

Delivering successful mainstreaming of nature at the science-policy interface

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Alister Scott

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1. Introduction

“We are all part of nature. We depend on the diversity of nature for the food we eat, the clothes we wear, the water we drink and the air we breathe. Nature also plays a crucial role in mitigating the effects of climate change and providing spaces in which we can relax and play. Declining nature and biodiversity affect us all and has economic consequences” [Royal Society 2024](#)

My Natural Environment Research Council Knowledge Exchange work on [mainstreaming green infrastructure](#) 2017-2021 has exposed significant neglect of nature in the design, delivery and evaluation of statutory and non-statutory planning policies, resulting in reduced quantity and quality of green infrastructure (GI) for people, places and biodiversity¹. Mainstreaming processes and outcomes were being stifled and their potential was not being realized, despite advances in knowledge, concepts and methodologies for valuing nature ([Scott, Holtby et al 2022](#)).

This core finding was secured through my work in both academic and knowledge exchange contexts. My previous academic work conceptualized a [mainstreaming continuum](#) based on a detailed evaluation of a range of initiatives (Figure 1a) with its subsequent depiction in a mainstreaming “staircase” based on a diffusion of innovation model (Figure 1b). My knowledge exchange work involved action-based research at multiple scales with key policy stakeholders. Their selection was secured on their terms in response to attending dedicated [knowledge exchange workshops](#) as part of my NERC work and sessions at annual conferences of the [Green Infrastructure Partnership](#). Additionally, my professional networks and past research partners were also important. This resulted in work with Tasman District Council/Ministry of Conservation in New Zealand. Work at the national level with the Green Infrastructure Partnership (including supporting an [EU PERFECT project \(TCPA-led\)](#) and Natural England’s GI framework (member of advisory committee). Work at the regional level with West of England Combined Authority, Glasgow and Clyde Valley Green Infrastructure Network and Essex County Council. Work at the local level with Bath and Northeast Somerset Council.

The core focus of this work was the co-design and testing of a self-assessment policy tool (with [Max Hislop](#)) that improved the design and mainstreaming of planning policies: the [Green Infrastructure and Policy Assessment tool](#) (GIPAT).

¹ An [impact case study](#) was submitted for the REF 2021 exercise which provides a useful summary of my phase 1 work with a December 2020 cut off.

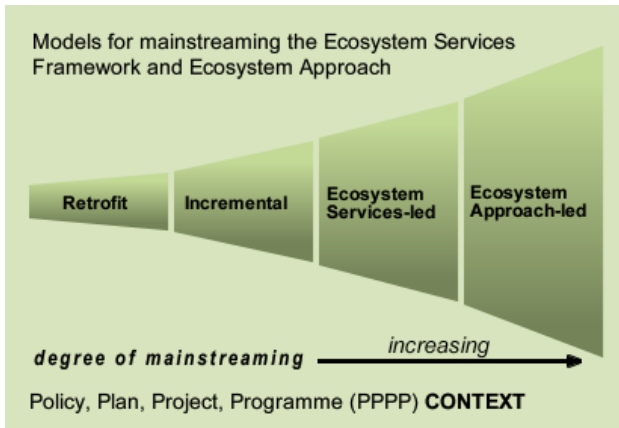


Figure 1a Typology of Mainstreaming : Source [Scott et al 2014](#)

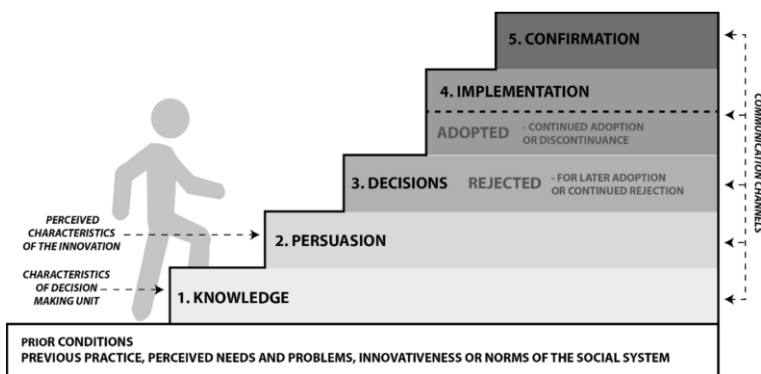


Figure 1b: The mainstreaming staircase: Source [Scott and Kirby 2024](#)

GIPAT has been used by planning authorities to design and improve GI policy at regional scales; e.g. West of England Combined Authority (WECA) and Essex County Council, crucially going beyond existing national policy requirements by framing GI as an environmental, social, and economic asset. In WECA the [Green Infrastructure strategy](#) action A9 recommended the use of GIPAT in strategic and local plan formation. In Essex, GIPAT was used to improve their [GI strategy](#) process and, in part, to co-design their [GI standards \(2022\)](#). It has been also been recommended as part of the local plan review process when the GI Team provide responses to Local Plan consultations. It has been adapted elsewhere to assess [mainstreaming of ecosystem services in New Zealand \(Ransom and Scott 2021\)](#).

This work provides the foundations for the current impact work presented here which further exploits these as well as develop new impact pathways providing important insights into the challenges and opportunities for mainstreaming nature at the science-policy interface.

1. Ongoing work with Max Hislop in the development of the GIPAT tool including its use as a tool for policy assessment in the Interreg [EU GIFT](#) project and the first ever assessment of the efficacy of [UK planning policy for GI](#).
2. Experience as a special advisor to the [House of Lords Land Use Committee](#) (2022) and development of their land use framework and supporting Land Use Commission
3. Ongoing experience as a member and now Co-Chair of the EU [EKLIPSE methods expert group](#); working with national governments and the EU Commission to tackle issues at the science policy interface including [biodiversity and pandemics](#) (2024); the [avoid stage in the mitigation hierarchy](#) (2023) and the [cumulative impacts of windfarms in marine areas](#).
4. Experience as chair of the Building with Nature standards group leading the first refresh of the [standards \(2.0\) \(2021\)](#), now embedded into planning policy and serving as the first UK benchmark for establishing what good green infrastructure looks like.
5. Ongoing work with [Essex County Council](#) and [Bath and Northeast Somerset \(BANES\)](#) in their evolution of GI work and outputs.
6. Work with the [Planning Advisory Service](#) to help support their draft guidance and workshops on their [local authority nature recovery toolkit](#)
7. Work with the [National Trust innovation team](#) to help the development of their [regional park concept in 8 Hills West Midlands](#) to deliver GI multifunctionality.
8. Feasibility of promoting the development of a visitor investment scheme payments for ecosystem services.
9. Work led by Matt Kirby (PhD candidate) on realizing the potential of [green belts as a GI resource](#).

2. Aims and Objectives

This report uses mixed methods (critical reflections from 1-9 above; interviews, policy assessments and literature review) in a sabbatical undertaken from February to July 2024 with a focus on helping to improve the delivery of the **mainstreaming of nature at the science policy interface**. The focus is on the English (and wider UK) planning system as it provides the statutory footing from which many decisions as to the future use of land are shaped and made. This has an added impetus given the rapidly changing policy environment for the natural environment and a new English Labour government.

2.1 Aim

To identify and assess the core ingredients individually and collectively that have led to successful policy and practice interventions for mainstreaming nature in the UK planning system and wider land use framework.

2.2 Objectives

- How to simplify and translate the diverse range of environmental concepts now operating in the environmental policy domain.
- How best to engage stakeholders outside the natural environment as part of initial and ongoing mainstreaming processes
- Learning from action research and case studies of good and weak practice in mainstreaming nature
- Developing knowledge exchange resources and guidance to improve mainstreaming processes and outcomes.

3. Methods.

A mixed method approach was used in this sabbatical period (February to July 2024). Given the short time period the ability to utilize full knowledge synthesis and participatory approaches was constrained. Therefore a more pragmatic approach was developed and reported upon.

3.1 Desk based literature (academic and grey) review

- A purposive literature review shaped by key academic players in my networks and from word searches² covering the multifunctional aspect of mainstreaming nature.
- Lack of time meant that a rapid evidence or scoping review /systematic review was not undertaken

3.2 Semi structured interviews (13) and workshops (7)

- Participants selected through my own network and general invite for [call for evidence](#)³ 13 interviews were conducted and 7 workshops (4 in conjunction with other agencies). Over 170 participants contributed.
- Microsoft Teams interviews for 45-60 minutes. A transcript was generated using Teams software.
- Basic Content analysis of transcribed interviews and workshop outputs was facilitated using NVivo 12. Themes were identified and unpacked using narrative and quotes.
- All responses anonymized; ethics approval was secured via University of Northumbria⁴

3.3 Action based research

- Work was undertaken (February – July 2024) with the Planning Advisory Service, Essex County Council, Bath and Northeast Somerset Council and National Trust.
- Action-based research model supporting current work challenges through championing additionality and critical reflection.
- Due to the ongoing nature of such work only generic lessons learnt and my own reflections and thoughts are presented here in keeping with ethics approval and confidentiality. **They do not reflect the views of any agency listed.**
- Where material is referenced, this relates to published material only or where consent has been given.

² Wors searches included : Mainstreaming nature AND multifunctional/multifunctionality OR multifunctional; Mainstreaming nature and green infrastructure:

³ Call for evidence was here <https://mainstreaminggreeninfrastructure.com/project-page.php?call-for-evidence>

⁴ This project has ethics approval Project No. 6654 Reference: Scott 2024-6654-6108 February 16th 2024 Northumbria University

3.4 Co-Design of Action Plan Workshop (5th September 2024)

This was an experimental aspect of my impact work to engage with the participants who had shaped the initial work to work with them to design action plans on key priority areas and carry this forward into the guidance chapter .

- A first draft of this report was available for comment from 1 August 2024
- A workshop with 20 key partners who contributed to the research and impact work was held on 5 September 2024.
- The 2.5 hour workshop involved 3 challenge break-out sessions (from outputs from sections 3.1 to 3.3)and participant feedback on the draft report. Break-out sessions were facilitated to aid discussion using jamboards.
 - How to break down and better integrate policy silos
 - Harnessing community and publics as part of mainstreaming agendas
 - How to mainstream the key ingredients to create better outcomes
- Outputs were translated and adapted to guidance for final draft report with a final opportunity to pass comments and shape final format.

3.5 Academic Outputs

The academic outputs listed below have influenced the structure and serve as evidence for the report but also draw on past contributions set within the wider literature review.

- Design, submission and publication of an academic paper on [strategic planning for nature conservation](#) (2024). This was based on a PAS commissioned report on [strategic planning for nature conservation](#) published in 2021.
- Planning, design, submission and publication of an academic paper using the GIPAT tool on [UK national planning guidance](#)
- Planning and designing a paper on the use and application of the NATURE tool⁵
- A set of papers led by Kirby et al on [multifunctional green belts](#).

⁵ This is currently in rough draft form and therefore not available for review.

4. Results

Rather than produce separate sections of the results for each method, all the different methods have been integrated within one narrative to address the key themes central to this report. The workshops and action plan material are, however, presented as a separate chapter. Technical appendices in the final report will contain supplementary data for those interested⁶.

4.1 Mainstreaming unpacked

Mainstreaming is an overused and poorly understood concept ([Scott, Holtby et al 2022](#)). It necessarily involves integration across sectors, scales and stakeholders, as well as across multiple governance frameworks ([Bush et al 2023](#)). This has been conceptualized as evolving pathways progressing from knowledge through to persuasion to testing to delivery and adoption using diffusion of innovation models (Figure 1a).

A holistic definition incorporates three distinctive strands which serve as the focus for discussion; as a *'interdisciplinary and transdisciplinary process of transmorphing and normalising a concept, objective, policy or plan within the decision-making and routine activities of multiple policy domains necessary for effective delivery and impact; and in so doing building sufficient capacity and resilience to improve operational processes and outcomes enabling beneficial societal impacts for the long term'* ([Scott, Holtby et al 2022](#)).

The first strand reflects the importance of **pursuing interdisciplinary and transdisciplinary** work from the outset involving active involvement of stakeholders who are necessary to design and deliver the desired change and integration. Here the principles of co-design and co-production are key components requiring such efforts to be ongoing through a particular process rather than one-off events.

The second strand **translates and adapts key concepts** so that they are understood and usable by different sectors and professions in their own work practices. Here the identification and use of “hooks” and “bridges”⁷ are important translational mechanisms to engage audiences and start conversations supported by stakeholder analyses ([Scott et al 2018](#)).

The third strand highlights the long-term process of **building resilience and societal benefit**, avoiding the temptation to pursue superficial changes within the status quo. This distinguishes between “deep” (long term transformational) and “shallow” (short term incremental) mainstreaming pathways. Key ingredients involve effective leadership, policy integration, governance; including community and top-down interfaces, risk taking and transparency to support the necessary culture and behaviour changes (See Appendix 1).

Using this tripartite definition, arguably nature is currently not being effectively mainstreamed as highlighted by global reports on a nature emergency ([IPBES 2019](#)) and the [Dasgupta Review](#)

⁶ Currently supplementary information for interview and workshop transcripts is not available. However this will be in the final report.

⁷ Hooks are defined as key policy or legislative terms, duties or priorities that relate to a particular user group or professional network that are used in regular practice. Bridges are defined as terms, concepts or policy priorities that are readily understood and used across multiple groups and publics, functioning as integrating mechanisms enabling more holistic and integrative thinking and actions across different sectors and policy goals.

(2021). Nevertheless, one respondent stated that they have detected “ a bit of a sea change...it definitely feels more like its (nature is) part of the conversation” (Consultant).

Drawing from [Scott and Kirby \(2024\)](#), we conceptualise how improved mainstreaming might be addressed, set within a revitalised strategic planning agenda (Figure 2); something notably absent from English planning since 2010. However this needs to be positioned within a wider understanding that strategic planning itself needs to integrate the diverse interests associated with the built and natural environment rather than focus on one component.

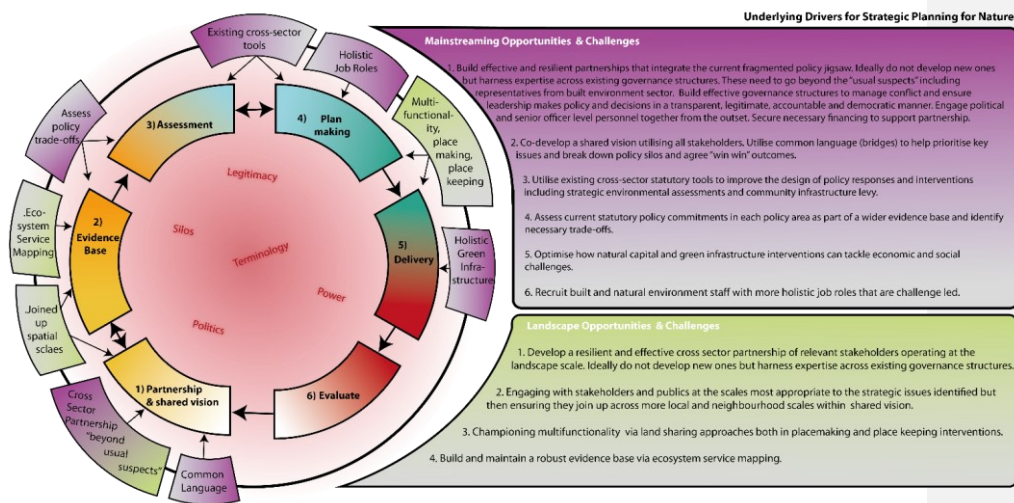


Figure 2: Source [Scott and Kirby 2024](#): The grey inner ring show core stages in a strategic planning policy cycle whilst the outer rings highlight the specific landscape (green) and mainstreaming (purple) opportunities. The outer black line links these opportunities together to show that whereas these opportunities maybe more important at specific stages in the strategic planning process, they are important and relevant throughout. The inner “red cloud” shows cross-cutting barriers to strategic planning for nature. Annotations to the right of the figure expand on the landscape and mainstreaming opportunities/barriers identified. Additional points from the literature highlight the lack of an action framework for delivery

These three definitional components are now unpacked using a mix of academic and workshop/interview responses to understand what successful mainstreaming processes and outcomes look like. However, set within the mainstreaming nature agenda, caution needs to be exercised about “what nature can do but also what it can’t do (Academic) so as not to raise unrealistic expectations.

4.2 Championing Inter and transdisciplinary work from the outset

Interdisciplinarity analyses, synthesises and integrates links between academic disciplines into a coordinated and coherent framework creating novel and/or new insights whilst transdisciplinarity integrates academic disciplines and professional practice into a holistic

framework.⁸ Here, the involvement of academics and policy and practice communities as one team is integral to the process.

These forms of working are difficult and time consuming requiring significant upfront collaboration, social learning and communication; all supported by strong leadership championing co design and delivery (Cowling et al 2008; Scott et al 2023).

This way of working actively demands breaking down or better linking⁹ disciplinary and professional silos that all too often currently dominate much policy and research activity. This more integrated thinking is evident in the key lessons from the [Sheffield Grey to Green](#) and the [South Downs National Park](#) case studies (Appendix 1). As one participant put it: “..to my mind, everything needs to be much more holistic and much more connected” (Academic).

However, the pursuit of separate targets in separate plans and even separate governance frameworks is the current norm. “Far too often, targets for Net Zero are disconnected from targets for nature and communities resulting in missed opportunities and failure to design and implement joint solutions” (Consultant). This accords with Leach et al (2018) who highlight that problems and interventions are designed and delivered in separate silos; a process Scott et al (2013) term (dis)integrated development¹⁰.

This practice of producing multiple single sector or problem plans in isolation from other plans risks losing potential synergies and creating duplication or conflict. Thus, separate nature, health, transport, flood, climate, recreation, economic, housing and infrastructure plans rarely align and, perhaps most crucially, do not always inform or integrate with statutory development plans. A notable exception to this in the work done in [Greater Manchester Combined Authority](#).

One tangible action that can be done to tackle this disintegration and policy fragmentation is to “start with all the individual different plans and just kind of map out the links between them and the way in which they could be better connected” (Academic). Indeed, such work was undertaken in Bath and North-East Somerset Council (BANES: Figure 3) to support a June 2024 workshop on mainstreaming nature. Here the necessary people involved in designing and delivering those plans listed were brought together. The audit of the multiple plans and strategies was also a key initial step to identify potential synergies, conflicts and gaps.

⁸ A useful plain English guide to the terminology here is provided in the Valuing Nature Initiative <https://valuing-nature.net/sites/default/files/documents/demystifying/VNP25-DemystifyingInterdisciplinaryWorking-A4-28pp-144dpi.pdf>

⁹ This term “linking” was used in an EKLIPSE webinar as an interesting response to the more aggressive “breaking down” silos. <https://www.youtube.com/watch?v=JmOMK-F3XSM> (within the question time session)

Title	Specific targets/objectives GI can contribute to
Bath and North East Somerset BANES Corporate Strategy 2023-27	To improve peoples lives Tackling the climate and ecological emergency
B&NES Local Plan 2022-2042 (review in progress for March 2025)	Giving people a bigger say plan for housing and employment space in response to local needs, in attractive, healthy and sustainable places zero carbon by 2030 protect and enhance nature improved connectivity for all and reduced need to travel conserve and enhance heritage assets improve physical and mental health and wellbeing for all align provision of infrastructure and development
Bath and North East Somerset Health and Wellbeing Strategy (2023)	Ensure that children and young people are healthy and ready for learning and education Improve skills, good work and employment Strengthen compassionate and healthy communities Create health promoting places
Building A Fair, Green, Creative and Connected Bath with North East Somerset An Economic Strategy for Bath and North East Somerset 2024-2034	create a Greener Economy that is net zero, nature positive support our residents to access and thrive in Good Work establish BANES as a centre for scientific and health academic excellence, Inclusive Innovation and Creativity create Resilient Businesses by building a diverse, creative, and sustainable business base support Stronger Places, building resilience and sharing prosperity more fairly
BANES Climate Emergency Strategy 2019-2030 (updated 2023)	Cut council operational carbon emissions to net zero by 2030 Decarbonising transport - provide transport infrastructure and environments that will encourage the use of sustainable modes of transport Nature positive by 2030
B&NES Ecological Emergency Action Plan 2023-2030	Increase the extent of land and waterways managed positively for nature across Bath and North East Somerset Increase the abundance and distribution of key species across Bath and North East Somerset Enable more people to access and engage with nature
Journey to net zero – Reducing the environmental impact in Bath (updated 23)	Reducing vehicle carbon emissions to achieve carbon neutrality by 2030 Improving air quality and health Promoting sustainable mobility Improving quality of life in the city Supporting and enabling economic growth, competitiveness, and jobs Widening travel choice Widening access to opportunities, jobs/learning/training Safeguarding and enhancing the unique historic environment and World Heritage Site status Improving quality of life in the city
BANES Local Flood Risk Strategy 2015-2025 (updated 2024)	improve understanding of local flood risk promote community awareness and build capability for appropriate action manage local flood risk through capital and maintenance investment prevent inappropriate development that creates or increases flood risk improve flood preparedness, warning and ability to recover.

City of Bath World Heritage Site Management Plan 2016-2022 (currently being updated – will include Great Spa Town designation ref)	Promote sustainable management of the Site ensure that the Outstanding Universal Value of the Site and its setting is understood, protected and sustained maintain and promote Bath as a living and working city which benefits from World Heritage Site status improve physical access and interpretation, encouraging all people to enjoy and understand the Site improve public awareness of, and interest and involvement in, Bath's heritage, achieving a common local, national and international ownership of the Site's management.
Regional	
Joint Local Transport Plan 4, 2020-2036	Take action against climate change and address poor air quality Support sustainable and inclusive economic growth Enable equality and improve accessibility Contribute to better health, wellbeing, safety and security Create better places
Bristol Avon Catchment Plan 2022-2027	Enhance people's enjoyment and connection with water Improve water quality Restore biological and ecological connectivity Adapt and build resilience to changing climate Delivery of Bristol Avon Fish Recovery Strategy
Forest of Avon Plan: A Tree and Woodland Strategy for West of England (2021)	Doubling the West of England's semi-natural tree and woodland cover, including open wooded landscape and mosaic habitats.
West of England Climate and Ecological Strategy and Action Plan 2023	Decarbonise the transport system; reduce car dependency; manage demand; increase cycling, walking, wheeling and public transport; embed nature recovery within transport capital projects Increase the energy performance, climate resilience and environmental benefits of buildings and places Wildlife and the natural environment are in recovery, with their decline halted and in line with the West of England Nature Partnership; the abundance of wildlife has increased by 30% Help all businesses become more sustainable and resilient to meet our 2030 objectives; help low carbon sector businesses and ensure local people benefit from growth in the green economy Take action to accelerate and ensure we are adapting to a changing climate and increase climate resilience across our region
West of England Local Nature Recovery Strategy (in development)	Build connected nature networks that are resilient to climate change.
West of England Nature Recovery Prospectus	Nature Recovery through delivery of Strategic Nature Recovery Network Project Areas programmes and projects includes Limestone Landscape Link, Chew Valley Reconnected, Somer Valley Rediscovered and Bathscape
West of England Destination Management Plan 2023-2033	Achieve longer stays from visitors coming to the West of England. Support product development of the 2 of the 3 themes - Heritage Reinterpreted and Wellbeing

If you want to access web links of these please cut and click here please copy (ctrl C) and paste into web browser <https://www.dropbox.com/sc/fu/v0u9ws3lwx2b9t61fx2/Strategies-and-plans-GI-table.docx?rkey=vz24oxccdanwjcd4nq45tm&dl=0>

Figure 3 : **Key** Plans impacting upon nature in BANES (source BANES workshop preliminary material).

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Green Infrastructure (GI), as a nature proxy, arguably serves as a **potential delivery vehicle** to bring all these plans and strategies together. Its role and remit as “a *strategically planned networkdesigned and managed to deliver a wide range of ecosystem services..... This network of green(land) and blue (water) spaces can improve environmental conditions and therefore citizens’ health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity*” (European Commission 2013:3), illuminates how GI acts as a “bridge” to other plans and strategies thus catalyzing mainstreaming efforts (Figure 4).

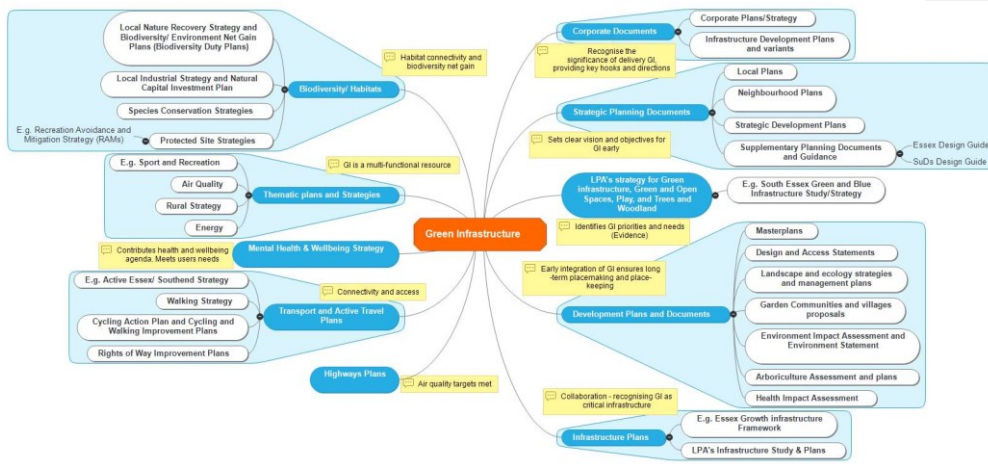


Figure 4: The integrative role of GI in the natural environment (Source [Essex County Council 2022](#) (adapted))

There is a strong academic consensus that key societal problems are better tackled jointly but there is currently a disconnect with the skills agenda to fully recognise and deliver on this potential. For example, much higher education is still focussed on specialised degree topics, reluctant to cede their disciplinary sovereignty in interdisciplinary course design. Whilst many respondents were very positive about working across the disciplinary and professional silos in pursuit of better outcomes, there is a *“lack of evidence that such interdisciplinary and transdisciplinary work actually delivers better outcomes”* (Local Authority)¹¹. This represents a significant research opportunity which is being recognised by [UKRI in grant frameworks](#)¹².

Success involves bringing the right people to the table from the outset, which is time consuming, requiring upfront investment in process. This was very much the rationale for the [Planning Advisory Service Local Authority nature recovery toolkit](#) which considered how nature could be made more relevant across multiple departments and to better engage senior managers who currently did not perceive nature as relevant to their work objectives or priorities.

It might also be ... *“helpful to look to imagine what the end goal might be like”* (Academic). Often this is not clearly defined at the outset of a process beyond a generic utopian vision statement; strong on ambition but weak on delivery ([Scott and Kirby, 2024](#)). Set within a desire for evidence-based policy, this is a concern that needs to be addressed by better data, participatory processes and long-term monitoring of interventions.

Success is also influenced by the efficacy of multi-level governance frameworks ([Adams et al 2023](#)) encompassing transparency, accountability, leadership, innovation and risk taking ([Lockwood 2020; Santos et al 2023](#)). Current governance structures at the macro (regulation;

¹¹ In addition, this argument formed a major part of an unsuccessful research bid to UKRI in 2019 arising out of a stakeholder workshop

¹² This is based on work undertaken in 2021/2022 and is currently NOT being updated.

risk aversion) and micro levels (appraisals; micropolitics) often hinder such efforts. So successful initiatives are ad-hoc and due to motivations, actions and personalities of individuals, going beyond their established duties, in spite of the system rather than because of it (Scott, 2011).

My work with the South Downs National Park (2012-2016) highlighted how mainstreaming nature is most successful when it permeates the whole culture of the organization including the senior leadership team and members across all departments (including the planning team), rather than resting with one or two individuals identified as champions (Scott et al 2018; 2023: Appendix 1). Alongside this, there is the need for effective communication between and within departments. However, the National Park has the benefit of having a more nature-focussed remit with supporting legislation rather than relying on voluntary activity (Runhaar et al., 2024).

A supportive governance culture can be highly motivational as one individual reflected how both her managers allowed her the space to pursue wider nature objectives but set within meeting her own job requirements first. *"I had really amazing bosses... Both saw that nature had been missing from the conversation, but I had to do my job..... but if you could make it work that's great..... so it wasn't a free pass"* (Consultant). This in many ways highlights the challenge; reflecting the pragmatic reality that people have to go beyond normal work requirements to make things happen for nature. This was also evident in the [North Glasgow Integrated Water Management System](#) case study (Appendix 1) with an interdisciplinary management group who were prepared to take risks contrary to usual local authority risk aversion culture.

The set of transferable, softer personal skills become important in cultivating good relationships with senior managers, within and across organizations and departments and elected members (where relevant) to enable things to happen on the ground.¹³

Significantly, only certain areas of nature such as biodiversity and public access are governed by regulation. Green infrastructure, for example, does not have any statutory legislation, thereby requiring more indirect approaches such as designing stronger planning policies in local plans (Public Sector); using incentives such as market-based instruments, certification schemes or CSR, or tackling the planning process within other strategies, such as Essex County Council in their [Green Infrastructure Strategy](#). Within a [Birmingham case study on nature recovery](#), the importance of effective champions as communicators, together with key bridges such as climate change (net zero), deprivation and Covid were seen as key ways to get dialogues and actions started.

There was recognition from most participants that stronger legislation for nature was important and needed, as testified by the impact of Biodiversity Net Gain within the Environment Act 2021. *"It's changed the goalposts for how the environment..... gets considered within like multidisciplinary teams"* (Consultant). However, the power of complementary incentives was also recognized; *"people get a sense of enthusiasm because they were gonna get some kind of recognition and award"* (Charity). Yet there is a need for caution against sole reliance on regulation to deliver mainstreaming, but rather to think about bundling regulation and

¹³ Work by Birmingham City Council <https://www.local.gov.uk/pas/topics/environment/nature-recovery-and-biodiversity-case-studies/how-birmingham-city-council>. See also the powerful story by Charlotte Glazier of how pocket park initiative was codeveloped with a councillor after complaints of motorbike noise. Creative thinking, personal motivations and serendipity interact. <https://www.youtube.com/watch?v=2O091Dg01-A>

incentives together supported by effective participation and communication from the outset ([Scott et al., 2014](#)).

As well as the more traditional top-down approaches, community voices from the “bottom up” perspective are important, reflecting the power of local cultural knowledge(s) and connections with nature ([Sanga et al 2019](#)) and through communities of practice championing social learning ([King et al., 2023](#)). Perhaps, community based natural resource management offers an important contribution to mainstreaming discourses which rarely gets traction in a UK context ([Reid, 2015](#)). An important community of practice was also evident in BNG as set up by the Planning Advisory Service which provides an important pathway to influence policy and improve social learning (Appendix 3).

For me the key opportunity space at the science policy interface to exploit here is the creation of a managed, safe space where the top down and bottom up interests meet and where the key proponents can participate as shown in an initiative to link SMART and Biophilic interests in Urban Living Birmingham ([Grace et al 2023](#)). The university can play a key independent role here as the managing agent as reflected in the Newcastle City Futures project ([Vallance et al 2020](#)).

One neglected area of governance is **monitoring and enforcement functions**. Often limited resources are available for what is an essential activity which should be undertaken through the design delivery processes rather than bolted on at the end. Measuring success and learning from mistakes are essential elements but monitoring activity is heavily skewed by top-down government targets. There is little monitoring of how well planning authorities are doing on planning in general and nature in particular (Local Government). For example, it was recognized with some shock from natural environment bodies that “*enforcement is not a statutory function of a local authority; so they don't get funded*” (Local Authority). Hence some of the current alarm bells raised over BNG monitoring are nothing new in relation to efficacy of previous planning tools (e.g. section 106, SSSI favourable condition) requirements (e.g. [Zu-Ermgassen et al 2021](#)).

Finally, interdisciplinary and transdisciplinary work will bring people and agencies together in partnerships who do not usually interact. Partnerships are the principal delivery vehicles in this new governance agenda ([Scott 2012](#)). However, how you get such people to commit time and resources to such ventures beyond an initial meeting when their time is pressurized poses its own challenges, as expanded upon in the next section. Such interactions need careful and expert facilitation and management to understand different positions, priorities and vocabularies and seek pragmatic solutions that go beyond generic lowest common denominator solutions. Such processes are not solved quickly and expectations about what can be achieved in one-off events or programmes need to be managed carefully given the dangers of unmet expectations.

One of my personal reflections is that often people expect such activities to deliver far more than is possible and this exposes, in my mind, a lack of understanding of the complexity and capacity-building needed for successful interdisciplinary/transdisciplinary working. This is why we often see a plethora of partnerships with poor representation and limited legacy ([Scott 2012](#)).

4.3 Translating and adapting concepts to work priorities

One of the major challenges with mainstreaming nature is the ever-expanding and complex environmental vocabulary which limits engagement and understanding outside the

environmental sector leading to alienation and frustration of other sectors/interests who equally have their own vocabularies and priorities to pursue. As one respondent recognized: *“Environmental folk are very good at making it different and special and too difficult for people who don’t understand”* (Local Government).

Indeed, many interviews highlighted concern at this mushrooming vocabulary. Whilst each concept (Natural capital, ecosystem services, green infrastructure, biodiversity and environment net gains, nature-based solutions and LNRS) have a defined role in their own right, they were all introduced at different times and for different purposes with little attention focused on how they might work together and how synergies might be better exploited for positive cumulative benefits (Scott et al 2022). The links and synergies and cross benefits are not considered which often makes it challenging to align because they are being implemented at different time scales making it hard to synchronize activity across different departments. Even worse, these concepts have generated their own champions which creates competition and potential conflict, with diverse voices and arguments emerging within the environmental sector itself. This is not helpful to those trying to navigate the nature policy ecosystem. Set within a more global framing, Castellino (2021) reveals conflicts between community and environment voices; *“it is crucial that the global 30 by 30 target to preserve biodiversity does not pit one voiceless constituency, the environment, against another, indigenous populations”*. There is also the influence of the issue attention cycle (Downs 1972). For example, BNG currently dominates environmental policy discourses as people seek to understand how the new rules affect them. In effect, *“everyone is putting on the brakes elsewhere”* (Consultant).

A further point reflects the lack of effort of the environmental sector of actively engaging with other built environment professions in order to understand their priorities and more importantly how to weave an environmental narrative to help address them. *“Environmental specialists rarely take the time to better understand the disciplines, languages and priorities of other built environment interests and their challenges”* (Local Authority). In essence ... *“it needs to speak to those audiences and in a way then that they can understand each other priorities”* (Charity). It is only from that mutual understanding that you can then start to formulate interventions that can help them deliver. Currently such work is limited by the very silos we currently operate in, and the limited time given to build the necessary social capital.

Moreover, in the UK environmental domain there is now a rapidly changing policy framework which itself spawns many separate environmental plans and strategies, resulting in significant duplication but also potential inconsistencies and confusion across non-environmental bodies trying to navigate and make sense of them. The fallacy of “environmental incrementalism” is in full view here (Allan 2019), whereby new environmental strategies are just overlain on to the existing governance framework, further complicating matters, rather than undertaking any substantive work to transform the problematic governance frameworks themselves.

Work by the [Broadway Initiative](#) on place-based frameworks has tried to tackle this, in part, through their proposal championing of [Local Environmental Improvement plans](#) (LEIP). They make the argument that current plans treat the environment in silos rather than as connected systems. Separate management and finance systems hinder investment opportunities for multiple benefits. They are managed on short term timeframes rather than the long-term nature that environmental challenges require. They lack coherence to plan for nature’s recovery and are often unaccountable to local people. Finally, they are treated as separate from, and often fail to feed into, statutory development plans. The recommendations thus seek to integrate all

aspects of the environment and existing spatial instruments into one coherent plan championing resilience, transparency, accountability and policy integration.

Interviews reinforce the advantages of the LEIP rationale as helping to “*simplify and access environmental data and requirements in one place*” (Charity). Significantly, they view the dangers of contemporary Local Nature Recovery Strategies being pursued in isolation from wider environmental strategies (e.g GI and BNG) and suggest they that should be expanded as potential LEIPs. This more integrative role for LNRS was also supported by [House of Lords Land Use Committee \(2022\) report](#) on Making Best Use of England’s Land. However, current LNRS publications and drafts for consultation suggest that they are not yet fulfilling such roles; due, in part, to resource (time and manpower) limitations and the limited scope of statutory guidance itself ([HM Government 2023](#); [Smith et al 2021](#)). However, as suggested in the previous section, GI may have better potential as a bridge; not only to integrate the environmental plans and strategies but also inform other sector strategies, hopefully to improve their fit into development plan documents. This role is evident in PPW12 (Wales) through the mechanism of the green infrastructure assessment which does offer a potential pathway for a green infrastructure plan as a LEIP.

4.3.1. The framing of nature

How nature is currently framed and communicated within projects, programmes and initiatives significantly impacts on mainstreaming success at the persuasion phase (Figure 1b). The use of “*plain English and using principles and concepts that non-experts can easily understand is crucial*” but often neglected (Charity).

In a review of three successful mainstreaming case studies (Sheffield, South Downs National Park and Glasgow), [Scott et al \(2023\)](#) highlight the significance of positive framing(s) of all projects according to the target audiences’ specific priorities. For example, in the Sheffield ‘grey to green’ project, nature was framed to water engineers as an answer to their drainage problems. For traffic engineers, it slowed traffic, reducing accidents. For council members, it was about amenity in the city. For businesses, it brought back life and activity and regeneration. Finally, for the public it reconnected pedestrians to the city. This multi-pronged approach to communication was key in securing audience engagement and support, changing the perception of nature as a constraint into an asset; a point also emphasized by [Runhaar et al \(2020\)](#) in a meta review on successful policy integration.

Use of strong positive framing for nature is also evident in the “nature-positive” concept which has stimulated multiple initiatives such as the Science-based Targets for Nature, Taskforce for Nature-related Financial Disclosures, and the Conservation Hierarchy approach ([Milner-Gulland et al 2021](#)). Equally, natural capital in general and the [natural capital approach](#) in particular is now seen as a positive way of “*capturing the value of nature so that it can’t be overlooked by policymakers*” (Academic)¹⁴. As stated by one respondent “*you gotta make the economic case for nature*” (NDPB).

The work of [Scott et al \(2018\)](#) on mainstreaming ecosystem science introduced the concepts of hooks and bridges as key mechanisms to help catalyse mainstreaming dialogues. Whilst

¹⁴ See also Day et al 2024 <https://royalsocietypublishing.org/doi/full/10.1098/rstb.2022.0327>

“hooks” are useful for engaging with specific audiences on their specific priorities, “bridges” offer a potentially more significant role for interdisciplinary and transdisciplinary working as they are built on concepts that help unite multiple audiences together (Figure 5), thus helping to break down the policy silos that have been exposed as a major mainstreaming barrier.

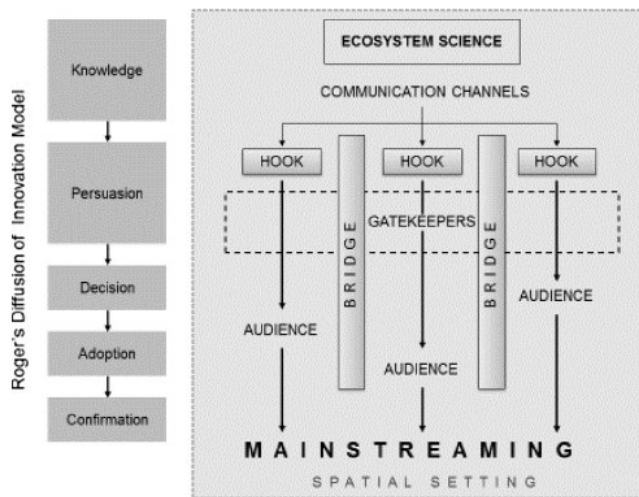


Figure 5 Hooks and Bridges in Mainstreaming (Scott et al 2018)

Bridges provide uniting mechanisms to get the right people in the room from the outset and are therefore crucial for successful mainstreaming processes and strategic planning (Scott and Kirby 2024). The Planning Advisory Service highlight the need for such mechanisms as a first step in their draft Local Authority Nature Recovery Toolkit materials (PAS, 2024). Thus, more emphasis is needed on how best to get the right people in the room with sufficient influence and interest to make things happen.

But, getting the right people in the room from the outset and **maintaining their commitment** is a key skill and rarely achieved. Many initiatives, conferences, webinars and workshops fail by not devoting enough preparation time to this task, often resulting in an audience missing key interests necessary for success. As one respondent recognized for a successful workshop “*the time involved and actually planning for it took much longer than the actual workshops themselves*” (Academic). The risk of “preaching to the converted syndrome” is often encountered in such events with little evaluation of how specific audiences were targeted, if at all. Essex County Council for their GI strategy follow-up work in July 2024 invested in up-front dialogue via separate Teams meetings with 6 out of 14 local authorities to understand how a GI workshop could best meet their specific agendas and priorities. This undertaking helped ensure the workshops were co-designed and fit for purpose; designed to maximize participant priorities and also ensure a good attendance by securing their stake from the outset. Such approaches are rarely encountered.

Drawing on intelligence from the interviews and workshops I have held and attended over my NERC fellowship and beyond, the following “bridges” are proposed to help multiple stakeholders unite around the natural environment (Table 1). However bridges should be seen

as evolving and these are a Domesday snapshot. Furthermore, whilst these bridges are presented separately, they are most effective when pursued as part of a multifunctional agenda to optimise impact. Respondents often stated that it was the bundling of bridges that had most impact. *“The real unifier is how will LNRS work in an urban environment where it’s green infrastructure; where it’s health; where it’s deprivation; we know the benefit of green infrastructure for wellbeing and green infrastructure has to manage water quality and water resources and flood risk in those deprived areas”* (NDPB).

However, whilst these bridges are important in bringing groups together, securing their longer-term resilience is also important. Thus, we need to progress beyond talking shops to dedicated task and finish¹⁵ groups in response to identified challenges. Currently we are seeing too many single-issue partnerships reinforcing the silo mentalities (silos within silos) observed earlier. The task and finish component makes the partnership outcome-orientated and thus builds collective capital. The challenge is to embed this into individual work programmes so it is not seen as an extra to what are already burgeoning workloads.

Furthermore, there is a risk that people rely too heavily on a single workshop or meeting to generate progress rather than locate them in a planned and deliberative process leading to key outputs. Indeed, diverse groups who may not usually interact or understand each other’s positions and red lines need conflict management strategies and interventions and capacity building. Single workshop events can raise expectations, but they will not work unless the impetus for action is generated with strong leadership and audience enthusiasm and commitment to roll on forward. Furthermore, there is a danger that such events can allow boxes to be ticked about wider involvement but *“have you actually reached a diverse audience.....and who actually is the person in the room..... if they have no influence and power in that organization it means nothing”* (Local Government).

Work with Essex County Council in 2020 and 2021 supporting the development of their bespoke [GI standards](#) through [3 deliberative workshops](#) reveals what can be achieved in carefully worked out and designed programmes of meetings and follow-up work. The outputs led to material published in the design guide with high impact potential across the constituent local authorities.

¹⁵ Task and finish groups are action oriented groups that have a task defined by why you are doing something and considering how you approach the task. The finish is actually delivering on the tasks through actions and adapting what you do.

Bridges	Comment
Climate Emergency /Net Zero	Declaration of climate emergency in many local authorities represents a key action to build upon. Net Zero is also a key commitment in government, requiring immediate actions in order to meet targets Some combined authorities formally declared a climate emergency, setting in action more strategic objectives and actions.
Biodiversity emergency and the Environment Act legislation	The need to make space for nature and meet the requirements in national planning policy and the Environment Act, 2021 to deliver mandatory Biodiversity Net Gain (BNG) provides a key bridge. However, It is important that this is embedded in the wider local nature recovery strategy to avoid it becoming its own silo . Furthermore, the Environment Act gives all local authorities a duty to protect and enhance biodiversity with a reporting requirement.
Natural Capital	Key concept that ties in with the other capital and can therefore be used in decision making. Ties in with the HM Treasury green book for project assessment and appraisal.
Public Health /Active Lives); the natural health service Covid highlighting inequality and access to green space.	Covid19 response to people's health and wellbeing has highlighted the importance of GI but also highlighted the current inequality to green space. Health impact assessments provide a further opportunity to ensure access to greenspace and form part of policy responses. The rise of social prescribing is an important mechanism here.
Business Improvement Districts (BIDS)	Local projects like developing greening the BIDS in London help integrate place, economy and community under a collective GI umbrella .
Placemaking and place keeping	Both placemaking (Standard 5) and placekeeping (Standard 6) are core standards as part of the refreshed Building with Nature framework for accrediting good GI across the UK. The Parks for London has drawn together resources for both placemaking and placekeeping.
Community led agenda as part of climate adaptation	Example of Islington Pocket Park financial framework. scale up urban greening for climate adaptation building on local residents' interests and challenges. Here an example of problems with mopeds led to a major funding initiative.
Forest Schools and schools	Working with children is a great way to build relationships with nature and indirectly reach their parents. Important also to involve children in environmental matters as part of a wider SD approach
Green and Blue Infrastructure with nature-based interventions.	A concept readily understood in the built and natural environment but still subject to sector specific definitions and work. However, it has potential to bridge multiple areas of policy through its focus on nature based interventions.
The Taskforce on Nature-related Financial Disclosures (TNFD) where risk becomes a useful bridge	Guidance that encourages and enable business and finance to assess, report and act on their nature-related dependencies, impacts, risks and opportunities. Recommendations provide pathways for action. Here natural capital accounting is proposed as a useful tool to facilitate this. Nature positive as a concept has become increasingly used but beware of greenwashing.
Mitigation Hierarchy adapted to become the Mitigation and Conservation Hierarchy	Mitigation Hierarchy for mitigating and compensating the biodiversity impacts of developments (1, avoid; 2, minimize; 3, restore; and 4, offset, toward a target such as "no net loss" of biodiversity) within a broader framing encompassing all conservation actions
Well Being of Future Generations Act (Wales) 2015)	The Well-being of Future Generations Act requires public bodies in Wales to think about the long-term impact of their decisions, to work better with people, communities and each other, and to prevent persistent problems such as poverty, health inequalities and climate change. The Act is unique to Wales. Important as this means you need to have equality of outcome. This gives an important delivery role to GI.
Risk	Risk is a useful concept; whilst it has negative connotations, managing risk is universal and key to successful work. Key might be using risk in a positive sense. This can be a cross-cutting theme to the other bridges listed above
Multifunctionality (OECD 2001 p6)	This refers to the fact that an activity may have multiple outputs and, by virtue of this, may contribute to several societal/economic objectives at once. Thus multiple benefits may be the bridge also.

Table 1 Bridges for mainstreaming Nature complete with hyperlinks.

Making the “bridges” work effectively is down to the personal and leadership skills of people promoting the value of nature. Arguably this works better if the champions are not embedded in the nature camp already (Scott, Holtby et al 2022). As stressed previously, this is helped by a supportive organisational culture, but the individuals often make progress due to their abilities and skills in reaching out across multiple groups and departments which is not necessarily a prescribed work role. Personal characteristics such as risk taking, working outside personal comfort zones and ability to work within a bigger strategic picture all have potency (Local Government).

4.4 Long term resilience: deep versus shallow mainstreaming.

Scott, Holtby et al (2022) distinguish between deep and shallow mainstreaming within a conceptualization of mainstreaming processes, with advances and regression in response to opportunities (hooks/bridges) and barriers preventing/reversing progression. Shallow mainstreaming is most commonly observed reflecting short term incremental measures such as taxes or incentives that lead to change in behaviour with some benefits. This tends to be equated with keeping within the status quo under current market-led neoliberalism. Deep mainstreaming involves more transformational changes in values and culture which are likely to be more resilient. It is argued that nature’s challenges require deeper, long-term transformational change rather than the incremental and shallower changes currently being pursued (Anderies and Folke 2024; Vatyn et al 2024). Deep mainstreaming requires far more up-front effort and investment and can challenge the status quo and associated interests. This is well seen in the Grey to Green case study in Sheffield, but this required a long process of capacity building and social learning falling outside usual evaluation metrics (Scott et al 2023: Appendix 1) .

However, it is oversimplistic to argue that mainstreaming success can only be achieved through strategies targeting deep mainstreaming. Indeed, deep mainstreaming pathways may only be possible after a series of shallow successes and/or even failures resulting in new learning and consequential pathways. Figure 6 captures this messier picture hypothetically.

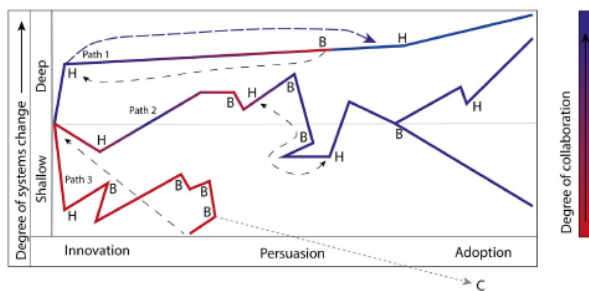


Figure 6 Mainstreaming framework: three different mainstreaming pathways. Source Scott, Holtby et al 2022 p208 adapted.

Mainstreaming framework: three different mainstreaming pathways. Mainstreaming Path 1 shows strong collaboration from the start with a significant hook (H) involving multiple audiences with potential to design and deliver deeper system change. Because there has been early participation to develop shared values, progress through the persuasion phase is less problematic. In adoption, there may still be barriers (B) necessitating further innovation through feedback learning and evaluation loops (dashed arrow). Hence, because of the learning aspect

barriers should not always be seen as negative in their overall impact. Mainstreaming Path 2 starts with more shallow system change, but tries to pursue deeper pathways and collaboration via different hooks and barriers, each with differing degrees of impact. Eventually, the mainstreaming pathways split in response to a barrier, highlighting that pursuing deep and shallow interventions simultaneously with high levels of collaboration can lead to successful outcomes. Mainstreaming Path 3 follows a shallow mainstreaming pathway with limited collaboration, never really reaching sufficient traction or translating outside of the initial policy sector and, therefore, stalling in the persuasion phase. Consequently, it is subjected to multiple internal and external policy pushbacks with the cumulative impact of barriers being particularly problematic. Comment: The dotted line to C highlights the possibility of breaching tipping points which changes the entire policy ecosystem into crisis, which is the ultimate risk from Kuhn's (1962) change model

The [Sheffield Grey to Green case study](#) illustrates the evolution from multiple shallow mainstreaming pathways culminating in eventually a deeper change whilst the [South Downs National Park study](#) perhaps, uniquely, shows a deeper mainstreaming philosophy from the outset, set within the auspices of a newly created National Park authority which wanted to “boldly go into the environmental planning arena”. In both cases, key personnel were instrumental in securing that progress and success (See also Appendix 1).

4.5 How well is nature mainstreamed in current national policy?

Having discussed mainstreaming challenges, opportunities and pathways, it is important to identify the current baseline of how national government policy and guidance for nature in England is mainstreamed. [Scott and Hislop \(2024\)](#) have assessed the performance of the UK devolved nations' national planning policies with reference to the mainstreaming of green infrastructure in policy guidance. The GIPAT tool was co designed using 26 criteria amassed from good practice initiatives and literature reviews (Figure 7). The process involves assessing the extent to which policy and any supporting text met the assessment criteria and also the strength of policy wording (for detailed information and analysis of each country please see Appendix 2).

Mainstreaming was captured in three different ways. Criterion 'A' assesses the extent to which GI is recognised and valued explicitly in the introduction, vision and/or strategic objective aspects of a plan which collectively create a higher-level strategic/corporate environment and/or culture supportive of GI. Criterion 'B' looks at the extent to which GI benefits are explicitly recognised in climate, economy, health and social domains. This highlights national areas of policy concern and provides a measure of how well GI is seen as a way to deliver nature-based interventions to societal challenges. In this case, each benefit is scored separately, with a composite score calculated based on the highest score for each benefit. Criterion 'C' assesses the extent to which GI policies exist outside the environmental chapter. This is based on the distribution of scores across the other criteria D-Z excluding K-L (Figure 7).

The results from each country in summary form are captured in Figure 8 which reveals a mixed performance picture. Wales has the best mainstreaming coverage followed by Scotland, Northern Ireland and then England. Note for England the lack of recognition of GI in Criterion B; the extent to which GI benefits are explicitly recognised in climate, economy, health and social domains. It also highlights the lack of recognition of GI in the overall strategic components of the guidance which again reinforces vulnerability.

Turning to the wider picture across the D-Z criteria, the results also highlight that areas of stewardship, blue infrastructure and access networks perform relatively weaker than the rest

whilst biodiversity and development integration components perform relatively better. However, the standout finding relates to the strength of policy wording which throughout lacked strong policies for GI (nature) thus indicating significant GI vulnerability. This all hinders mainstreaming potential because it is not seen as something that must be done. This national guidance picture has important implications for local authority policies given they form material considerations in the content of strategic and local development plans.

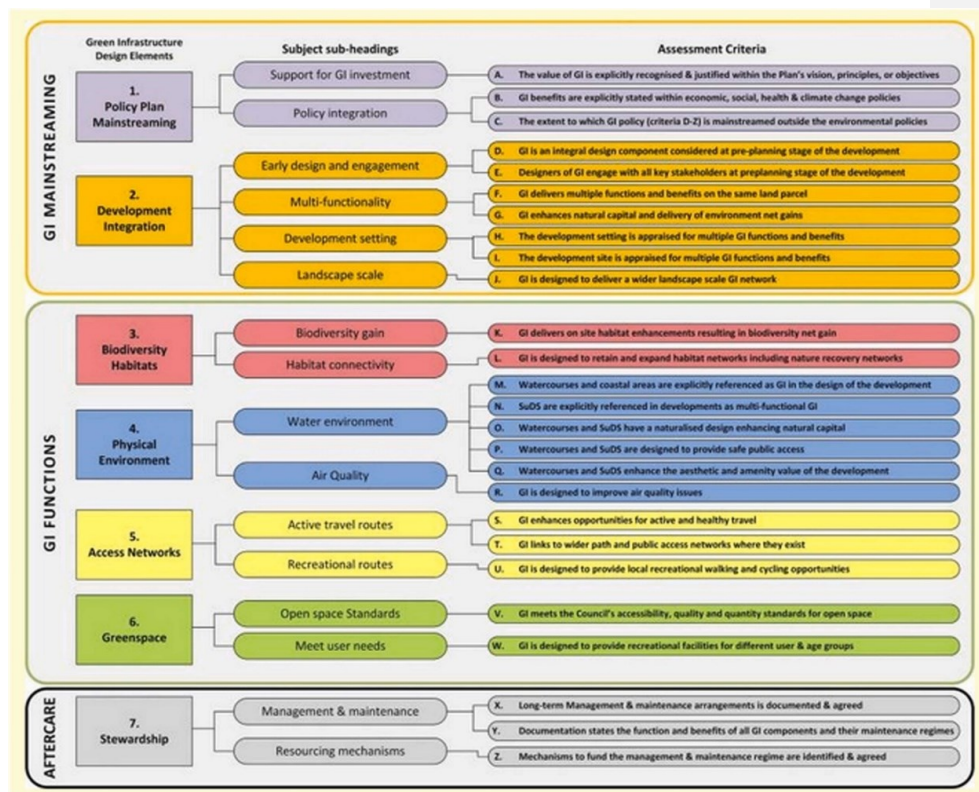


Figure 7: The GIPAT tool Source Scott and Hislop 2024

However, at the local authority level the picture is interesting. In a study across Scotland, Hislop et al (2018 and 2019) found that some local authorities perform better than the national picture but conversely some actually perform worse. This highly variable picture suggests a lack of consistency and social learning in evidence across the planning community¹⁶. A key output from this work was the codesign of a set of model policies for local authorities to adapt to their own plans (Figure 9).

¹⁶ Interestingly a similar finding was in evidence from Kirby and Scott's (2023 work on multifunctional policy in green belts highlighting significant diversity in performance across the country (England). <https://www.sciencedirect.com/science/article/pii/S026483772300265X>

		Green Infrastructure Design Elements																												
		Policy Plan Mainstreaming			Development Integration							Biodiversity/Habitats		Physical Environment				Access Networks		Greenpace		Stewardship								
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z			
		Supportive of GI investment	GI benefits in economic policy	GI benefits in health policy	GI benefits in climate policy	GI policy outside Env. Policy	Early/mingled design	Early engagement	Multi-functional land use	Natural Capital & ES	Off-site analysis	On-site survey	GI Networks	Enhance biodiversity	Habitat networks	Watercourses as GI	SUDS as multifunctional GI	Naturalised SUDS	Access to waterbodies	Aesthetic of waterbodies	Ambiorate air quality	Active travel links	Links to water networks	Recreational routes	Open space standards	Multi-user design	Agreed management	Functional maintenance	Resourcing mechanisms	
SCOTLAND NPF4, 2023	Coverage																													
	Strength																													
NORTHERN IRELAND SPPS 2015	Coverage																													
	Strength																													
WALES PPW11 2021	Coverage																													
	Strength																													
ENGLAND NPPF 2023	Coverage																													
	Strength																													
Best of the best	Coverage																													
	Strength																													

Total (Max=78)	Score	%
Coverage	65	83%
Strength	50	64%

LEGEND				
Coverage	None	Some	Most	Full
Score	0	1	2	3
Strength	None	Weak	Medium	Strong

Figure 8: GIPAT assessment of UK national planning policy frameworks. Source Scott and Hislop 2024

As a follow up to Figure 9, using the GIPAT 26 assessment criteria, a matrix has been compiled capturing the strongest to weakest performance using examples from national and local government¹⁷. This is an important knowledge exchange resource for those developing policy for GI and nature through its novel use of strong and weak policy practice with justifications.

¹⁷ Scott 2024 GIPAT <https://mainstreaminggreeninfrastructure.com/project-page.php?green-infrastructure-planning-policy-assessment-tool> Once downloaded the excel spreadsheet go to worksheet 5 and hover over the comment red triangle to see the policy examples. Both coverage and policy wording example are given.

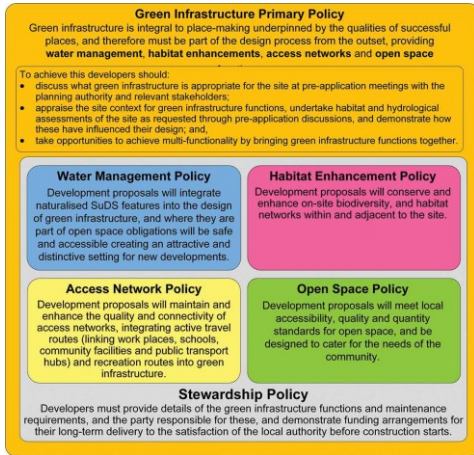


Figure 9: A suite of 'model' GI policies derived from the highest scoring policies identified in the CSGN GI policy review. Source [Hislop et al \(2019\)](#)

[Scott et al \(2023\)](#) provide a detailed exploration of three different case studies that mainstreamed nature successfully (Table 2). Using a different format, the case studies preceded the narrative, in turn, telling their detailed stories that led to success; something often missing from oversimplistic and limited case study extracts. From these detailed storylines we then identified the common ingredients that were present; inter- and transdisciplinary collaboration and engagement championing co-design and coproduction; strong and effective leadership within cross-sector partnerships, with an appetite for innovation and risk-taking, together with patience (things happen slowly) and serendipity.

	South Downs National Park Local Plan	North Glasgow Integrated Water Management System	'Grey to Green' in Sheffield city centre
Tier	Description	Purpose	Purpose
Vision	Mainstreaming ecosystem approach across key statutory plans in the South Downs National Park	Delivering strategic regeneration through a resilient, BGI-led 'sponge city' water management approach	Revitalising redundant parts of the city through multifunctional green infrastructure
Focus	Local plan	Unlocking urban regeneration at scale by combining BGI with a technological solution to address water management	Highways
Behaviour	Building on a landscape-led approach within a new National Park Authority governance layer, with innovation at its core	BGI-first approach, operating within a partnership framework	Approaching the built environment as a porous network, making room for water, nature and traffic
Contribution to BGI	Recognises role of BGI as a delivery mechanism to achieve ecosystem service and natural capital benefits	Demonstrates how BGI can unlock and lead strategic development to maximise positive outcomes and different benefits	Shows how green infrastructure can be retrofitted in main highways to achieve different benefits
Contribution to engineering sciences	Embedded in regulatory framework but supported by guidance for householders and developers Uses a full range of ecosystem services suited to the place-based context	Re-purposing a historic monument by marrying a cutting-edge technological solution with BGI for managing surface water and providing different co-benefits	Challenges constraints usually levelled at BGI on road schemes Demonstrates value for money

Table 2: Summary of Case Studies; Source ([Scott et al 2023 : 288](#))

4.6 Financing nature

Many respondents identified finance as a key barrier affecting mainstreaming processes due to a range of factors. These include the lack of funds available to secure delivery teams for nature or resources to implement policies on the ground. The structure and rigidity of many funding schemes also tended to lead to a focus on single sector goals, failing to address the interdisciplinary and multifunctional components that mainstreaming nature necessarily involves ([Mell et al 2021](#)).

Grants and funding schemes came in for particular criticism in terms of their complexity (charity), short term nature (NDPB), burgeoning administrative requirements (NDPB), rigid criteria (national government) and lack of flexibility between capital and revenue funding streams (national government).

A further concern related to the inequity of who actually benefits from grants and funding schemes ([Wolch et al 2014](#); [Garcia-Lamarca 2022](#)), particularly when professional organisations and community groups were often judged against each other (community group). Indeed, competition can be seen as potentially damaging whoever is involved, given the time and resources spent on such schemes and the relatively few winners compared with the losers. The case of levelling-up fund evaluation is informative here, raising fundamental questions about the time invested in unsuccessful grant bids ([Institute for Government, 2023](#)). There was also the additional risk of groups applying for funding in areas outside their core functions, inflating competition between agencies in an unhelpful way (local authority).

An interesting perspective was also revealed with the growth of social prescribing, which was seen by many as a successful outcome for both nature and health interests with many voluntary groups now in operation ([Hardman et al 2023](#)). However, perverse impacts can arise as social workers seek to enable their most vulnerable clients to engage with green spaces via these volunteer support groups, resulting in one participant lamenting that “*there is no better way to kill a volunteer group than to give them high dependency individuals*” (NDPB).

Viability also was criticised in the way that current national government definitions favoured economic interpretations rather than more sustainability led outcomes based on environmental and social thresholds and limits¹⁸. An interesting set of risks was also highlighted with BNG on viability. BNG requirements may exert adverse financial impacts on other betterment tools such as Section 106 and CIL with regard to GI provision. Moreover, with increasing pressure for off-site mitigation from both developers and ecologists for different reasons, there are risks of incorporating less green space in new housing developments but with “*what cost to the NHS later down the line*” (Local Government).

Whilst attention on mainstreaming nature has focused on changing the perception of nature from a constraint into an asset, this is still problematic for financing nature. Nature’s benefits often occur as external effects, where those paying for the provision are not necessarily those who directly benefit most (e.g. flood benefits and health). Consequently, cutting resources for nature-based interventions is widespread as the benefits of investments are not easy to capture or to transfer. This is exacerbated by the more tangible costs of maintenance which impact negatively on budgets such as those for highways, parks and recreation departments ([Scott and](#)

¹⁸ For example the UN Sustainable Development Goals might provide a more integrated view <https://sdgs.un.org/goals> or I would contend that the ecosystem approach offers a more meaningful definition of viability <https://neat.ecosystemsknowledge.net/principles.html>

[Hislop 2024](#)). This is also evident in the delivery phases on many development schemes. When a scheme starts to exceed planned costs, nature and/or green infrastructure is still one of the first casualties owing to its status as an optional extra. Furthermore, benefits of nature-based interventions cannot be accurately predicted and this highlights a lack of evidence on performance (Consultant). Significantly, the [Building with Nature accreditation scheme](#) recognises this challenge by only giving accreditation to high quality green infrastructure one year after completion of development schemes.

In terms of using nature-based interventions we “cant always be explicit about what it is going to cost or even the value you know of the service/benefit it will provide” (Local Authority). Treasury models often require precise data. Furthermore, “developers are unlikely to pay for stuff that they are not going to benefit from”. (Local Authority).

Despite the proliferation of economic valuations of ES and NC, there is not yet a mature and well-regulated market to take full advantage of this, although some progress has been made in market-based mechanisms for nature associated with payments for ecosystem service schemes ([Reed et al 2017](#)). These are not without their critics, however, which challenge the prevailing neoliberalist ideology with its failure to value nature for its own inherent values. For example, [Spash and Hache \(2021\)](#) provide a powerful critique of the [Dasgupta Review \(2021\)](#) endorsement of a natural capital approach.

On a more positive note, there were opportunities identified for local authorities to have their own delivery team to capture BNG payments and other financial inputs to carry out stewardship functions (BANES local authority workshop July 2024). My own work here has also raised a question of how we might improve Payment for Ecosystem Service schemes by building a more integrated meta scheme covering key ecosystem services including cultural ecosystem services associated with [visitor investment](#).¹⁹

4.7 Equity in mainstreaming nature

The impacts of nature-based and GI interventions are experienced differently by local, regional and international actors across different spatialities. Surprisingly, equity considerations represent a significant research and policy gap ([Mell and Scott, 2023](#)). In a US survey of urban plans it was found that 89% do not even define or address equity considerations ([Grabowski et al 2023](#)). Yet the spatial and distributional impacts of land use decisions affecting nature are significant as recognised in the “just transition” ([Johansson 2023](#)) concept for meeting climate change targets. For example, the protection of nature around sites to conserve biodiversity, sequester carbon and mitigate climate change may benefit more remote actors. But this protection of nature may limit access to natural resources, negatively affecting local human health and wellbeing as evidenced in work by [Bateman and Zonnefeld \(2019\)](#) around Newcastle on environmental net gains.

Significantly, of the few studies that have assessed nature and social outcomes of GI together, no schemes were identified that improved both, revealing a major challenge ([Garrett et al 2021](#)). [Tallent and Zabula \(2024\)](#) have developed a conceptual framework on equity for nature-based solutions on 5 core principles: recognition, participation, distribution, rights, and accountability. In their view, key to unlocking equity is the need for more comprehensive governance

¹⁹ A online presentation was given on this in July 2024 to the LEED initiative

frameworks including more diverse voices, perspectives and forms of knowledge. Equity and participation is also recognised in the IUCN Global Standard ([IUCN 2024](#)).

reviews. But, for the most part, the brainstorm reinforced the negative impacts of the entrenched policy and departmental silos.

Figure 11 captures the suggested solutions to this “wicked” problem. At the national level there was support for the application of Natural England’s Green infrastructure framework which has secured some buy in and legitimacy across government departments (e.g MHCLG).

At the local authority level there was recognition of the importance of nature being incorporated into [Infrastructure Delivery Plans](#) which perform a key strategic function in authority planning and delivery. Securing funding outcomes for nature was seen as a key advancement. Yet green infrastructure is often conspicuous by its absence in these plans. Hence an important and concerted action is required to secure that recognition, by impressing this point on both chief officers and cabinet-level councillors.

In order to achieve this, a focus on the business case was stressed. Examples of good practice with clear financial benefits are needed, together with the multidisciplinary aspects that can help challenge the silo mentality. There was also support for more environmental regulation to help make nature a mandatory consideration. The LNRS was seen perhaps as a missed opportunity in this respect, given that it has no statutory weight in planning policy at present.

In terms of governance there was support for a more integrated LEIP; to help integrate the diverse nature interests particularly around nature and climate/net zero. This also linked into an effective policy audit across the different strategies within a local authority to identify synergies and conflicts, also serving as a baseline upon which to improve policy responses and collaboration.

In terms of communication, it was felt that there still a major task to do in simplifying and adapting material to different audiences such as in the Sheffield example (Appendix 1). Mobile apps and videos were suggested, but importantly set within a much more coherent communication strategy. There was also recognition of the need for improved member training.



Figure 11: Selected Action points from breaking silos (Author 2024)

5.2 Harnessing community and publics as part of mainstreaming agendas

How can we better harness community and public voices as part of mainstreaming efforts?
 WHEN/WHERE? (stewardship/management/consultation/citizen science)
 What "bridges" can unite multiple publics; e.g. natural health service
 Good practice from existing work- what works? what does not?
 What mainstreaming success/failure stories are out there?



Figure 12: Harnessing community and public workshop initial brainstorm (Source Author 2024)

The results from the brainstorming break-out group are shown in Figure 12. They were broken down into skills, approach and examples.

In the skills aspect, the key messages were that effective community engagement takes time, with the need for both creative and deliberative approaches, which are rarely encountered. Here relevance and co-benefits were important foundations. A place-based approach was also highlighted within a training component which should be more focused on knowledge exchange.

Different target groups need different approaches based on their confidence and knowledge. The terms of initial engagement are crucial and often should be based on audiences' terms not the authorities'. The temptation was to take the line of least resistance and engage with the "usual suspects". Extra time and resources are needed to engage with more marginalised and deprived groups, which goes back to the importance of targeted communication strategies.

The examples in this workshop show that good practice exists, which serves an important social learning function. The importance of securing long term funding for community working is emphasized in the Summer Valley example. The role of designing and delivering pocket parks and community gardens highlights the importance of the neighbourhood scale in mainstreaming nature, set within careful expectation management. The integration of social prescribing with water companies as part of wider knowledge exchange identifies new partnerships.

Figure 13 highlights the action points emerging.

Actions

what? why? by whom?

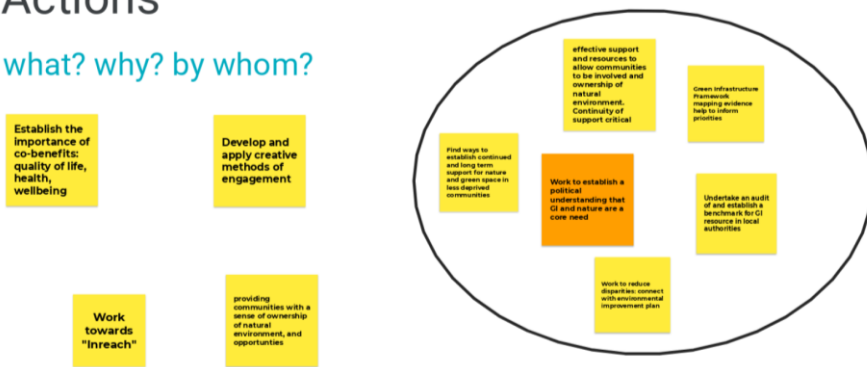


Figure 13: Actions from community and public workshop (Author 2024)

The actions reinforce the need for more creative methods of engagement; to optimise to avoid public consultation fatigue from multiple consultation events although statutory processes may hinder such integration. Here multifunctionality can be used to align and link across policy silos to ensure that engagement is more integrated where appropriate. This raised another issue in that all too often engagement is little more than limited consultation which rarely gives

participants a sense of ownership. To address this, engagement needs to start from the outset with affected stakeholders enabling co-design wherever possible as championed by Smith et al in the Oxford University [Nature Base Solutions Knowledge Hub](#). Set within the circle in Figure 13 there are important synergies with workshop 1 actions relating to policy audits of GI; to address the focus on short term funding through better presence in infrastructure delivery plans. The political understanding is a complex set of actions involving communication, training and support for both top down and community representatives.

5.3 How to mainstream the key ingredients to create better outcomes

Figure 14 reveals some of the key ingredients that are seen as vital for mainstreaming. Whilst key aspects such as regulation, communication, good practice examples, champions, skills, effective partnerships, multifunctionality, place-based context all feature as recorded elsewhere in the report, other factors such as tools and accreditation are also evident. Within the discussion there was a challenge to one-way communication, with a preference for knowledge exchange harnessing both technical (expert led) and local knowledge(s). It was felt that champions worked best when they were not environmental. The role of elected members was also seen as important for political champions in local authorities. One key point focused on how nature needed to be flagged as an asset in terms of the multifunctional benefits it provided. Interestingly, there was concern over how the “emergency” narrative was received in-house, with a more positive framing preferred.



Figure 14: Mainstreaming key ingredients workshop (authors 2024)



Figure 15: Mainstreaming key ingredients action points. (Author 2024)

The action priorities are highlighted in Figure 15. The key action is the need for good practice examples highlighting the added value of process and outcomes particularly with return on investment. Equally, however, there is the question of how we can be better at sharing good practice; going beyond the soundbites to ultimately deliver improved guidance. The integration of the different scales of governance was also influential in translating and targeting national government policy to local authority levels. Natural England's GI framework was seen as important here but needed to be tied more explicitly to planning frameworks. The place-based context was often overlooked but was seen as essential. A further dimension was evident to develop and build a safe space where the top down -community interface could be developed and exploited. It is here that the use of stakeholder analyses was important for both engagement and communication strategies. The action component highlights a significant participant question of who should be "the conductor of this multidisciplinary built environment orchestra", which seems to be unanswered and perhaps reflects a wider institutional gap. The need for improved guidance was recognised, but it is telling that there is no obvious candidate for providing it although the value of [Natural England's \(2023\) GI framework](#) needs to be recognised. This brings me to the final chapter where perhaps I stick my head above the parapet to translate this material into guidance.

6. Guidance for improved mainstreaming of nature.

This final section translates the results into a set of generic guidance for key players who wish to improve the mainstreaming of nature in policy and practice. This is targeted at local authorities and other agencies (national, regional or local) leading on nature/GI strategies or developing specialist tools or framework (e.g. [WSP Nature tool and Natural England GI framework](#)).

However, this is caveated by the need to recognise that there are actual and potential champions OUTSIDE the natural environment arena who are best charged with the delivery of some of these actions. These should be identified using stakeholder assessment processes.

Indeed, in my view mainstreaming occurs best when the champion(s); the person communicating the message is not working within the environment sector but is actually a representative of a targeted sector or influential politically and/or in a senior leadership role²¹. Thus, their voice has maximum impact. Below is a simple checklist of steps necessary to optimise the delivery of mainstreaming. Whilst the steps are presented in sequential order they should not be seen as such. These need to be undertaken collectively with the order being part of the decision-making context.

6.1 What is the core challenge you are trying to solve and what does success look like?

Having clear outcomes from the start in relation to a defined challenge or opportunity is often neglected leading to diluted and ad hoc responses. It is important to have a realistic and ambitious vision separated into short- medium- and long-term actions. At the heart of this lies the identification of indicators that will be used to measure progress from the outset, allowing adaptability in light of changing circumstances. This avoids the commonly encountered reactive evaluation bolt-on syndrome when one is asked for. Ideally this should be a collaborative process where the vision is co-developed with stakeholders identified from the steps below ([Scott and Kirby, 2024](#)). Identifying and working with key players to define your vision, actions and outcomes from the outset will undoubtedly maximise community and stakeholder buy-in; a core ingredient so often missing.

6.2 Audit the natural environment strategies and plans to integrate climate, biodiversity and health and wellbeing agendas.

Given the complexity of the natural environment sector, it is important to understand the state and direction of environment policy in both non statutory and statutory plans and, in particular, to undertake a policy audit of climate, biodiversity and well-being components. From the policy audit you should connect with key players to try and integrate the natural environment opportunities and challenges recognising that they share common roots and solutions.

Identify a possible mechanism(s) to help that integration, whether it be green infrastructure, nature-based interventions or LNRS set within the political and place-based context. Indeed, you may consider developing your own Local Environment Improvement plan in keeping with the [Broadway Initiative](#) recommendations.

²¹ See for example the [case study videos](#) presented by champions in the NEAT tree for mainstreaming ecosystem services into the planning system in 2014.

In this stage it is also important to identify the environment evidence bases that can be exploited. Unfortunately, they all exist in different portals and web sites and there is an opportunity for statutory advisers like Natural England to perhaps develop a unified platform, linked to their [GI Framework and Standards](#).

The following are examples of the most popular/common tools/resources used to support evidence base for the natural environment.

MAGIC stands for Multi-Agency Geographic Information for the Countryside. This website provides authoritative geographic information about the natural environment from across government.

The **GI framework interactive mapping tool** is an English Green Infrastructure mapping database (Natural England), bringing together data from around 50 sources of environmental and socio-economic data. It provides a baseline and assists local authorities and other stakeholders to assess green infrastructure provision, and contains useful mapping of GI provision against the index of multiple deprivation.

The **Natural Character Area Mapping tool** (Natural England) contains a mapping interactive profile which describes each of England's 159 National Character Areas (NCAs). Their boundaries follow natural lines in the landscape, which makes them a good framework for decision-making and planning for future change.

People and Nature Surveys for England gather evidence and trend data about people's access, understanding and enjoyment of nature, and how it contributes to wellbeing.

Natural Capital Atlas 2020/2021 provide an "off the shelf" natural capital evidence base for each county or city region which can be added to and built on.

Defra provide the **Local Nature Recovery Strategy data viewer** for Responsible Authorities and interested parties with access to national scale open data held by the Secretary of State for Environment, Food and Rural Affairs to assist in the preparation of their Local Nature Recovery Strategies (LNRS).

The **Environment Agency Catchment Explorer** provides information about the water environment and river basin management plans.

UK Centre for Ecology and Hydrology Land Cover maps 2021 datasets describe the UK land surface in 2021. These were produced by classifying satellite images from 2021. The 2020 and 2021 editions provide more detail than ever before, as a high-resolution 10m product is available. Depending on scale required there is free and paywall versions.

ORVAL (University of Exeter) reports values and visit estimates for existing and new greenspaces that are derived from a sophisticated model of recreational demand in England and Wales. These numbers are predictions of a model and not actual counts of visits to a particular greenspace or actual measures of the welfare which that greenspace provides.

At more **Regional and Local levels** a key source of environmental information is via the local environmental records centres offices (**ALERC**)²². However, I do not cover or suggest any other data sources at these levels. Detailed local maps can also be developed using

²² ALERC Association of Local Environmental Records Centres. <https://www.alerc.org.uk/>

the Agile Opportunity Maps, which are being used for LNRS development by several counties in England. [Mapping Opportunities : NbS Knowledge Hub](#)

A key open access resource will obviously be the evidence base provided for statutory development plans (e.g [Northumberland Council](#) is presented here as an example) However, given the timescale such evidence bases are likely out of date.

6.3 Conduct policy audits of extant plans and strategies where nature is important including infrastructure delivery plans and corporate strategy

Identify and map all relevant strategies and plans (statutory and non statutory) that are key to the delivery of nature. Be pragmatic to include key sectors/interests necessary for delivery. Of particular significance here are the strategic documents such as the corporate strategy and infrastructure delivery plans. Identify and assess existing policies highlighting areas of synergy, conflict as well as gaps. Identify key players involved in production of plans as part of a workshop to progress an initial analysis. Use the [GIPAT policy assessment tool](#) to provide a consistent assessment to your audit which will also provide a measure of current mainstreaming progress ([Scott and Hislop 2024](#)). The results from this stage serve as the foundations to identify opportunity areas particularly when other plans are being updated and/or reviewed.

6.4 Identify potential/actual champions across the built environment, political and community sectors

From the policy audit (6.3) and a wider [stakeholder analysis](#)²³ you can identify and prioritise the key audiences of interest to you. From these it is important to identify champions that you can work with to then communicate within their networks rather than try to do all the work alone. This enables you to build individual relationships and support networks which are more realistic goals. In a local authority setting it is important that councillors are involved in this process as well as senior officers outside the natural environment brief.

Success for this depends on developing your own communication strategy and spending time learning and understanding the priorities and vocabularies of your target audiences.

6.5 Identify the core priorities and blockages of sectors to optimise reciprocity and mutual understanding.

This phase is a key part of effective communication. Rather than try to sell nature in generic terms to a given sector or indeed to try to bring sectors together for the first time, it is important to understand the priorities and blockages within a particular audience(s) or group(s). The policy audit may well provide some initial answers but talking with individuals is key here to understanding their operational constraints and opportunities in practice. It is once you have

²³ There are multiple references to stakeholder mapping/analysis. It is important to use power and influence and interest to understand who are the audiences you are trying to capture.

spent time understanding these that you can then be creative to identify the hooks and bridges to effectively engage and address their priorities (6.6). These conversations can lead to identification of sector champions. My sense is that all too often groups want to do the hard sell of a particular concept on their own terms and technocentric vocabulary without taking the time to understand the world that their audience experiences. Lack of time is a key constraint in both camps here. This is compounded by the skills and training which means that many people are ill equipped to work in a transdisciplinary manner.

6.6 Identify hooks to engage a specific sector, or bridges if you are trying to bring together multiple audiences.

This stage builds on the solid foundations undertaken in all the previous steps (6.1-6.4) and provides the basis for initial engagement based on the outcomes of 6.5. I have used hooks and bridges building on my work in [Scott et al \(2018\)](#). To date most attention has been placed on identifying the hooks to engage a particular audience. This is important to engage specific sectors and/or groups whose voices are not usually heard or are hard to reach. The example of Sheffield highlighted how the hooks are different for each audience so as to make the use of nature-based interventions relevant to their priorities (Appendix 1). However, following this there is often a need to engage multiple audiences together to discuss and plan for nature, given its multifunctional credentials and potential benefits. Otherwise, there is a danger of perpetuating policy/sector silos. So, whilst hooks provide a useful starting point for initial engagement, they also need to be positioned within the wider bridges as identified in Table 1. One obvious danger here is that the bridges themselves may also become siloed. For example, net zero was seen as a powerful bridge but equally there was concern that net zero and biodiversity were currently operating in separate silos failing to maximise synergies. The example of the 8 Hills Regional Park where nature, climate, health and well-being combine

6.7 Identify and assess examples of good and weak practice in mainstreaming GI to maximise social learning.

A lot of reports/papers present examples of good practice, but they often summarise the case studies to their minimum components using small boxes and photos to capture key positives. However, these snapshots are rarely useful and are definitely not transferable; often hiding more than they reveal. Far better that case studies are presented as living labs ([Lupp et al 2021](#)) with open-source demonstration components making data and evidence available over the long term. The [LEAF demonstration farms](#) are a useful case in point here, actively encouraging social learning. The [Planning Advisory Service](#) is also valued and respected as an effective support service for planners and has provided important social learning and resources on environmental policy for planners. Appendix 3 provides a useful example of the formation of a [community of interest around biodiversity net gain](#) designed to address an emerging and urgent information need amongst the planning community. *“We have a practitioner network that any local authority officer interested in BNG can join. We host meetings every 6-8 weeks and have an online forum where members can post questions, discuss issues and share resources and information”*. The growth of online fora has helped engage wider communities of interest nationally, but resourcing such networks is time consuming and may not be valued by the employer. Other approaches to case study presentation are detailed in [Scott et al 2023](#), whereby case studies are presented in detail, highlighting the full journey and charting the

pathways to success, often with points of failure along the way. There's an added issue of how effectively to communicate such work including outputs such as this. Often brevity is stressed but this may result in soundbites rather than substance.

6.8 Establish partnerships and identify task and finish actions within joint workstreams

It is highly likely that some form of partnership will form part of any delivery effort. It is important to always examine first whether existing partnerships can be built upon or merged before building another partnership that will compete for time and resources and simply add more complexity to the extant governance framework. My own work on partnerships ([Scott, 2012](#)) revealed that all too often this is the case, and partnerships wane after initial enthusiasm due to lack of support, finance and leadership. Partnership is often seen as additional burdens to a job role so not sustainable. Furthermore, many are heavily tied to a particular time-constrained funding stream. To work effectively, partnerships need task and finish groups that hopefully can exploit the hooks and bridges to deliver multiple benefits, not only across policy silos but also within them. This more fluid approach means that partnerships may live and die according to need, but the key is to have structures and opportunities in place for cross-sector working so that nature does become more embedded.

In such process diagrams there is usually a bolt-on evaluation step at the end. However, evaluation works though all stages 6.1-6.8. It is only through regular evaluation including self-reflection that lessons can be learnt, and for me the key ones from this report are:

1. Don't be overambitious in what can be achieved in a single workshop or event
2. Make sure you have around the table the people who need to be there rather than those who are easy to secure attendance from.
3. Take time to understand the motives and priorities of your target audiences before trying to engage in any shape of form.
4. Engagement takes time and thus may need to be deliberative over multiple sessions. Keep them informed of progress after events and avoid the tick box and seagull syndromes²⁴. Approaches that work best are identifying how nature can help address specific groups priorities rather than delivering a standard presentation.
5. Mainstreaming is a process and outcome with multiple pathways. Beware of trying to change behaviour without putting in place the necessary buy-in and additionality first.
6. Failure is a good thing providing you learn from it when things do not work as planned.
7. The best environmental champion is not someone in the environment but maybe someone you know who actively works across different sectors and sees where nature fits in.
8. Work outside your comfort zone, push your own boundaries and take managed risks.

²⁴ The seagull syndrome is a form of engagement akin to a seagull where the researcher swoops in, shits and then flies off.

7. Appendices

7.1 Appendix 1

Scott AJ, Bader, E. and Dempsey N (2023) [Case studies of blue-green infrastructure in spatial planning](#) The ICE Manual of Blue Green Infrastructure. Washbourne, C. & Wansbury, C. (eds.). London: ICE Publishing, Chapter 16, 287-301

This [chapter Case studies of blue-green infrastructure in spatial planning](#) presents an in-depth exploration of three case studies involving the use and application of blue-green infrastructure (BGI) in the English and Scottish planning systems. Each case study reflects a different scale of project and different stages in the policy and planning cycles. The case studies feature a local plan development in the South Downs National Park, an integrated landscape-scale blue infrastructure masterplan project in Glasgow and a highway city-centre improvement plan in Sheffield. Each case study demystifies the role and benefits of BGI through a critical discussion identifying the common ingredients of good BGI. Some of these ingredients include inter- and transdisciplinary collaboration and engagement championing co-design and coproduction; strong and effective leadership within cross-sector partnerships with an appetite for innovation and risk taking. The results demonstrate the need for improved processes of engagement with relevant delivery partners from the outset, accounting for varying needs and priorities. While barriers identified include the need to better embed BGI in the business case and to move away from seeing BGI maintenance as a liability. Overall, the case studies challenge conventional wisdom that environment planning is a development constraint; instead, it is seen as an appreciating multifunctional asset, supporting regeneration and development.

7.2 Appendix 2

[Scott AJ and Hisop, M \(2024\) What does good green and blue infrastructure policy look like: A comparative assessment of UK national planning guidance, Urban Forestry and Urban Greening 99 128440](#)

[Supplementary data](#) is available showing the raw excel spreadsheets and scoring

This paper evaluates the potential of a Green Infrastructure Policy Assessment Tool (GIPAT) by assessing national planning guidance across all four devolved UK nations. National planning guidance is a key material consideration to the formulation and implementation of green infrastructure (GI) policies in statutory development plans and decision-making. Hitherto, there has been a lack of holistic assessments of GI policy in spatial planning with most attention on specific developments. GIPAT was informed by three GI initiatives; - Building with Nature, Central Scotland Green Network and Mainstreaming GI, supported by a global academic literature to address key multifunctional and mainstreaming components within 26 assessment criteria. The tool assessed, with justification, how well national guidance met the assessment criteria, together with the strength of policy wording. The results reveal a significant weakness in policy wording across all countries highlighting GI vulnerability. In terms of coverage, biodiversity and ecological networks generally score well but there are deficiencies in stewardship, blue infrastructure and mainstreaming demanding greater policy attention. There are important implications for development plan policy(ies) highlighting the need for greater integration of grey, blue and GI and improved mainstreaming as illuminated through exemplar

policies. We recommend the use of Green Blue Infrastructure (GBI) to address the blue deficiency. The paper concludes with a discussion about GIPAT's wider transferability and the need for greater research into how policies are translated into development plans and decision-making.

7.3 Appendix 3

Biodiversity Net Gain: the role of Planning Advisory Service. Moberley R (2024)

Addressing the challenge of introducing a new approach with a lack of a clear framework

Mandatory Biodiversity Net Gain for development under the Town and Country Planning Act was brought in by the Environment Act 2021, but the Act itself provides very little on delivery of BNG through the planning application system. The enabling secondary legislation was not published until November 2023, with BNG becoming mandatory for major development from February 2024. The Planning Advisory Service (PAS) was contracted by Defra in March 2021 to work with local planning authorities (LPAs) to help them prepare for mandatory BNG. However, with little detail on how the mandatory system would work available for the first 2.5 years of the project, it was a challenge to know how to do this. This was also set in the context of a lack of resource and expertise in most LPAs.

Taking a proactive approach to moving forward without all the detail

By 2021, a growing number of LPAs were introducing a requirement for BNG via Local Plan policies and Supplementary Planning Documents (SPDs), BNG having been encouraged through the National Planning Policy Framework (NPPF) for a few years. Whilst LPAs were not always developing approaches that were completely consistent with the approach introduced by the Environment Act, there was a huge amount of learning from those already doing BNG and those developing a BNG approach around: what worked and what didn't, what was needed and what wasn't. Given the resource and expertise constraints in LPAs, it made sense to share this learning, as well as all the resources being developed by LPAs, for others that were further 'behind' on the journey to use. In addition, whilst Government information on the new BNG system was not available publicly, guidance, policy and legislation was being developed by Defra, DLUHC and Natural England on how the system would work. It was key to get information on important aspects of the mandatory BNG approach out early to ensure that, wherever possible, LPAs developing approaches did this in line with the mandatory framework.

PAS developed a set of Frequently Asked Questions (FAQs) in Autumn 2021 that was updated as the project went along to allow this key information to get out there. We also shared examples from LPAs through our webpages. However, many of the LPA approaches were at early stages, so did not have information that could be shared in the public domain. In addition, LPAs were at very different stages in terms of their understanding and 'journey' towards implementing BNG, which made a 'one size fits all' to sharing learning approach impossible.

Setting up PAS BNG Practitioner Network

PAS decided that the best way to meet this need was to set up a network for LPA officers. This started out as a series of meetings on key topics of interest for a group of officers that had expressed an interest via previous PAS BNG events and workshops. However, it soon became apparent that the amount of information to be shared and questions being asked could not be managed by the single full-time equivalent on the PAS project. So PAS decided to set up an online forum for the network using an online collaborative platform, Basecamp. The network

was open to any LPA officer interested in BNG, as well as those from outside LPAs that have a service-level agreement with one or more LPAs to provide ecological advice. It was intended as a 'safe space' where any questions about BNG and how to do it could be asked without judgement. The network grew in popularity rapidly amongst LPA planners and ecologists, as well as a smattering of other LPA staff, including finance officers and lawyers, often via word-of-mouth. While the introduction of BNG was beset by delays to key information from Government, the known introduction deadline and significant concern around this helped the group coalesce. In October 2024, there are over 1200 officers in the network, supported by a fortnightly drop-in session and frequent events on key topics and issues.

How did the network help?

LPAs further on the 'journey' towards implementing BNG were able to easily share their thinking without it being in the public domain. This encouraged those further behind to get started and gave them resources and information on how to do it. The range of different LPAs on there allowed those with similar issues to share learning, knowledge and thinking.

Being part of a network gave officers confidence to get on and start preparing for BNG despite the lack of detail on the mandatory system from Government. The network also allowed information to be shared quickly and easily between Government departments and agencies and LPAs as drafts and early insights. It also allowed PAS to compile issues and common queries to pass back to those developing the policy. The network provided a place where PAS can test resources. For example, it was used to great effect in developing the "[BNG readiness checklist](#)", produced in Summer 2023 as hugely helpful resource for LPAs in preparing for BNG.

Lessons learnt

- The best way to get on and make things happen in a space where you do not have all the information you need is to learn from others doing something similar.
- You will usually only learn what is needed for a new approach to work if you actually do it.
- Management of a network involves a lot of time and resource if it is to be a success.
- Just learning that you are not the only one struggling to do something can actually be hugely positive and make you feel less despondent.