One developer from a small company specialising in brownfield projects described the financial implications in stark terms:

"Our colleagues will charge extra for the BNG working out the metric… and then if… Council pushed back… they're charging an hourly rate to just have these negotiations back and forth" (D1).

This added expense, which includes both professional fees and extended negotiation time, reflects how BNG introduces new cost layers that are difficult to forecast in early feasibility stages (zu Ermgassen et al. 2021). Similarly, another participant highlighted the viability challenges when BNG is factored into small or constrained sites, noting:

"…on a small development… you look at the cost constraints of doing off-site credits… it can be… really hard for the smaller developers… it can be… really hard" (D2).

These views resonate with literature illustrating that credit costs often cited to range into tens of thousands of pounds per unit can skew development viability, especially on smaller sites where profit margins are tight (Baker 2025; Thornhill et al. 2025). For smaller developers without deep capital reserves, the risk that credit costs materially alter their cash flows was described as a "nightmare" rather than an opportunity.

However, financial concerns were also contextualised by size and experience: larger developers may be better resourced to absorb BNG costs or incorporate them into broader sustainability frameworks. One strategic planner working across large landholdings observed that while enforcement and cost remain concerns, embedding BNG early in master planning can mitigate financial risk:

"…we look to bring in… flood and drainage ecology… to have sufficient area and type of area to achieve BNG and… it is achievable if you ensure that you've got the right people working on… from the outset" (D4).

This observation aligns with evidence that early integration of ecological expertise can reduce downstream financial and design risks (Rampling et al. 2024).

3.1.2 Metric Uncertainty and Practical Application Challenges

Beyond the direct costs of credits and professional fees, developers consistently pointed to uncertainty and inconsistency in metric application as a practical barrier. Variability in how ecologists and councils interpret habitat condition and scoring was a recurring concern. Developer 1 described the conflicting views of assessment professionals:

"Each ecologist has different views on that metric and how to put it in… the Council… have different ideas on the metric… there's just no common ground" (D1).

This discordance creates uncertainty early in project timelines, undermining confidence in both cost and design estimates (McCray et al. 2002).

The literature on implementation challenges echoes this uncertainty, noting that methodological inconsistencies in habitat scoring can generate apparent net gains even where actual ecological value is unchanged, creating opportunities for subjective interpretation or gaming (Contos et al. 2025). Although developers in this study did not frame their comments as ethical critiques, their experiences reflect similar variability: disagreements over tree classification or habitat value can lead to protracted negotiations, as one participant explained:

"Our ecologist… is 30 years being an ecologist… Councillor's being five years… there's a disparity… and we just have to fold over… because we want to get our consent" (D1).

In addition to interpretative inconsistency, developers described the practical difficulty of achieving on-site BNG uplift, particularly where land is constrained or already intensively used. As one landscape architect highlighted in relation to urban and multifunctional sites:

"…we… have to try and… tick the box and get the score… compromise and kind of put things in for the sake of it" (D2).

This mirrors broader implementation critiques that metrics focus on numerical units rather than nuanced ecological function, potentially incentivising superficial compensatory actions over meaningful ecological enhancement (Duffus et al. 2025a).

3.1.3 Procedural Delays and Fragmentation

Another practical challenge raised by developers was the procurement and timing impacts of BNG requirements. The introduction of net gain conditions often triggers extended negotiation cycles with local planning authorities, impacting project schedules and holding costs (Cillero 2023). For Developer 1, this delay translated directly into financial pressure:

"…our last two sites… one took seven months to get… net biodiversity certificate… another… has been since Christmas… [December 2024, approximately six–seven months at the time of interview]" (D1)

These delays occur even when other aspects of planning consent have been resolved, reflecting fragmented procedural integration.

Literature on governance gaps within BNG implementation points to similar issues: under resourced councils and inconsistent guidance can prolong review and enforcement processes, undermining both developer confidence and policy efficiency (Rampling et al. 2024). Developers in this study echoed these concerns and noted that extended timelines impose holding costs on land that cannot be mobilised for construction until BNG conditions are discharged:

"…we own something already… that's holding costs associated with that, which then impacts us overall" (D1).

This underscores how procedural fragmentation does not merely slow planning processes but materially impacts business viability.

3.1.4 Knowledge Barriers and Regulatory Clarity

While all developers expressed general understanding of BNG's intent, they also highlighted knowledge barriers and lack of clarity in guidance as practical challenges. D2, a landscape architect, noted that the metric's conceptual complexity particularly in explaining habitat units to clients creates a communication burden:

"…it's not something that the man on the street can pick up… the concept of a unit… is tricky" (D2).

Similarly, D1 observed that evolving metric versions contribute to uncertainty:

"…we've had three different versions of the metric… if you still got your application live, you're then having to update to two versions…" (D1).

Frequent changes undermine regulatory certainty and impose additional work for developers and consultants alike.

These knowledge gaps align with literature on capacity constraints and interpretative variability in BNG implementation (Rampling et al. 2024). Moreover, the challenge of translating technical requirements into practical design decisions suggests a need for better targeted guidance and developer-focused support mechanisms.

3.1.5 Summary of Key Findings and Implications for Developers

Developers in this study perceive BNG as a well-intentioned but pragmatically challenging requirement. Their experiences point to financial burdens that disproportionately affect smaller enterprises, practical application challenges stemming from metric ambiguity and site constraints, procedural delays that carry real cost implications, and regulatory uncertainty due to evolving guidance and interpretive variability. These findings support and extend existing literature on BNG implementation challenges, particularly as they relate to actor capacities and asymmetric power dynamics (Rampling et al. 2024; Duffus et al. 2025a). Addressing these developer-identified barriers will be critical for ensuring that mandatory net gain not only functions administratively but also deliver meaningful biodiversity outcomes without undermining project viability.

3.2 Conservation Professional Perspectives: Ecological Effectiveness and Metric Limitations (Objective 2)

Conservation professionals broadly support the intent behind BNG, yet their accounts reveal a series of practical, conceptual, and governance barriers that challenge the policy's capacity to deliver meaningful ecological outcome. These findings address Research Objective 2 (identifying barriers conservation groups face ensuring BNG enhances biodiversity).

3.2.1 Metric Limitations: Habitat-Centric Measurement and Oversimplification

A core concern among conservationists was the inherent simplification embedded in the statutory biodiversity metric, which they argue privileges easily quantifiable habitat data at the expense of ecological complexity:

"It's more habitat focused… it doesn't really include anything for species" (C1).

This sentiment recurred across interviews, with several respondents highlighting that the metric often results in "box-ticking" rather than ecological understanding. One interviewee described the process reductively:

"…you cut down 100 trees, you plant 110… it's frighteningly oversimplified" (C4).

Such practical limitations reflect wider critiques in the literature on biodiversity offsetting and net gain metrics, which warn that habitat area does not necessarily correlate with ecological function or species diversity (Curran et al. 2014; Simmonds et al. 2022). Conservationists noted that this oversimplification may inadvertently lead to monocultural outcomes rather than the diverse ecosystems that policy aims to promote:

"…end up with some sort of monoculture… not genuinely diverse nature." (C2).

Thus, the very tool meant to quantify net gain critical for enforcement and monitoring is simultaneously seen as a barrier because it fails to capture species interactions, ecological processes, and functional outcomes.

3.2.2 Governance Gaps: Accountability, Monitoring, and Regulatory Ambiguity

Another prominent theme was the lack of robust governance structures to ensure long-term realization of biodiversity outcomes. Several participants voiced scepticism regarding post approval monitoring and accountability, suggesting that, once planning consent is granted, there is insufficient follow-through:

"…who's actually being held to account… no one's, I don't think anyone…" (C1).

Linked to this, conservationists pointed to regulatory ambiguity, particularly around how guidance is interpreted and applied:

"…lack of certainty… work with whatever model you're given." (C5).

Such uncertainty can lead to inconsistent outcomes and weaken collective confidence in BNG as a governance tool, echoing broader findings that regulatory clarity and capacity are essential for effective environmental policy implementation (Moseley et al. 2025).

3.2.3 Scale Mismatch: Small Sites vs Landscape Goals

A recurring issue was that the statutory requirement for BNG does not distinguish sufficiently between small and large developments, despite the ecological implications of site scale. Conservationists noted that small developments are often treated in the same way as larger ones, which can strain interpretation and delivery:

"…lots of small pocket parks, but no real functional nature." (C3).

This observation aligns with critiques that a one-size-fits-all requirement may generate suboptimal ecological outcomes where landscape connectivity and ecological processes operate at broader scales (Bull et al. 2013). Moreover, some respondents highlighted that BNG currently struggles to support meaningful landscape-scale restoration, not least because it can be difficult to finance large projects through fragmented credits:

"…BNG… difficult to do big landscape scale projects… no certainty." (C5).

Thus, the policy design, while ostensibly universal, may inadvertently privilege small, superficial gains over substantive, large-scale biodiversity enhancement.

3.2.4 Unintended Consequences: Policy as Development Facilitator

Several conservationists noted that BNG's flexibility and metric structure might inadvertently function more as a development facilitator than an ecological safeguard. As one put it:

"…a toolkit to bypass responsibilities… to allow development to increase…" (C4).

This critique suggests that BNG may serve more effectively as a means to expedite development approval than to generate real biodiversity gains - an unintended consequence also found in studies of biodiversity offsets where economic drivers dominate ecological goals (Maron et al. 2025). Such outcomes point to a core tension between economic and ecological priorities embedded in the policy's operational logic.

3.2.5 Community Engagement as Peripheral to Conservation Outcomes

Finally, conservationists expressed divergent views on the role of community engagement in BNG processes. While some saw opportunities for greater public involvement, others questioned whether community input meaningfully influences ecological outcomes. One interviewee highlighted the current superficiality of engagement:

"…developers do community consultation and then do exactly what they planned." (C4).

By contrast, another respondent emphasised that community understanding remains low, limiting the potential for meaningful participation:

"…a lot of the public don't really understand what BNG is…" (C1).

These reflections align with literature emphasising that legitimacy and local buy-in require more than procedural consultation; they require substantive engagement with people's values, ecological knowledge, and place-based priorities (McGee and Anderson 2025).

3.2.6 Summary of Key Findings and Implications for Conservationists

In sum, conservation professionals in this study identify key barriers to BNG's effectiveness, centered on metric limitations, operational hurdles, governance gaps, scale mismatches, unintended consequences, and varying roles for community engagement. While respondents endorse the policy's normative aim, they consistently argue that without significant refinement and stronger implementation mechanisms, BNG in its current form is unlikely to deliver durable biodiversity enhancement. These findings reinforce broader critiques of net gain frameworks and underline the need for more ecologically sophisticated, governance-linked, and socially meaningful approaches to biodiversity policy (Humphrey et al. 2025).

3.3 Local Planning Authority Perspectives: Capacity Constraints as the Critical Bottleneck (Objective 3)

The most striking finding of this study is that 100% of participants - across all four actor groups - independently identified local planning authority under-resourcing as the critical bottleneck constraining BNG delivery. This universal consensus addresses Research Objective 3 (evaluating

council capacity to monitor and enforce BNG) and validates Rampling et al.'s (2024) quantitative analysis of governance gaps in ecological compensation policies.

3.3.1 Capacity and Resourcing Constraints

Officers repeatedly described BNG as a 'very, very complicated piece of legislation' (LP1), yet underscored that its introduction did not come with commensurate increases in staffing or training. Several interviewees reported being sole practitioners or small teams responsible for BNG assessments, significantly stretching existing workloads. As one participant explained:

"it's just me. I am the team… that's part of the problem" (LP4).

This sentiment reflects a broader pattern where ecological and planning duties are consolidated onto individual officers, increasing vulnerability to delays and burnout.

These capacity concerns align with findings from environmental governance research that identifies institutional resourcing gaps as key barriers to effective implementation of complex regulatory tools (Rampling et al. 2024; Thornhill et al. 2025). The council officers' experiences suggest that beyond technical expertise, time and bandwidth for reflective assessment are limited: respondents described BNG tasks as competing with other statutory duties, leading to prioritisation dilemmas. One officer noted the cumulative workload through technological processes like uploading and checking metric outputs:

"I have to spend time - half a day sometimes - checking the metric files" (LP1).

This underscores how capacity constraints manifest not just in big-picture planning challenges but in everyday procedural friction.

3.3.2 Technical Complexity and Metric Interpretation

Closely connected to capacity issues is the theme of technical complexity and interpretation of the biodiversity metric. Council officers widely described the metric as conceptually valuable but practically difficult to apply consistently. One respondent highlighted uneven understanding:

"Even I struggle to find the guidance… I work in ecology, and sometimes I'm like, 'Where is that guidance?'" (LP1).

Another pointed to the challenge of grading habitats accurately, remarking that:

"you've got to spend ages zoomed in on the map, and it's tough" (LP5).

The interview data reveal discrepancies between guidance and practice. Officers expressed frustration that different tools (e.g. UKHab vs national metric) produce conflicting results, and that navigating these discrepancies consumes disproportionate time. One participant noted:

"You compare UKHab to the national metric and it's wildly different - especially the woodland units" (LP5).

This points to a wider issue of interpretive uncertainty: local authorities are required to enforce a policy whose technical basis is itself evolving and unevenly understood across professional groups.

3.3.3 Monitoring, Enforcement and Long-Term Uncertainty

Another prominent concern was the challenge of monitoring and enforcing long-term BNG commitments. Officers acknowledged that policy requires securing gains over a 30-year period, yet they expressed uncertainty about how this will be realised within existing governance frameworks. As one interviewee asked rhetorically:

"When it comes to management plans being monitored for 30 years - who's going to do it?"

(LP2). Similarly, another noted that:

"they're not monitored, they're not enforced, they're not properly funded. Nobody checks in years later" (LP3).

These reflections resonate with wider critiques of offsetting and net gain frameworks that highlight the difficulty of sustaining ecological outcomes over extended timescales without robust institutional mechanisms (Maron et al. 2025; Cares et al. 2026).

Critically, the interviews suggest that councils are not uniformly equipped either in systems or staffing - to manage long-term compliance. Officers pointed to limitations in digital systems (such as Mycelia) and expressed concern that current tools do not streamline long-term tracking:

"Mycelia have potential, but it's not currently making monitoring easier" (LP5).

The gap between policy intent (30-year stewardship) and practical enforcement raise questions about whether local authorities can realistically deliver on BNG's long-term commitments without additional resourcing and clearer guidance.

3.3.4 Procedural Delays and Developer Preparedness

Council officers also described procedural delays linked to BNG that are not purely a function of individual capacity. They stressed that developers frequently submit poorly prepared BNG assessments, requiring multiple rounds of review and revision. As one officer observed:

"It's not because it's too difficult to do BNG on site… it's because their ecologist doesn't understand" (LP3).

This highlights a coordination gap between developers and planning authorities, where misaligned expectations and uneven technical competence create iterative loops of revision.

Several respondents also noted that these delays are mistakenly interpreted as inherent policy burdens by external stakeholders. One participant reflected on public narratives that blame councils for holding up development, while the root cause often lies in insufficient developer preparedness and understanding of metric requirements. Such insights align with implementation scholarship that emphasises the importance of multi-actor capacity building not just within government, but across regulated communities to achieve policy coherence (Dzebo et al. 2025; Nugroho et al. 2025).

3.3.5 Collaboration

While many of the council officers' critiques focused on challenges, they also articulated pathways for improvement, particularly through enhanced collaboration. One officer noted that when developer, ecologists and planners engage early in the process, outcomes tend to be smoother:

"If everyone sits around a table early on… you get a shared sense of what's required" (LP4).

This suggests that early co-design and structured pre-application engagement may reduce friction and align interpretive frameworks across actors.

Nonetheless, respondents highlighted that such collaboration is not yet systematic. A recurring metaphor was that developers and councils often operate in parallel siloed processes, rather than truly integrative workflows:

"they're not talking to each other sufficiently, so we end up repeating things" (LP3).

This reflects broader governance concerns about coordination deficits, where statutory bodies, private consultants, and community stakeholders lack institutionalised channels for iterative engagement.

3.3.6 Summary of Key Findings and Implications for Local Planning Authorities

Overall, the council interviews reveal that BNG implementation is shaped less by opposition to biodiversity goals and more by governance and capacity bottlenecks that influence the uptake and quality of net gain delivery. The challenges highlighted technical complexity, monitoring uncertainty, procedural delays, and fragmented coordination are consistent with broader critiques in the environmental policy literature regarding the gap between normative policy design and operational capacity (Rampling et al. 2024; Thornhill et al. 2025). Yet the data also point to pragmatic solutions, particularly through collaborative practices and clarity in guidance, which suggest that the policy's long-term success will depend as much on institutional learning and cross actor alignment as on the technical properties of the metric itself.

3.4 Resident Perspectives: Exclusion, Awareness and Participation Gaps (Objective 4)

Local residents demonstrated strong support for biodiversity protection and valued local green spaces highly yet remained largely excluded from BNG decision-making processes with limited awareness of the policy. These findings address Research Objective 4 (understanding how local preferences can be integrated into BNG strategies).

3.4.1 Understanding and Awareness of BNG

Awareness of the BNG concept among local residents was mixed, reflecting broader public unfamiliarity with a policy that is legally binding but not widely understood outside planning and

ecology professions. Some interviewees had never heard of it prior to explanation, while others tried to interpret it through unrelated concepts.

For instance, one local respondent initially asked if the policy was about:

"Having, you know, the glass on a roof and that there?" when first hearing about BNG, highlighting an early misunderstanding of the term (L2).

This comment underscores a gap in public familiarity with statutory environmental requirements, which echoes findings that public awareness of BNG remains low despite its legal status.

Once the policy was briefly explained, however, many locals expressed general support for the idea that development projects should deliver environmental benefits. One participant stated emphatically:

"They definitely should… it's really important… especially people like builders who can… destroy things without being aware of it." (L2)

Another emphasised the fundamental value of nature, asserting that:

"We should replace [trees] with the same number… and more." (L3)

These responses suggest that while the technical framework of BNG might be unfamiliar, the underlying principle of protecting and enhancing local ecosystems resonates strongly with local values.

3.4.2 Local Involvement and Decision-Making

A recurrent theme across interviews was the belief that local people should have a voice in biodiversity decisions, especially when development affects public green spaces. One interviewee argued that:

"Local people should always be involved if they can… there should be information provided… and a questionnaire at least… whether they take any notice or not is a different story." (L1)

This reflects a desire for transparency and procedural inclusion, even if ultimate decision-making authority rests with councils or policymakers.

Similarly, another local emphasised awareness over permission:

"if people know why we need to conserve it… that builds understanding." (L2)

This participant distinguished between requiring formal consent processes and ensuring that residents are informed and aware of changes in their environment, aligning with literature that stresses awareness and understanding as precursors to meaningful public participation (Evans et al. 2025)

In contrast, some residents felt that impactful involvement may be limited. One interviewee acknowledged the theoretical value of local input but suggested that unless a development is large or conspicuous, residents might:

"Have very little part playing in implementing the biodiversity net gain policy." (L4)

This position points to a perceived practical barrier to participation for routine or small-scale projects, which may be more frequently encountered in local planning processes. Moreover, a recurring idea was that engaging younger generations and building awareness from childhood could foster a deeper cultural commitment to nature. One local enthusiastically noted that incorporating conservation activities and educational engagement even through community events like litter-picking could strengthen local connections to the environment (L2). Such perspectives emphasise that social legitimacy and ecological outcomes are intertwined, and that public engagement is as much about cultivation of ecological values as procedural consultation.

3.4.3 Valuing Green Spaces and Ecosystem Services

When asked about valued environmental features, locals across all interviews emphasised trees, green spaces, and wildlife areas as integral to quality of life and wellbeing. Respondents described daily use of parks, rivers and woodlands not just for aesthetics, but for physical and mental health. One participant explained that green spaces were a:

"Really, really important part of my life and a core reason for choosing their home location". (L3)

Another local discussed green spaces in relation to everyday activities such as walking, dog walking and informal play, noting that management practices like seasonal grass cutting and signage about wildlife contributed to the usability and attractiveness of these areas (L2). These accounts demonstrate that residents do not conceptualise biodiversity narrowly in ecological terms but as part of a holistic social-ecological system that supports community wellbeing.

3.4.4 Concerns about Policy Mechanisms and Loopholes

While generally supportive of ecological improvement, some residents expressed concerns about the implementation and durability of BNG. Notably, one interviewee questioned how trees or habitats would be maintained beyond the mandated period, asking rhetorically:

"What guarantee do you have that's maintained when people acquire the property… only for 30 years, can they get rid of it then?" (L2)

This reflects anxiety about the long-term stewardship of biodiversity gains, a question that has been noted as a critique of mandatory BNG frameworks where ongoing monitoring and enforcement capacity is limited.

The same respondent also highlighted concerns about loopholes in policy application, noting that if small houses were exempted as has been discussed in planning circles builders might exploit this to avoid compliance:

"If they can do... small residential… then he doesn't have to worry about that." (L2)

This mirrors real policy conversations in the UK about the applicability of BNG to smaller developments and potential exemptions, which critics argue could undermine the policy's ecological effectiveness.

3.4.5 Summary of Community Experiences

Locals interviewed for this study generally support the principle of biodiversity enhancement tied to development, even if detailed understanding of the statutory policy is limited. They value green spaces for wellbeing, desire transparent and inclusive planning processes, and recognise the importance of balancing housing needs with nature conservation. However, concerns about policy mechanisms, awareness gaps, and meaningful participation highlight areas where BNG implementation could be strengthened. The emphasis placed by local interviewees on access to green spaces, visibility of biodiversity improvements and locally delivered outcomes aligns with experimental evidence showing that public access and species richness are more influential in shaping acceptance of BNG projects than proximity or housing-related trade-offs, reinforcing concerns that current policy design insufficiently reflects community priorities (Butler et al.2025). These insights reveal that for environmental policies like BNG to be effective and legitimate, they

must not only deliver ecological outcomes but also engage and empower local communities in ways that resonate with their lived experience.

3.5 Cross-Cutting Themes: Convergent Challenges and Opportunities for Collaboration (Objective 5)

Beyond actor-specific themes, analysis identified six cross-cutting patterns recognised by multiple groups, revealing systemic issues that transcend individual stakeholder positions. These convergent challenges address Research Objective 5 (investigating how collaboration can improve BNG implementation) and create opportunities for coordinated policy responses.

3.5.1 Fragmented Understanding and the Shared Demand for Transparency

A recurrent pattern across interviews regardless of actor identity was a sense of uncertainty about how BNG works in practice and the demand for transparent information. What differs from earlier sections is not what people said about confusion, but the fact that all groups interpret the same policy complexity through their own lenses, suggesting a systemic lack of clarity rather than isolated misunderstandings.

For example: Developers saw metric interpretation ambiguity as a practical barrier to project progression, council officers saw the same ambiguity as a governance challenge for review and enforcement, conservation professionals saw it as a scientific shortcoming in measuring ecological quality and local residents saw it as opacity in outcomes and accountability.

This alignment shows that confusion about roles, metrics and outcomes is not just an individual problem - it's a collective problem that undermines coherent delivery across actors. A shared feeling of uncertainty suggests that collaborative interventions to co-interpret guidance and codefine best practice would reduce the cognitive load on individual actors and improve shared expectations.

One developer captured this cross-group dilemma when describing disagreements over metric interpretation:

"Each ecologist has different views… and the Council… has different ideas… there's just no common ground." (D1)

This type of ambiguity was echoed in other groups, indicating that uncertainty is structural, not idiosyncratic. Closely linked to this fragmented understanding was a mutual demand for accessible and transparent information about BNG processes and outcomes. While actors articulated this need differently, they pointed to the same underlying gap: developers sought clearer procedural expectations to reduce duplication and delay; councils wanted consistent data and tools to support efficient assessment; conservation professionals prioritised information that reflected ecological meaning rather than metric compliance alone; and local residents wanted visible, verifiable evidence that biodiversity enhancements had actually taken place. One local participant captured this concern succinctly, stating:

"I don't like the idea of credits… who can prove that they have or haven't… it should be transparent" (L1).

Taken together, these perspectives indicate that fragmented understanding and transparency deficits are not separate issues but interconnected symptoms of weak coordination and information-sharing systems.

3.5.2 Reactive Rather Than Proactive Communication

Across all actor groups, communication around BNG was described as largely reactive, with engagement occurring once problems had already emerged rather than through early, anticipatory coordination. Several participants noted that discussions between developers, councils and ecologists tended to be triggered by planning delays or disagreement, rather than embedded at preapplication stages. One developer reflected that:

"Most of the back-and-forth happens once you've already submitted and then it's just emails going backwards and forwards" (D1), while a council officer similarly described BNG negotiations as something that:

"*Comes to us once the application is already live and then we're trying to fix issues under time pressure*" (LP3).

Conservation professionals echoed this pattern, suggesting that earlier dialogue could avoid misaligned expectations:

"*By the time we're involved, the site design is often already locked in*" (C2).

Taken together, these accounts indicate that the absence of proactive communication structures reinforces inefficiency, delays and frustration, and limits opportunities for collaborative problem solving before decisions become constrained.

3.5.3 Convergence on the Importance of Early Engagement

While the reasons differ, all actor groups underscored the value of early and meaningful collaboration between relevant parties. The form and timing of engagement matter across contexts. Developers stressed that earlier ecological input prevents costly redesigns. Councils noted that preapplication dialogue helps avoid misunderstandings and resource strain. Conservationists emphasised that early involvement prevents superficial compliance that sacrifices ecological integrity. And local people suggested that earlier awareness rather than ex-post consultation would strengthen legitimacy.

A council officer encapsulated this shared insight:

"If everyone sits around a table early on… you get a shared sense of what's required." (LP4)

And a local resident suggested:

"…it would be nice sometimes to know when they're doing conservation… that would be quite a nice idea…" (L2)

Taken together, these quotations demonstrate that the timing of engagement (not just its existence) is a universal concern that spans institutional and lay perspectives.

3.5.4 Joint Concern for Long-Term Outcomes and Accountability

Although the specific manifestations vary, all four groups expressed concern about how the long term trajectory of biodiversity outcomes will be ensured beyond initial compliance:

- Developers question how future owners will maintain ecological commitments.
- Councils worry about monitoring and enforcement without adequate systems.
- Conservation professionals emphasise the risk of superficial habitat proxies.
- Local residents wonder whether planted trees will thrive and remain protected.

This convergent concern points toward shared accountability anxieties that go beyond any single actor's mandate. One local resident summed this up poignantly:

"…what guarantee do you have that's maintained… only for 30 years, can they get rid of it then?" (L2)

Rather than repeating earlier accounts of monitoring gaps, this highlights a common forward-looking anxiety that can only be addressed through shared governance arrangements - for example, multi-actor stewardship committees, publicly accessible monitoring frameworks, and co-owned long-term management strategies.

3.5.5 Need for Shared Digital Tools and Platforms

A second cross-cutting theme concerned the lack of shared digital tools to support consistent interpretation, transparency and coordination in BNG delivery. Participants across groups described fragmented systems for metric calculation, data submission and validation, contributing to uncertainty and duplication of effort. A local authority officer noted that:

"*Everyone seems to be using slightly different systems or spreadsheets, and we're trying to check it all manually*" (LP1), while a developer commented that:

"*You can get one answer from one ecologist and something completely different from another*" (D3).

Conservation professionals also highlighted limitations in existing tools, with one participant stating that current platforms:

"*don't really help you understand the site context or long-term monitoring in a joined-up way*" (C4).

These perspectives suggest that the absence of a shared, standardised digital platform reinforces information asymmetries and inconsistent decision-making, undermining trust and making collaborative BNG delivery more difficult than necessary.

3.5.6 Integrative Summary: Convergent Barriers to Effective BNG Delivery

This cross-cutting synthesis shows that actors are experiencing the same structural problems from different vantage points. The challenge is not simply that BNG is difficult for one group or poorly understood by another, it is that the systems that support BNG are not yet organised for joined-up search, interpretation, delivery and accountability. Opening up spaces for joint problem-solving and shared governance responds directly to the patterns highlighted in this section and represents a fruitful direction for policy refinement and practice improvement. These coordination challenges are further complicated by the policy's political volatility. In late 2025, the UK government announced reforms to the National Planning Policy Framework exempting developments on sites smaller than 0.2 hectares from mandatory BNG requirements, as part of efforts to accelerate housing delivery (Hussain 2025). This shift illustrates the ongoing political contestation surrounding BNG implementation: despite its statutory foundation, biodiversity obligations remain subject to recalibration in response to development pressures and economic priorities. For practitioners, such policy instability introduces additional uncertainty, particularly in relation to long-term planning, investment decisions and ecological delivery over the 30-year management period. Together, these findings highlight the importance of institutional stability and coordinated governance if BNG is to move beyond procedural compliance towards delivering durable ecological outcomes.

3.6 Addressing Research Objectives and Implementation Dynamics

Table 3 synthesises findings derived primarily from the interview data, with references to existing literature used to contextualise and interpret these empirical insights. The table shows where participants' experiences align with, extend or challenge previous research, highlighting the significance of the findings in revealing how BNG operates in practice rather than in policy design alone. These findings also reflect wider tensions within environmental governance and development planning in England, where biodiversity protection objectives are often implemented alongside continued pressures for housing and economic growth (Chapman et al. 2024). Although mandatory BNG represents a significant policy shift towards integrating biodiversity into development processes, participants across actor groups highlighted persistent concerns regarding monitoring, enforcement, institutional capacity, and long-term delivery.

Table 3: Research Objectives, Key Findings and Policy Implications

Research Objective	Key Findings	Policy Implications
Objective 1. Explore developer perceptions of financial and practical challenges.	• Biodiversity credit costs threaten viability on marginal schemes (Baker 2025) • Brownfield/urban sites face technical constraints in achieving 10% BNG uplift, particularly where Open Mosaic Habitat on Previously Developed Land occurs. • Minimum compliance strategies dominate due to economic pressures	• Provide subsidies for small developments and brownfield schemes • Develop clearer guidance for constrained sites
Objective 2. Identify barriers conservation groups face ensuring BNG ecological effectiveness	• Statutory metric fails to predict outcomes for birds, butterflies, invertebrates (Duffus et al. 2025a) • Habitat-centric approach ignores landscape connectivity and species-specific needs (Marshall et al. 2024) • Piecemeal site-by-site delivery fragments ecological networks • 30-year management insufficient for habitat maturation; weak enforcement	• Mandate species surveys for developments exceeding thresholds • Establish strategic spatial planning for BNG delivery • Strengthen monitoring protocols and extend management periods
Objective 3. Evaluate council capacity to monitor and enforce BNG	• 100% of participants identified council under-resourcing as critical bottleneck • No in-house ecological expertise in many authorities • No dedicated monitoring budgets; 30year oversight unenforceable • 21% of applications contain errors accepted due to capacity limits (Rampling et al. 2024)	• Provide ring-fenced central government funding for BNG capacity • Mandate training programmes for planning officers • Create standardised monitoring frameworks and digital systems • Fund dedicated BNG officer positions in all authorities

Objective 4. Understand how local preferences can be integrated into BNG strategies	• All residents unaware of BNG despite strong support once informed • Desire for transparent public information and accessible dashboards • Possess place-based knowledge systematically marginalised (Jones et al. 2019) • Procedural exclusion undermines social legitimacy and stewardship opportunities (Stuart et al. 2025) • Preference for accessible, multifunctional green spaces not reflected in designs	• Mandate pre-application community consultation • Establish public BNG dashboards with site locations and monitoring data • Create community stewardship programmes with training and support • Integrate local knowledge into habitat design processes • Ensure BNG delivers social cobenefits alongside ecological outcomes
Objective 5. Investigate how collaboration can improve BNG implementation	• Six cross-cutting themes show convergent challenges across all groups • Reactive communication generates delays and adversarial relationships • Fragmented guidance and inconsistent interpretation create confusion • All groups desire standardised digital platforms and clearer coordination • Recognition of early collaboration benefits despite structural barriers	• Mandate pre-application tripartite meetings (developer-council-ecologist) • Develop standardised digital platforms for metric calculation and monitoring • Create joint training programmes reducing interpretation disputes

The synthesis reveals that BNG implementation challenges are deeply interconnected. Developer cost pressures (Objective 1) interact with council capacity constraints (Objective 3) to create information asymmetries enabling metric gaming. Conservation professionals' ecological concerns (Objective 2) are marginalised when councils lack expertise to scrutinise developer proposals. Resident exclusion (Objective 4) forecloses stewardship opportunities that could enhance long-term monitoring. These dynamics demonstrate that BNG outcomes emerge not

from policy design alone but from social-political processes shaped by power asymmetries, institutional capacity and coordination mechanisms.

The finding that all actor groups independently identified council capacity as the critical bottleneck is particularly significant. This convergence suggests that capacity constraints are not merely a council concern, but a systemic barrier recognised by actors with divergent interests - including developers who might be expected to benefit from weak regulatory oversight. This universal consensus creates political space for policy reform addressing institutional capacity without being framed as anti-development or pro-regulation, but rather as enabling effective implementation that serves all actors' interests in regulatory clarity, procedural efficiency and credible ecological outcomes.

The identification of six cross-cutting themes (fragmented understanding, reactive communication, need for shared tools, recognition of collaboration benefits, and council capacity constraints appearing in all groups' accounts) demonstrates the value of the multi-actor comparative design. Single-actor studies would identify group-specific challenges but miss the convergent patterns that reveal systemic issues amenable to coordinated responses. The pragmatic recognition across all groups that collaboration could improve outcomes - despite acknowledging barriers - suggests that actors are not locked into zero-sum conflicts but see potential for mutually beneficial coordination.

3.7 Emerging Opportunities and Potential Benefits of BNG

While challenges represented the dominant theme across interviews, opportunities and potential benefits of BNG were also evident across actor groups. These opportunities were less frequently discussed as direct outcomes and more often emerged indirectly through proposed improvements and perceived long-term potential. Across the findings, opportunities were associated with enhanced integration of biodiversity within development processes, improved cross-actor coordination, increased public awareness and wider social and ecological value. However, participants generally viewed these opportunities as dependent upon addressing existing implementation barriers, suggesting that the potential benefits of BNG are closely linked to the effectiveness of its delivery mechanisms and governance structures (Rampling et al. 2023).

3.8 Limitations and Contextual Considerations

Several limitations contextualise these findings. The sample of 18 participants, while sufficient for thematic saturation within a qualitative design, captures a subset of experiences that may not represent the full diversity of BNG implementation contexts. A key limitation of this study relates to the purposive sampling strategy used for the local community participant group. Participants were selected based on an expressed interest in conservation and nature, which introduces potential sampling bias and means the sample may not be representative of the wider public, including individuals with more development-oriented or less environmentally engaged perspectives. As a result, the local community findings likely reflect environmentally predisposed viewpoints, potentially underrepresenting opposition to conservation-led planning approaches such as BNG. This should be considered when interpreting differences between actor groups and limits the extent to which findings can be generalised to the broader population. Moreover, the study's temporal focus on early mandatory implementation (June–July 2025) mean findings may not transfer to later implementation phases as actors adapt to requirements.

The research relies on self-reported accounts, which may be influenced by social desirability bias, institutional loyalties or retrospective reconstruction. Developers may emphasise cost burdens while downplaying gaming strategies; councils may emphasise capacity constraints while downplaying internal inefficiencies; conservation professionals may emphasise ecological concerns while downplaying impracticality of their recommendations; residents may emphasise exclusion while downplaying their own limited engagement. Triangulation across the four groups provides some mitigation, as convergent themes gain credibility through independent identification, but the study cannot verify claims against objective records of BNG delivery or ecological outcomes.

The findings reflect experiences during a period of policy flux, where guidance is still evolving and actors are adapting to new requirements. As BNG matures, some challenges may diminish (e.g., through learning, guidance clarification, market development) while others may intensify (e.g., monitoring burdens accumulating as more sites enter 30-year management). Longitudinal research tracking actors over multiple years would capture these dynamics and assess whether early implementation challenges represent transitional growing pains or enduring structural problems.

Despite these limitations, the study provides valuable empirical evidence on how BNG is experienced in practice during a critical policy juncture. The multi-actor comparative design enables identification of both group-specific concerns and convergent challenges, while the qualitative approach captures the lived experiences, decision-making processes and relational dynamics that quantitative methods struggle to access. The findings contribute to understanding why some developments deliver genuine biodiversity improvements while others achieve paper compliance and identify governance reforms that could enhance both ecological effectiveness and social legitimacy.

Chapter 4: Conclusion and Recommendations

The study has revealed complex social dynamics, institutional challenges and coordination failures that fundamentally shape whether BNG delivers genuine ecological improvements or facilitates paper compliance. The findings demonstrate that BNG outcomes emerge not simply from metric design or regulatory mandates, but from interactions among actors with asymmetric power, divergent interests and unequal access to resources and decision-making processes (Grub 2019).

Three overarching conclusions emerge from this research. First, as already examined and identified in previous studies, local planning authority capacity constraints represent the critical bottleneck limiting effective BNG implementation (e.g. Thornhill et al. 2025). This research supports this with the finding that 100% of participants across all four actor groups independently identified council under-resourcing as the fundamental barrier. Without adequate funding, ecological expertise and monitoring capacity, councils cannot validate developer-submitted metric calculations, scrutinise ecological assessments or enforce 30-year management agreements. This governance failure enables metric gaming, acceptance of suboptimal proposals and creates the 27% governance gap where biodiversity units face high risk of non-delivery (Rampling et al. 2024). Any policy reform that fails to address institutional capacity will be insufficient (Ansell et al. 2025).

Second, BNG implementation reflects hierarchical power dynamics rather than collaborative governance (Rampling et al. 2024). Developers possess financial resources and legal expertise enabling them to shape proposals and navigate regulatory processes, while councils struggle with capacity deficits, conservation professionals advise without formal authority, and residents remain procedurally excluded despite possessing valuable place-based knowledge (Cillero et al. 2023). These asymmetries generate predictable outcomes: developers pursue minimum compliance through least-cost strategies, councils accept proposals they lack capacity to scrutinise effectively, ecological concerns are marginalised when they conflict with economic priorities, and community preferences for accessible, multifunctional green spaces are ignored in favour of metric-optimised configurations. Understanding BNG as a social-political process shaped by power relations, not merely a technical ecological intervention, is essential for explaining implementation patterns (Stuart et al. 2025).

Third, convergent challenges across actor groups create opportunities for coordinated policy reform (Dunlop et al. 2024). Despite divergent interests, all actors share frustrations with fragmented guidance, reactive communication patterns, inconsistent metric interpretation and absence of coordination tools. This convergence suggests that many implementation challenges stem not from irreconcilable value conflicts but from inadequate governance mechanisms.

Although challenges emerged as the dominant theme within this research, the findings suggest that BNG also presents opportunities extending beyond biodiversity enhancement alone. These include encouraging earlier ecological integration into development processes, improving cross-sector collaboration, providing clearer guidance, strengthening public engagement and supporting wider social benefits associated with green spaces. However, actors largely viewed these opportunities as conditional on stronger implementation and governance structures.

4.1 Recommendations for Policy and Practice

Based on these findings, five interconnected recommendations emerge to strengthen BNG delivery. These recommendations are not isolated technical fixes but constitute an integrated reform agenda addressing institutional capacity, procedural justice, ecological effectiveness and multi-actor coordination. Figure 3 illustrates where these interventions can be embedded within the BNG delivery process to maximise impact.

Recommendation 1: Establish Ring-Fenced Central Government Funding for Local Authority BNG Capacity

A primary finding of this research was the 100% consensus across all actor groups that local planning authority under-resourcing is the critical bottleneck for BNG. Participants reported that approximately 21% of applications currently contain calculation errors but are nonetheless approved due to a lack of technical capacity for scrutiny (Rampling et al. 2024). Local authorities require dedicated funding for in-house ecological expertise, standardised training programmes for planning officers, and monitoring resources sufficient to verify 30-year management agreements (zu Ermgassen et al. 2021). Providing ring-fenced funding would directly increase the efficacy of the validation process by allowing for dedicated BNG officer positions (Wansbury 2021). However, implementing additional funding mechanisms may face practical constraints, including competing public spending priorities and uneven resource allocation across authorities (Mao 2025). To

overcome this challenge, central government must provide sustained, non-discretionary funding specifically for BNG monitoring and enforcement according to development pressure and existing capacity deficits. This should be coupled with mandatory training programmes for planning officers to reduce the high error rate in approved applications.

Recommendation 2: Mandate Pre-Application Community Consultation as Statutory Requirement

Resident interviews revealed that while support for biodiversity is strong, local people feel systemically excluded from decision-making. This procedural exclusion undermines the social legitimacy of BNG projects. Integrating local, place-based knowledge can lead to more multifunctional green spaces that better serve both nature and the community (Slobodníkov and Tóth 2025). Current BNG processes often exclude local residents, limiting social legitimacy and reducing opportunities for community-led stewardship (Butler et al. 2025).

However, consultation processes risk becoming procedural exercises that increase administrative burden without influencing outcomes meaningfully. To address this, consultation should move beyond a simple requirement to demonstrate participation and instead require developers to show how community input has informed BNG decisions relating to habitat type, location, accessibility and long-term management. Public BNG dashboards displaying project locations, habitat types and monitoring information could further enhance transparency and accountability (McGee and Anderson 2025; Davies et al. 2024).

Recommendation 3: Refine the Statutory Metric with Species-Level Validation and Landscape Connectivity Criteria

Findings from conservation professionals highlighted concerns that the current statutory metric oversimplifies ecological systems and prioritises habitat quantity over ecological function. Similar concerns are reflected within the wider literature, which suggests that habitat-focused metrics may fail to adequately capture species interactions and broader ecosystem processes (Duffus et al. 2025b). Natural England should therefore consider incorporating species-level validation for developments exceeding defined thresholds and include landscape connectivity criteria that reward strategically connected habitats rather than isolated habitat patches. However, increasing ecological complexity within the metric may create additional costs and administrative burdens,

particularly for smaller developments (zu Ermgassen et al. 2021). These challenges could be reduced through threshold-based requirements, where more detailed ecological assessment is reserved for larger or ecologically sensitive developments while maintaining simplified approaches for lower-risk sites.

Recommendation 4: Establish Pre-Application Tripartite Coordination Mechanisms

Findings across actor groups indicated that fragmented communication and reactive engagement frequently resulted in procedural delays, uncertainty and repeated revisions. Developers, local authorities and conservation professionals all described challenges associated with differing interpretations and late-stage problem identification. Introducing mandatory pre-application meetings involving developers, council officers and conservation professionals could improve coordination by identifying implementation challenges earlier, aligning expectations and reducing procedural disputes. However, introducing additional stages within planning processes may initially increase time and resource demands. This could be mitigated through standardised digital platforms for metric calculation, data sharing and reporting processes, reducing duplication while improving consistency and enabling more efficient collaboration (Tabor et al. 2025).

Recommendation 5: Implement Robust Long-Term Monitoring with Adaptive Management Protocols

The findings highlighted substantial concerns regarding long-term accountability and uncertainty surrounding the monitoring of 30-year management commitments. Similar issues have been identified in broader BNG research, where long-term ecological success is often constrained by weak monitoring and enforcement mechanisms (Duffus et al. 2025b). Natural England should establish standardised monitoring frameworks specifying ecological indicators, survey frequencies and reporting requirements. However, maintaining long-term monitoring may be constrained by financial costs and institutional capacity limitations. These barriers could be addressed by incorporating monitoring costs into upfront developer contributions and supplementing professional monitoring with digital monitoring systems and citizen science initiatives where appropriate (Mogha and Tebourbi 2025). Adaptive management frameworks should also include

mechanisms for remediation where habitats fail to achieve intended ecological outcomes, supported through enforceable financial penalties and corrective interventions.

4.2 Integrating Recommendations into BNG Delivery

These five recommendations are mutually reinforcing. Enhanced council capacity (Recommendation 1) enables effective scrutiny of developer proposals and community consultation processes (Recommendation 2). Metric refinement (Recommendation 3) improves ecological targeting. Pre-application coordination (Recommendation 4) facilitates early integration of ecological, economic and social considerations, while robust monitoring (Recommendation 5) ensures long-term accountability. Figure 3 visualises where these interventions embed within the BNG delivery process, from pre-application planning through 30-year management, demonstrating that effective reform requires systemic change rather than piecemeal adjustments.

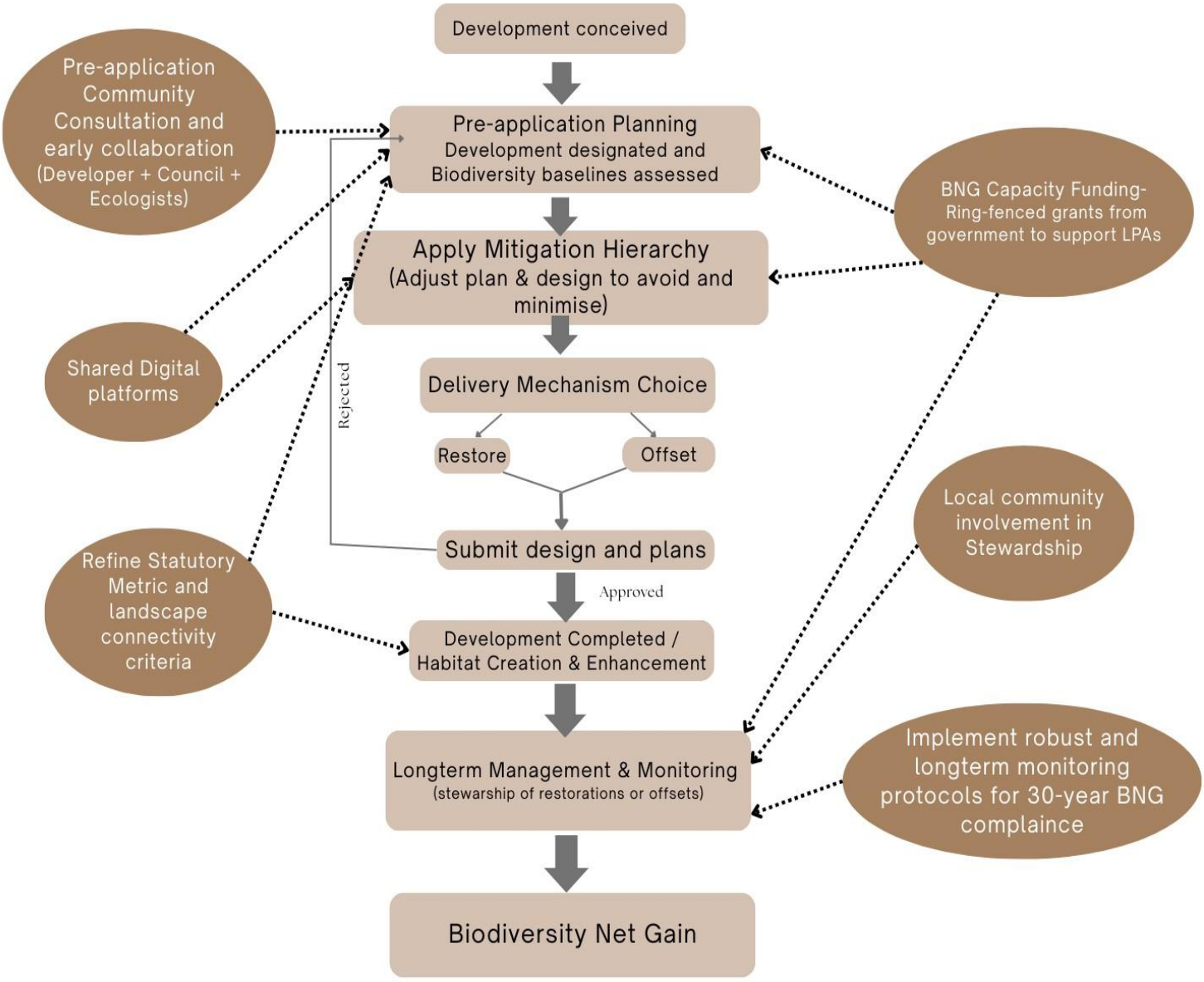

Figure 3. Integrating recommendations into the BNG delivery process.

The figure maps interconnected recommendations onto the various stages of BNG delivery, showing how targeted interventions can strengthen ecological effectiveness, procedural justice and regulatory accountability.

4.3 Contribution and Future Directions

This research makes three novel contributions. It provides the first empirical evidence on actor experiences during mandatory post-2024 BNG implementation, capturing a critical policy juncture previous studies have not examined. Its comparative multi-actor design reveals both group-specific concerns and convergent challenges, enabling analysis of relational dynamics and power asymmetries that single-actor studies cannot achieve. Finally, it foregrounds social dimensions procedural justice, knowledge hierarchies, trust relationships that technical and quantitative research often overlooks but which fundamentally shape whether policy translates into ecological reality (Cairney et al. 2023).

Future research should track BNG sites longitudinally to assess whether ecological outcomes match metric predictions, conduct comparative international studies testing the framework in other offset jurisdictions, and examine how governance reforms influence implementation effectiveness (Stuart et al. 2025). As England's pioneering mandatory BNG policy matures, understanding these social-ecological dynamics will be essential for ensuring that the policy achieves its transformative potential rather than becoming another instance of regulatory aspiration undermined by implementation failure.

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6. Appendices

Appendix 6.1. List of open-ended questions used for semi-structured interviews (Few Examples)

1- Could you share a bit about your experience or involvement in areas related to environment, development or planning? (Introductory question)
2- What are your thoughts on biodiversity conservation in urban areas and BNG policy? (Everyone)
3- How does BNG requirement affect your planning and development processes? (Developers)
4- Are there any financial, logistical or knowledge related barriers that impact your ability to deliver BNG? (Developers)
5- Views on On-site or Off-site BNG delivery options? (Developers)
6- How is council currently involved in implementation or oversight of BNG? (Council)
7- Do you think the current guidance and regulations around BNG are clear and achievable? (Council)
8- Are there any unintended consequences/ concerns you've observed in BNG delivery? (Council)
9- How do you engage with other actors? (Everyone)
10- What is the role of community engagement? Are local people's preferences taken into consideration? (Council, Developers)
11- Have you ever heard the term Biodiversity Net Gain? (Locals)
12- Do you think local people should have a say in how biodiversity improvements are planned or delivered? (Everyone)
13- Who do you think should be responsible for ensuring biodiversity goals are met? (Everyone)

Appendix 6.2. Example Interview Transcription and Coding (Participant LP1)

Interviewer: So, my first question is, can you share a bit about your experience and involvement in areas related to environment or development?

LP1: OK, so I've been the planning officer for 25 years, I think. And I've done a bit of work in policy, but I've also worked in development management. I work in the policy team at the moment, and I've been involved in biodiversity net gain for three years now. Basically, doing all the responses and checking. Of applications that are coming in with biodiversity net gain. And trying to help other people in the Council sort of get their heads around it. It's myself and an ecologist, who have been involved.

Interviewer: So, what are your thoughts on biodiversity conservation in urban areas (like in general)?

LP1: So, I think there's been a consistent approach where developers will quite often just take a site and take away all the existing habitat and then. What's put back? Isn't necessarily maintained, so there's been a lot of trees, in particular in the urban area, and we've lost a lot of the canopy cover. So, I think more mature trees. We might keep those, but it's those that are sort of between 10 and 30 years old. We've lost a lot of them. So, we've got less stock sort of coming through to replace the canopy. And a lot of the new developments we have conditions on saying they need to put landscaping in, but then there aren't any official cheques on it. And quite often if you do go back to a site, you'll see that the new trees have been planted, aren't surviving or they've not been put in the right place or sometimes they've not even been put in. There's a sort of general understanding nowadays that biodiversity is really important, and actually it can help us with a lot of the other issues around climate change that we have, and we need to be doing more to live alongside nature and incorporating it into our everyday lives rather than seeing it as something that's distant from us. Yeah, and biodiversity net gain, I think will help with that as well as other. Policies that we have around trying to improve canopy cover and encourage green infrastructure in the way buildings are made.

Interviewer: Yes. So, how is the Council currently involved in implementation of BNG?

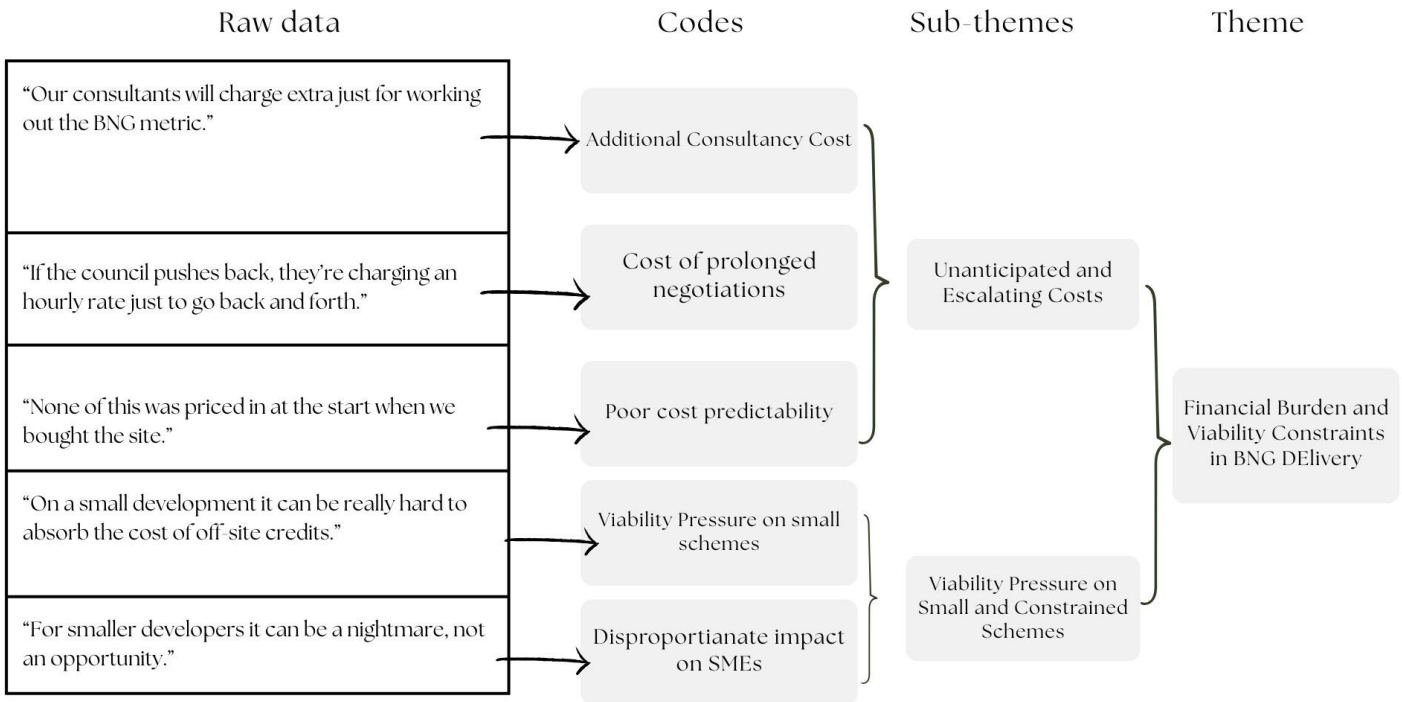
LP1: Well, it's mostly through planning applications that come into us and. Trying to make sure that they are following the legislation and what they're doing with BNG, but also that they're doing it in a way that will work in the long term for the use of the site and the particular project that's coming forward. We're also trying to be proactive with our own sites to encourage developers well with our own sites, but also with developers encouraging them to. Start by looking at what's on the site. Rather than sort of seeing is it a blank canvas? Thinking OK, if there are some trees or there are some habitats in the site, how can we design to incorporate those into the development and retain them rather than removing them and then replacing them?

Interviewer: Yes. So, do you think there is proper guidance and regulations around like BNG right now, they're quite clear or achievable?

LP1: So, the guidance is not easy to use and it's not easy to find. I mean I think I know quite a lot about BNG, but even I struggle to find the right bits of the legislation or guidance. So, and I think as a local authority, I'm involved in the planning advisory Service network, and we have regular forum meetings where people can discuss particular applications, and we can sort of talk things through. And we have a link through the past forum to Defra or Natural England to seek some guidance, but I don't think the same can be said for developers and I think it's sort of it's a new thing that they don't really understand and even the ecologists, a lot of the ecologists that are doing the BNG assessments, they're really good ecologists, but they don't know how to do BNG and it's causing a lot of problems with applications where we're having to go back to them and ask them to redo things. So, I think that definitely is an area that could be improved……

Subthemes from above transcript: Institutional capacity constraints, Weak monitoring and enforcement, Systemic biodiversity erosion in urban area, Preventative planning logic and Implementation uncertainty

Appendix 6.3. How Coded Themes were formed (From Participant D1 Interview Transcript)



Appendix 6.4. Analysis Constraints and Limits to Ensuring Trustworthiness

Credibility concerns the extent to which data collection and analysis adequately capture relevant perspectives and experiences (Darawsheh 2014). To balance breadth and depth, this study deliberately included multiple actor groups within the planning and development system, including developers, local planning authorities, conservation professionals and local residents. While this multi-actor design strengthens credibility, some perspectives such as national policymakers or private landowners not directly engaged in BNG delivery may be underrepresented. Most participants had professional or personal interests in environmental protection, which may predispose views towards support for biodiversity policy in principle. This is not considered a limitation in itself, as participants frequently articulated critical perspectives on BNG implementation, and findings were interpreted in dialogue with academic and grey literature.

Dependability refers to the stability and consistency of analytical procedures over time (Nyathi 2019). Coding and theme development were iterative, with regular re-labelling and refinement as analysis progressed. Dependability was strengthened through constant familiarisation with the data and maintenance of analytic memos. After approximately 2 interviews per group, the coding framework stabilised, with subsequent interviews yielding limited new codes, indicating thematic saturation.

Transferability relates to the extent to which findings may inform understanding beyond the immediate study context (Drisko 2025). As with most qualitative research, this study prioritises depth over statistical generalisation. Findings are therefore not intended to be transferable to other national contexts but may be relevant to similar policy settings involving mandatory biodiversity offsetting or multi-actor environmental governance in England.

Confirmability concerns the degree to which findings reflect participants' accounts rather than researcher bias. While inter-coder reliability testing was not undertaken, confirmability was supported through systematic documentation of analytical decisions, reflexive awareness of researcher positionality, and grounding interpretations in verbatim interview data (Treharne and Riggs 2015).

Reflexive practice also involved acknowledging that the research was conducted during a politically contentious period when BNG implementation was attracting media attention and policy criticism. The researcher remained alert to how this context might influence participant accounts, recognising that participants might emphasise certain challenges or downplay others depending on

their institutional positions and interests. Analysis sought to represent the diversity of perspectives fairly rather than privileging any single actor group's framing of implementation challenges.

Appendix 6.5. Participant Information Sheet

Ethics ID number: 65113
Date: 20/05/2025

Bournemouth University

Participant Information Sheet

The title of the research project

Exploring the Challenges and Opportunities in Biodiversity Net Gain Delivery: Insights from Developers, Conservationists and Local Authorities.

Invitation to take part

You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part.

What is the purpose of the project?

The purpose of this project is to explore the challenges and opportunities in delivering Biodiversity Net Gain (BNG) within the context of urban development. It aims to understand the perspectives of developers, conservationists, local authorities, and local communities on BNG implementation. The project will also assess how different stakeholders navigate the balance between environmental conservation and development pressures. The study will run for 10 months, gathering insights through interviews and data analysis.

Why have I been invited?

You have been invited to participate in this study because you are part of a community that plays a role in or is impacted by Biodiversity Net Gain (BNG) initiatives. This includes developers, conservationists, local authorities, and members of the local community, including those without professional experience in BNG. We are interested in gathering a wide range of perspectives to understand both the challenges and opportunities of delivering BNG in urban environments, from experts in the field as well as individuals whose lives may be directly or indirectly affected by these initiatives.

What would taking part involve?

Taking part in this study will involve a semi-structured interview, which can be conducted in person or via video call, depending on your preference. During the interview, we will ask for your opinion on biodiversity conservation, specifically regarding the concept of **Biodiversity Net Gain**. This involves ensuring that new developments leave the natural environment in a better state than before. We want to understand how familiar you are with this concept, whether you think it's a feasible process, and how you believe the government can effectively integrate biodiversity considerations into urban planning.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a participant agreement form. We want you to understand what participation involves, before you make a decision on whether to participate.

If you or any family member have an on-going relationship with BU or the research team, e.g. as a member of staff, as student or other service user, your decision on whether to take part (or continue to take part) will not affect this relationship in any way.

Can I change my mind about taking part?

Yes, you can stop participating in study activities at any time and without giving a reason.

If I change my mind, what happens to my information?

After you decide to withdraw from the study, we will not collect any further information from or about you.

As regards to the information we have already collected before this point, your rights to access, change or move that information are limited. This is because we need to manage your information in specific ways in order for the research to be reliable and accurate. Further explanation about this is in the Personal Information section below.

Will I be reimbursed for taking part?

Unfortunately, there will be no reimbursement or financial compensation for participating in this study. However, your contribution is highly valuable, and your insights will significantly help in understanding public perspectives on biodiversity conservation and its integration into urban planning. Your participation will be greatly appreciated.

What are the advantages and possible disadvantages or risks of taking part?

Whilst there are no immediate benefits to you participating in the project, it is hoped that this work will provide valuable insights into how biodiversity conservation can be better integrated into urban planning, benefiting communities and future environmental policies. Your involvement will contribute to an important area of research that could shape sustainable urban development in the future.

Whilst we do not anticipate any risks to you in taking part in this study, you may experience some discomfort in discussing issues related to environmental concerns or urban planning, depending on your personal views. You are free to skip any questions or topics you feel uncomfortable with, and you can withdraw from the study at any time without any consequence.

What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?

In this study, we will be asking for your views and opinions on biodiversity conservation, particularly in relation to urban planning and how biodiversity net gain can be integrated into this process. We will also explore your understanding of current environmental policies, the feasibility of implementing biodiversity net gain in urban settings, and how government and local authorities can support conservation efforts.

The information you provide will help us gain a deeper understanding of public and expert perspectives on biodiversity and urban planning. This is crucial for the research, as it aims to identify challenges, opportunities, and practical solutions for incorporating biodiversity conservation into urban development, which can inform policymaking and planning strategies for sustainable urban environments.

Will I be recorded, and how will the recorded media be used?

The semi-structured interviews will be audio-recorded. The audio recordings will be transcribed as soon as possible, and original recordings will be disposed of. The transcripts of your audio recording(s) will be used only for analysis and in anonymised form for illustration in conference presentations and lectures. No other use will be made of them without your written permission, and no one outside the project will be allowed access to the original recordings.

How will my information be managed?

Bournemouth University (BU) is the organisation with overall responsibility for this study and the Data Controller of your personal information, which means that we are responsible for looking after your information and using it appropriately. Research is a task that we perform in the public interest, as part of our core function as a university.

Undertaking this research study involves collecting and/or generating information about you. We manage research data strictly in accordance with:

- Ethical requirements; and
- Current data protection laws. These control use of information about identifiable individuals, but do not apply to anonymous research data: "anonymous" means that we have either removed or not collected any pieces of data or links to other data which identify a specific person as the subject or source of a research result.

BU's Research Participant Privacy Notice sets out more information about how we fulfil our responsibilities as a data controller and about your rights as an individual under the data protection legislation. We ask you to read this Notice so that you can fully understand the basis on which we will process your personal information.

Research data will be used only for the purposes of the study or related uses identified in the Privacy Notice or this Information Sheet. To safeguard your rights in relation to your personal information, we will use the minimum personally identifiable information possible and control access to that data as described below.

Publication

You will not be able to be identified in any external reports or publications about the research without your specific consent. Otherwise, your information will only be included in these materials in an anonymous form, i.e. you will not be identifiable.

Security and access controls

BU will hold the information we collect about you in hard copy in a secure location and on a BU password protected secure network were held electronically.

Personal information which has not been anonymised will be accessed and used only by appropriate, authorised individuals and when this is necessary for the purposes of the research, or another purpose

identified in the Privacy Notice. This may include giving access to BU staff or others responsible for monitoring and/or audit of the study, who need to ensure that the research is complying with applicable regulations. Rest, during and after the data analysis stage, all the data will be anonymised.

Further use of your information

The information collected about you may be used to support other research projects in the future and access to it will not be restricted. You will not be able to be identified in the data without your specific consent. To enable this use, the data will be added to an appropriate research data repository such as BORDaR (BU's Data Repository): this is a central location where data is stored, which is accessible to the public.

Keeping your information if you withdraw from the study

If you withdraw from active participation in the study, we will keep information which we have already collected from or about you, if this has on-going relevance or value to the study. This may include your personal identifiable information. As explained above, your legal rights to access, change, delete or move this information are limited as we need to manage your information in specific ways in order for the research to be reliable and accurate. However, if you have concerns about how this will affect you personally, you can raise these with the research team when you withdraw from the study.

You can find out more about your rights in relation to your data and how to raise queries or complaints in our Privacy Notice.

Retention of research data

Project governance documentation, including copies of signed **participant agreements**: we keep this documentation for a long period after completion of the research, so that we have records of how we conducted the research and who took part. The only personal information in this documentation will be your name and signature, and we will not be able to link this to any anonymised research results.

Research results:

As described above, during the course of the study we will anonymise the information we have collected about you as an individual. This means that we will not hold your personal information in identifiable form after we have completed the research activities.

You can find more specific information about retention periods for personal information in our Privacy Notice.

We keep anonymised research data indefinitely, so that it can be used for other research as described above.

Contact for further information

If you have any questions or would like further information, please contact Rick Stafford on [redacted]

In case of complaints

Any concerns about the study should be directed to Professor Tiantian Zhang, Bournemouth University by email to researchgovernance@bournemouth.ac.uk.

Finally

If you decide to take part, you will be given a copy of the information sheet and a signed participant agreement form to keep.

Thank you for considering taking part in this research project.

Appendix 6.6. Participant Agreement Form

Ethics ID number: 65113
Date: 20/05/2025

Participant Agreement Form

Full title of project: Exploring the Challenges and Opportunities in Biodiversity Net Gain Delivery: Insights from Developers, Conservationists and Local Authorities.

Name, position and contact details of researcher: Nazish Farooq Mir, MRes student, nfarooqmir@bournemouth.ac.uk

Name, position and contact details of supervisor: Rick Stafford, Professor, [redacted]

To be completed prior to data collection activity

Agreement to participate in the study

You should only agree to participate in the study if you agree with all the statements in this table and accept that participating will involve the listed activities.

I have read and understood the Participant Information Sheet and have been given access to the BU Research Participant Privacy Notice which sets out how we collect and use personal information (https://www1.bournemouth.ac.uk/about/governance/access-information/data-protection-privacy).
I have had an opportunity to ask questions.
I understand that my participation is voluntary. I can stop participating in research activities at any time without giving a reason and I am free to decline to answer any particular question(s).
I understand that taking part in the research will include the following activity/activities as part of the research:
• taking part in semi-structured interview
• being audio recorded during the project
• my words will be quoted in publications, reports, web pages and other research outputs without using my real name.
I understand that, if I withdraw from the study, I will also be able to withdraw my data from further use in the study **except** where my data has been anonymised (as I cannot be identified) or it will be harmful to the project to have my data removed.
I understand that my data may be included in an anonymised form within a dataset to be archived at an appropriate research data repository such as BORDaR (BU's Data Repository).

I understand that my data may be used in an anonymised form by the research team to support other ethically approved research projects in the future, including future publications, reports or presentations.	
	Initial box to agree
I consent to take part in the project on the basis set out above	

Name of participant (BLOCK CAPITALS)	Date (dd/mm/yyyy)	Signature
NAZISH FAROOQ MIR	03/06/2025	
Name of researcher (BLOCK CAPITALS)	Date (dd/mm/yyyy)	Signature

Once a Participant has signed, **please sign 1 copy** and take 2 photocopies:

- Original kept in the local investigator's file
- 1 copy to be kept by the participant (including a copy of PI Sheet)

Appendix 6.7. Ethics Checklist

Bournemouth University

Research Ethics Checklist

About Your Checklist	
Ethics ID	65113
Date Created	08/04/2025 20:47:56
Status	Approved
Date Approved	20/05/2025 21:22:18
Risk	Low

Researcher Details	
Name	Nazish Farooq Mir
Faculty	Faculty of Science & Technology
Status	Postgraduate Research (MRes, MPhil, PhD, DProf, EngD, EdD)
Course	Postgraduate Research - FST
Have you received funding to support this research project?	No

Project Details	
Title	Exploring the Challenges and Opportunities in Biodiversity Net Gain Delivery: Insights from Developers, Conservationists and Local Authorities.
Start Date of Project	03/02/2025
End Date of Project	31/10/2025
Proposed Start Date of Data Collection	18/05/2025
Original Supervisor	Rick Stafford
Approver	Ellen Hambleton

Summary - no more than 600 words (including detail on background methodology, sample, outcomes, etc.)

This research investigates the delivery of Biodiversity Net Gain (BNG) in England, a policy requiring developments to leave biodiversity in a measurably better state. While the BNG framework is intended to support ecological outcomes, it also intersects with a wide range of stakeholders who influence, implement, or are affected by it.

The project explores how key actors—including developers, conservation professionals, local planning authorities and local communities—experience, interpret, and respond to the opportunities and challenges of BNG implementation. Through a qualitative, interview-based approach, the study will examine: 1) The practical and governance challenges of delivering BNG on the ground. 2) How different stakeholder groups balance ecological, social, and economic objectives. 3) The alignment (or misalignment) of policy intent with lived realities, especially in planning and development contexts. 4) Pathways to more inclusive, equitable, and ecologically robust BNG implementation.
This research aims to contribute to ongoing debates around the social and institutional dimensions of environmental policy, offering insights that can inform more stakeholder-sensitive and effective BNG strategies moving forward.

Filter Question: Does your study involve Human Participants?

Participants	
Describe the number of participants and specify any inclusion/exclusion criteria to be used	
For this study, I aim to gather insights from a diverse range of participants approximately 15-20, broken down into five key groups: 3-4 developers, 3-4 conservationists, 3-4 local authorities, 3-4 residents and 3-4 university staff/students. The participants will be selected based on their knowledge or involvement with BNG, regardless of specific inclusion or exclusion criteria. These participants will be chosen based on their direct experiences or opinions about BNG implementation, policies, and outcomes. The goal is to capture a variety of perspectives to ensure that the research reflects a broad understanding of the challenges and opportunities surrounding BNG.	
Do your participants include minors (under 16)?	No
Are your participants considered adults who are competent to give consent but considered vulnerable?	No
Is a Disclosure and Barring Service (DBS) check required for the research activity?	No

Recruitment	
Please provide details on intended recruitment methods, include copies of any advertisements.	
For this research, participants will be recruited from five key groups: developers, conservationists, local authorities, and local people (including students and university staff). To engage developers, conservationists, and local authorities, I will use professional networks, reaching out via email to relevant organizations, NGOs, and local government departments, along with invitations to participate. These contacts will be sourced from publicly available industry directories, LinkedIn, and networked recommendations from colleagues in the field. Local people, including residents, will be recruited through community groups, environmental organizations, and local advocacy groups that engage with residents in areas affected by BNG projects. For students and university staff, recruitment will occur through campus-based strategies, including targeted emails to relevant departments and posts on university noticeboards. Participation will be voluntary, and all potential participants will be informed about the study's objectives, their rights, and confidentiality measures. They will also be provided with clear instructions on how to opt in. In all cases, ethical considerations will ensure transparency, confidentiality, and informed consent. The recruitment process aims to ensure diverse representation from each group, providing a comprehensive understanding of the challenges and opportunities in implementing Biodiversity Net Gain, while maintaining strict adherence to ethical standards.	
Do you need a Gatekeeper to access your participants?	No

Data Collection Activity	
Will the research involve questionnaire/online survey? If yes, don't forget to attach a copy of the questionnaire/survey or sample of questions.	No
Will the research involve interviews? If Yes, don't forget to attach a copy of the interview questions or sample of questions	Yes
Please provide details e.g. where will the interviews take place. Will you be conducting the interviews or someone else?	
The interviews will take place in locations that are convenient and comfortable for the participants, ensuring confidentiality and minimizing any potential disruptions. Interviews will be conducted either virtually (via Zoom or Microsoft Teams) or in a quiet space on university campus. The interviews will be semi-structured to encourage in-depth discussions and will be conducted by me, the principal investigator, to ensure consistency and a clear understanding of the research objectives. In cases where in-person interviews are not feasible due to travel or time constraints, I will also offer virtual interview options to facilitate participation. I will be responsible for obtaining informed consent, conducting the interviews, and ensuring confidentiality throughout the data collection process	
Will the research involve a focus group? If yes, don't forget to attach a copy of the focus group questions or sample of questions.	No
Will the research involve the collection of audio recordings?	Yes
Will your research involve the collection of photographic materials?	No

Will your research involve the collection of video materials/film?	No
Will any audio recordings (or non-anonymised transcript), photographs, video recordings or film be used in any outputs or otherwise made publicly available?	No
Will the study involve discussions of sensitive topics (e.g. sexual activity, drug use, criminal activity)?	No
Will any drugs, placebos or other substances (e.g. food substances, vitamins) be administered to the participants?	No
Will the study involve invasive, intrusive or potential harmful procedures of any kind?	No
Could your research induce psychological stress or anxiety, cause harm or have negative consequences for the participants or researchers (beyond the risks encountered in normal life)?	No
Will your research involve prolonged or repetitive testing?	No

What are the potential adverse consequences for research participants and how will you minimise them?

There are no serious adverse effects anticipated for research participants in this study. However, potential minor risks include emotional discomfort when discussing topics related to biodiversity impacts, development practices, and personal or professional experiences with biodiversity net gain initiatives. For example, local participants might feel uneasy discussing the environmental consequences of development projects, while developers or local authorities may feel defensive when reflecting on the challenges or limitations of their roles in biodiversity efforts.

To minimize these potential risks, participants will be fully informed about the study's aims and assured that their participation is voluntary, with the option to withdraw at any point without consequence. The interviews will be conducted in a neutral, non-judgmental manner, aiming to create a safe and respectful space where participants feel comfortable sharing their views. All responses will be anonymized, and confidentiality will be emphasized to further reduce any concerns about revealing sensitive information. If a participant feels distressed during the interview, I will provide the opportunity to pause or discontinue the conversation or skip specific questions. By taking these steps, I aim to ensure that participants' well-being is safeguarded throughout the research process.

Consent	
Describe the process that you will be using to obtain valid consent for participation in the research activities. If consent is not to be obtained explain why.	
To obtain valid consent for participation in the research activities, I will follow a clear and transparent informed consent process. Prior to the interview, each participant will be provided with a Participant Information Sheet, which will outline the purpose of the research, the scope of their participation, potential risks, how their data will be used, and the voluntary nature of their involvement. This document will be tailored to ensure it is easily understood by all participants, including those without technical or academic backgrounds. After reading the Participant Information Sheet, participants will be given the opportunity to ask any questions they may have about the research, ensuring they have enough time to fully understand what their participation involves. I will make it clear that their participation is entirely voluntary, and they have the right to withdraw from the study at any point without consequence. Following this, participants will be asked to sign a Participant Agreement Form, which will explicitly confirm their informed consent to participate in the research. The form will include details about the data collection process, confidentiality, and the handling of personal data. In cases where a written signature may not be feasible, I will obtain consent through an audio recording, where the participant verbally agrees to take part in the research and confirms they understand the study details.	
Do your participants include adults who lack/may lack capacity to give consent (at any point in the study)?	No
Will it be necessary for participants to take part in your study without their knowledge and consent?	No

Participant Withdrawal	
At what point and how will it be possible for participants to exercise their rights to withdraw from the study?	
Participants will have the right to withdraw from the study at any time without any consequences or need to provide an explanation. This right will be clearly communicated to them in the Participant Information Sheet, which they will receive prior to the interview. It will state	

that they can withdraw from the research at any stage, including after data collection, without any penalty or impact on their involvement in future research or their relationships with the researcher.	
If a participant withdraws from the study, what will be done with their data?	
If a participant withdraws from the study, their data will be handled in accordance with the principles of data protection and the rights they have under data protection legislation. Specifically, if a participant decides to withdraw from the study before their data has been analyzed, all data collected from that individual will be immediately excluded from the study and erased. This ensures that no information related to the participant is used in the research. However, if the participant withdraws after their data has already been analyzed, it may not be possible to remove their data entirely if it has been anonymized or aggregated in such a way that it is no longer identifiable. In such cases, the participant's identity would not be tied to the data, and their data would still be included in the study, but no personally identifiable information would be associated with it. This is particularly important in maintaining the integrity of the research while respecting the participant's wishes.	

Participant Compensation	
Will participants receive financial compensation (or course credits) for their participation?	No
Will financial or other inducements (other than reasonable expenses) be offered to participants?	No

Research Data	
Will identifiable personal information be collected, i.e. at an individualised level in a form that identifies or could enable identification of the participant?	Yes
Please give details of the types of information to be collected, e.g. personal characteristics, education, work role, opinions or experiences	
The audio recordings will be collected during the interview solely for the purpose of transcription, and once transcribed the original recordings will be deleted. At transcription, the anonymisation will include removal of names, names of the organisation and any other potentially identifying information such as job title.	
Will the personal data collected include any special category data, or any information about actual or alleged criminal activity or criminal convictions which are not already in the public domain?	No
Will the information be anonymised/de-identified at any stage during the study?	Yes
Will research outputs include any identifiable personal information i.e. data at an individualised level in a form which identifies or could enable identification of the individual?	No

Storage, Access and Disposal of Research Data	
During the study, what data relating to the participants will be stored and where?	During the study, the anonymised transcription of the audio-recordings will be stored after the replacement/removal of the names of participants, their roles and departments, along with participant agreement forms. All data will be stored securely on Microsoft OneDrive and access will be restricted to the researcher and supervisor. Audio files and raw transcripts will be deleted or anonymised after transcription. Participant agreement forms will be stored separately in a secure folder, in line with data protection policies.
How long will the data relating to participants be stored?	Until the project completion time.
During the study, who will have access to the data relating to participants?	During the study, only the project supervisor and researcher will have access to data.
After the study has finished, what data	The research data will be stored securely on Bournemouth University's Online

relating to participants will be stored and where? Please indicate whether data will be retained in identifiable form.	Research Data Repository (BORDaR). This repository will ensure that the anonymized data will be safely archived and made publicly accessible after the study concludes. The data will be accessible by authorized staff, including those involved in the project. After the study ends, the data will be available to the wider research community, in line with the university's open access policy, under the condition that it has been anonymized to ensure participant privacy.
After the study has finished, how long will data relating to participants be stored?	N/a
After the study has finished, who will have access to the data relating to participants?	N/a
Will any identifiable participant data be transferred outside of the European Economic Area (EEA)?	No
How and when will the data relating to participants be deleted/destroyed?	N/a
Once your project completes, will your dataset be added to an appropriate research data repository such as BORDaR, BU's Data Repository?	Yes

Dissemination Plans	
How do you intend to report and disseminate the results of the study?	
Peer reviewed journals,Conference presentation,Publication on website,Other Publication	
Will you inform participants of the results?	Yes
If Yes or No, please give details of how you will inform participants or justify if not doing so	
Participants will be informed of the results of the study through a participant newsletter, which will be sent to them after the data has been analyzed and the final report is ready. This will include a summary of the findings, insights from their contribution, and how their feedback has influenced the research outcomes. This ensures transparency and shows appreciation for their involvement. The participants will also be informed of any public-facing publications, such as conferenoe presentations or journal articles, that arise from the study. If any participant does not wish to receive the results, they can opt out of receiving the newsletter at any time.	

Final Review	
Are there any other ethical considerations relating to your project which have not been covered above?	No

Risk Assessment	
Have you undertaken an appropriate Risk Assessment?	Yes

Attached documents
Participant Agreement Form .docx - attached on 09/04/2025 13:45:22
Interview Questions.docx - attached on 02/05/2025 14:12:07
Participant Information Sheet.docx - attached on 02/05/2025 14:12:17