Mainstreaming Nature-based Solutions

Collaboration Workstream

Scoping Report

Sept/2024
Revision: v0.3

Issue & Revision Record

Revision	Date	Author	Description	Checked by	Approved by
v0.3	12/09/2024	Alex Lane, Izzy Radley	Workstream note for partner comment	Frankie Irvine	Granville Davies

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1. Context

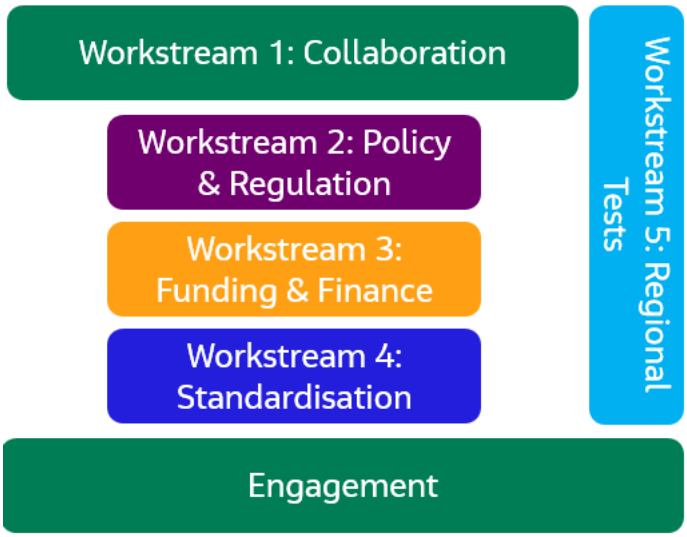
The Mainstreaming Nature-based Solutions (NbS) programme is a five-year programme funded by the Ofwat innovation fund (under the Transform Stream). It began in September 2023 and will run through four phases until September 2028.

NbS have the potential to provide many socio-economic and environmental benefits by tackling flooding, drought, water quality and other issues. The Mainstreaming NbS programme brings together multi-sector expertise to identify, create and test new solutions to remove barriers to NbS through regional tests. Working with 22 partners including water companies, regulators, consultants and non-governmental organisations (NGOs), it aims to ensure that the delivery of NbS becomes business-as-usual, in turn enabling the delivery of greater value for people and the environment.

The Collaboration Workstream is one of five workstreams that make up the Mainstreaming NbS programme (see Figure 0-1). Workstreams 1 to 4 will develop potential solutions that are then applied iteratively in regional tests in different regions of England as well as Wales and Northern Ireland (Workstream 5).

The Collaboration Workstream (Workstream 1) is an umbrella workstream that aims to address the current lack of a strategic direction for the water and environment sector in relation to NbS, and to enable a national coordinated approach to NbS decision making and partnership working. It recognises that the mainstreaming of NbS cannot be achieved by a single organisation working in isolation, but rather that organisations need to work together with a common vision to understand challenges, develop solutions, implement projects and sustain them into the future. These principles are also reflected in several of the criteria of the 2020 IUCN Global Standard for Nature-based Solutions.

Through initial engagement with partners, a series of requirements and ideas to mainstream NbS have been identified and are being explored by workstreams 1 to 4. The need for one output, a common total value framework, has already been defined and this is under accelerated development so that it can be ready for application as part of the 2029 price review (PR29).



Note: In addition to a focus on collaboration, Workstream 1 also includes activities related to how the programme engages with stakeholders. This aspect of Workstream 1 is not discussed in this scoping report.

Figure 0-1: the workstreams of the Mainstreaming NbS programme

The Mainstreaming NbS programme has a series of intended outcomes linked to a Theory of Change developed by the partner organisations. Workstream 1 has direct or indirect links to all six intended outcomes (

Table 0-1). The Theory of Change is a live tool that will be updated throughout the programme as more information and insight becomes available.

Table 0-1: intended outcomes of the Mainstreaming NbS programme and relationships to Workstream 1

Intended outcome of the Mainstreaming NbS programme	How Workstream 1 supports the outcome
Increased sector-wide and cross-sectoral collaboration in support of NbS	Direct link • Better understanding of how to engage stakeholders • Potential to develop guidance to form and sustain collaborations • Input to regular communications and awareness raising
Cultural shift in support of NbS	Direct link • Better understanding of what constitutes a cultural shift and how it can be achieved in different stakeholder groups • Input to regular communications and awareness raising • Partner and wider interviews to assess changing perceptions
Greater long-term financial flows from a wider range of sources to fund NbS projects	Indirect link • Better understanding of how to involve investors in collaborations
Tools and processes adopted which support greater uptake of NbS	Direct link • Potential to develop guidance to form and sustain collaborations
Increased confidence and expertise in the planning, implementation, maintenance, monitoring and valuation of NbS	Indirect link • A framework for effective collaboration could give confidence that change will happen
Regulatory changes which drive greater uptake of NbS	Indirect link • Findings may stimulate regulatory change to encourage / mandate wider collaboration

This scoping report reflects on and summarises recent and ongoing work within and outside the water sector on the topic of collaboration in support of NbS. In so doing, it aims to set the context for a further, more detailed phase of analysis to identify actions and potential solutions which could be applied in the regional tests (Workstream 5).

To compile this scoping note we have reviewed existing and past initiatives related to NbS, reviewed insights on blockers to NbS identified by the programme partners, and convened follow-up discussions with several partners to further explore their observations and experiences.

The remaining sections of this scoping report are structured as follows:

- A review of other initiatives and programmes of work related to NbS, with the intention that the Mainstreaming NbS programme learns from and builds upon existing evidence.
- An analysis of what constitutes a 'cultural shift' (one of the needs identified by partners) based on an initial consideration of what might constitute a cultural shift for NbS.
- A reflection on blockers and success factors for collaboration in the delivery of NbS.
- A presentation of next steps for this workstream.

2. Existing NbS initiatives

2.1 Context

NbS are a popular topic for research and increasing the adoption of NbS is a widespread aim of environmental initiatives. As such, a number of existing programmes of research focus on the topic of NbS.

We used internet searches and discussions with programme partners to understand what existing and recent initiatives related to NbS exist. We also reviewed those initiatives to understand their focus areas and findings (where available).

In undertaking these activities our ambition was to improve our ability to learn from and build upon existing research so that the Mainstreaming NbS programme focusses on remaining gaps and harnesses existing available evidence.

2.2 Findings

We found 18 initiatives related to NbS, 10 of which are ongoing. The eight completed initiatives date from 2016 to present. Annex A lists the initiatives we reviewed.

All the initiatives we reviewed involve multi-stakeholder partnerships. Academic institutions, government bodies and environmental NGOs are most frequently involved. There was limited involvement from the private sector, mostly from UK water companies and consultancies.

Funding for the initiatives is primarily grant-based. Notably, the European Commission Horizon Programme provided a significant source of funding for most of the initiatives reviewed (e.g. Connecting Nature, CLEVER Cities, and Urban GreenUp). Other sources of funding include the Ofwat innovation fund and funding from various trusts.

By reviewing the initiatives, we were able to understand the challenges to the widespread uptake of NbS they identified and the success factors they explored. Figure 2-1 presents a summary of this information, focussing on the key challenges and success factors. It shows that the frequently identified challenges for NbS broadly align with those this programme (all workstreams, not just Workstream 1) is seeking to address. It also shows that the workstreams of this programme are focussed on a similar range of success factors to the other initiatives. This means there should be learning to take from the initiatives and insight we can draw on.

The initiatives we reviewed identified four main challenges to the more widespread uptake of NbS:

- **Standardisation** – particularly in relation to benefits. The initiatives identify many NbS projects measuring social, economic, and environmental benefits, but typically in different ways.

  Example initiatives: Connecting Nature, Nature4Cities, Urban GreepUP.

- **Implementation (with partners and across sectors)** – challenges associated with implementing NbS projects which require multiple stakeholders, sometimes in different sectors to work together.

  Example initiatives: Agile, Clever Cities, Cities with Nature.

- **Sustaining NbS projects over the long term** – difficulties include monitoring and data collection, funding for monitoring and maintenance, and sustaining partnership working over the longer term.

  Example initiatives: Naturvation and Clever Cities.

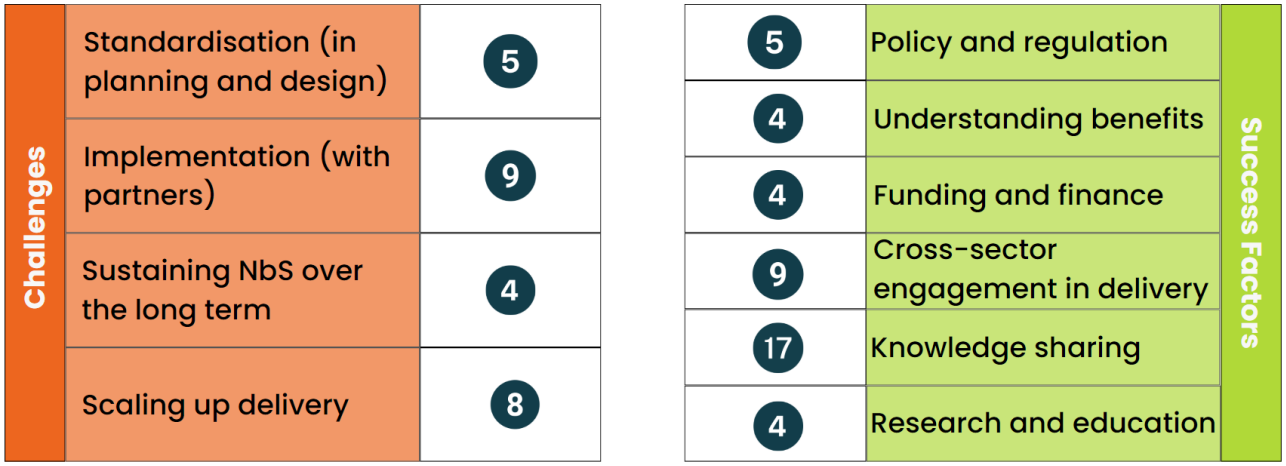
- **Scaling up delivery** – the specific nature and design of NbS is location dependent and so scaling up NbS to other locations can be challenging.

  Example initiatives: Connecting Nature, Nature4Cities.

The findings and outputs from the initiatives take several forms including guidance notes, case studies, and spatial datasets. Several initiatives produced similar outputs.

Most of the initiatives were focused on urban areas specifically. There was less focus on rural areas or on implementing NbS across landscapes (i.e. across urban and rural areas in an integrated way).

Across the initiatives we reviewed, six broad success factors were identified to address the challenges. These cover the need for improved policy and regulation, a better appreciation and assessment of the benefits of NbS, improved multi-stakeholder and cross-sector working (there was a strong focus on the need for co-creation of solutions across the initiatives), knowledge sharing and education, and improved access to funding.



Note: symbol indicates number of initiatives linking the blocker and success factor.

Figure 0-1: blockers and success factors for NbS from other initiatives

3. A cultural shift for NbS

Through the other workstreams of the Mainstreaming NbS programme, we are investigating if and how changes in policy and regulation (Workstream 2), finance and funding (Workstream 3) and standardisation (Workstream 4) can support the wider uptake of NbS. One output, a common total value framework, has already been identified as an important requirement and work is underway to develop it.

It is the view of programme partners that in addition to these efforts, a broader cultural shift is required so that NbS are seen as the default option for a range of water and environment challenges and that their delivery is enabled and supported at all levels of decision making.

Cultural shifts describe changes in beliefs, values, customs, and behaviours that shape the identity of groups and organisations. Cultural shifts can be gradual or sudden, and can be driven by technological advancements, political change, or major natural or human-induced events. Examples include the rise of social media, the awareness of plastic pollution, the rapid shift to remote working associated with the COVID-19 pandemic, and the recent attention directed towards storm overflows and the health of waterways.

Rare and The Behavioural Insights Team (2019) explain that the majority of efforts to address environmental challenges have tended to be top down, relying on regulations, financial incentives or disincentives, and awareness raising. They highlight that whilst these levers have an important role, greater focus should be directed towards how our cognitive biases, emotions, social networks, and decision-making environments influence our behaviours.

For the objectives of the Mainstreaming NbS programme to be realised, we need to understand in what organisations and/or sectors of society cultural change is required. In this context, it is useful to consider three levels at which action can be taken:

- **Downstream:** the public and the way individuals and groups behave.
- **Midstream:** the activities of businesses, local authorities and other organisations, including how they shape and present choices to the public.
- **Upstream:** the policy and legislation under which organisations operate and society functions.

Rare and The Behavioural Insights Team (2019) propose 15 strategies to change behaviour, grouped into three categories: motivate the change; socialise the change; ease the change. These strategies can be considered in the context of the three scales of action to identify potential levers of change in each context.

The following subsections consider which of the three scales (Upstream, Midstream, Downstream) we could focus on to achieve greater uptake of NbS.

3.1 Downstream

Although individuals can physically install some NbS on and around their homes (green roofs and raingardens for example), the majority of NbS will be delivered by organisations operating at larger scales. The direct agency of the public to mainstream NbS is therefore perhaps lower than for other environmental initiatives (reduced use of plastics for example). However, the public are the ultimate beneficiaries of NbS and they still have an important role to play by advocating for

and supporting campaigns, policy and ideas which promote NbS. They therefore need to understand the benefits of NbS (against any trade-offs) and recognise how the delivery of NbS aligns to their values and interests.

Although most efforts to enforce or promote environmentally-beneficial behaviours are built on a rational account of human behaviour (Department for Transport, 2011), social psychology and behavioural economics emphasise the power of social influence on individuals' actions (the actions and expectations of peers and cultures) and the manner in which choices are framed and presented. A range of factors influence behaviour: attitudes, emotions, social, cultural and moral norms, structural factors, cost, habit, knowledge and awareness, capability and self-efficacy (Department for Transport, 2011), and these should be considered when attempting to encourage change.

Research by Mitev *et al.* (2023) on the implications of behavioural science for effective climate policy provides some useful conclusions on which thinking for NbS could draw. They highlight the potential role of co-benefit framing whereby to boost policy support, policymakers communicate information about the co-benefits of a policy. This might be important for NbS as one of their major advantages is to deliver multiple benefits. The research flags that policymakers need to acknowledge that a person's preferences for co-benefits will depend on their individual priorities (e.g. health, environment) and therefore co-benefit framing needs to be tailored to the population in question, or a focus placed on multiple co-benefits (Mitev *et al.* 2023). Approaches to encouraging behavioural approaches work best when they are focused on specific behaviours and are highly tailored to specific groups.

A Recipe for Engagement in NbS has been produced by Hafferty *et al.* (2023), supported by the Nature-based Solutions Initiative and Agile Initiative (see Annex A). It encourages practitioners to first consider the What, Why, Who, How and When of engagement and then to work through nine key ingredients to engagement. Several of the other initiatives in Annex A have also produced co-creation principles for NbS (Connecting Nature, UrbanByNature, Network Nature, Clever Cities for example).

Of the strategies proposed by Rare and The Behavioural Insights Team (2019), those focussed on the **motivating the change** category appear most suited to the Downstream scale. These include:

- Leverage positive emotions such as pride, self-efficacy and gratitude rather than negative messaging such as fear.
- Frame messaging to personal values, identities, or interests to show the benefits of NbS.
- Personalise and humanise messages.

3.2 Midstream

Most of the efforts to design, deliver and maintain NbS will occur at the Midstream scale. For NbS to become the default option, they need to displace and/or work with traditional solutions (typically grey infrastructure). To design and deliver those traditional solutions, many of the asset-intensive organisations and sectors that have a significant influence on our environment have developed strong and deeply embedded decision-making frameworks. The staff that work for these companies have applied these decision-making frameworks for many decades, influencing their ways of working and inherent behaviours. As such, significant organisational

change is required to enable NbS to be considered and assessed on a level playing field. Aspects to consider include:

- Change inertia – grey solutions are familiar and the easy option.
- Traditional grey infrastructure is more likely to be able to be delivered in isolation, with less involvement from other stakeholders – this is easier. There is often a cultural disconnect between different organisations working in catchments (Mijic *et al.* 2022).
- Approaches to option assessment and costing are largely based on grey infrastructure and might not be suited to NbS.
- Understanding of and willingness to accept risk may need to change – risk sharing frameworks are being explored under Workstream 4.
- A perception (real or otherwise) that regulatory systems do not adequately support NbS.

There is a large volume of research into organisational change and a widespread appreciation that organisational culture trumps strategy. Many models of organisational change emphasis the need to create a sense of urgency (Kotter, 2012 for example); a 'burning platform' to force the adoption of new ways of working. Such an approach is fear based and other authors have guarded against it. Ward (2014) argues for an alternative that leverages the fact that organisations rarely have one culture, but rather that that they a diversity of cultures. This means there is a good chance the desired culture is already present in a team or group of individuals and the challenge is therefore to build off and propagate this example.

Of the strategies proposed by Rare and The Behavioural Insights Team (2019), those focussed on the **socialising the change** and **ease the change** categories appear most suited to the Midstream scale. These include:

- Promote the desirable norm - in relation to the role of behavioural science in land use and farming, Mitev *et al.* (2023) found that a focus on social influence was important. It recommended that Government should employ policies that use social norms techniques such as peer-to-peer learning or demonstrations.
- Increase behavioural observability and accountability – more transparent and easily-accessible data. Learning could perhaps be drawn from the public focus on storm overflows and how this has been stimulated by and encouraged improved data. The risks of data misinterpretation should also be considered.
- Encourage public and peer-to-peer commitments – for example from water companies and local authorities.
- Make it easy by removing frictions – for example associated with regulatory requirements for NbS.
- Provide support with planning and implementation of intentions – mechanisms to connect stakeholders and access funding for example.
- Simplify messages and decisions – action in relation to regulatory requirements and expectations may be particularly important for NbS.

3.3 Upstream

A variety of legislation, policy and guidance from government departments and environmental regulators influence the scale and rate of adoption of NbS by organisations (Midstream) and the support of the public (Downstream).

Workstream 2 of the Mainstreaming NbS programme is exploring how policy and regulation needs to change to mainstream NbS. This will include how different policies could better work together to provide a national steer on NbS. A clear vision for NbS at the national-level and more coordinated steer on the role of NbS in legislation, policy, strategy and plans is also important. This is acknowledged in Section 4.

The Mainstreaming NbS programme is also analysing the current price setting process in the water sector (PR24) to understand lessons for the delivery of NbS.

3.4 Takeaways for the Mainstreaming NbS programme

- Programme partners agree that a broad cultural shift aligned to a common vision is needed to mainstream NbS.
- Given the ways in which NbS are delivered and the scales at which this programme aims to see them implemented, changing the culture of organisations, regulators and politicians appears to have greater potential influence than culture change in the public.
- Notwithstanding this point, action at all scales is needed to mainstream NbS. The potential strategies outlined by Rare and The Behavioural Insights Team (2019) can be used as a framework to develop ideas and initiatives.
- At the Downstream scale, opportunities to raise awareness of and support for NbS include engagement that leverages positive emotions, aligns to personal values and emphasises co-benefits.
- At the Midstream scale, there is a need to disrupt traditional ways of working and decision making processes that were designed for grey infrastructure.
- At the Upstream scale, policy and regulation needs to be refined to influence the scale and rate of adoption of NbS by organisations (Midstream) and the support of the public (Downstream). This is being addressed by Workstream 2.

4. Blockers and success factors for collaboration to delivers NbS

In addition to the need for a cultural shift, our analysis to date and discussion with Mainstreaming NbS partners has identified several other themes related to collaboration that we think warrant further investigation. Additional themes may be identified in subsequent phases of the programme.

- **Why collaborate?** – collaboration is a benign and frequently used term but what does it really mean and is it always right to collaborate? We need to understand when this approach is and is not appropriate.
- **Working together at the regional scale** – governance structures that encourage and support stakeholders to work together are lacking at the regional scale and this is important if we want to achieve landscape-scale change. They need to be supported by national steer and a common vision for NbS.
- **Sustaining multi-stakeholder initiatives** – NbS need time for their wide ranging benefits to be realised. We therefore need to ensure multi-stakeholder initiatives are effectively sustained.

The following sub-sections consider each of these themes in turn.

4.1 Why collaborate?

Studies of collaboration in management extend back 50+ years. A range of definitions of collaboration have been presented (Gray, 1989; Bardach 1998, Romero, Galeano and Molina 2009; Castañer and Oliveira 2020) however the term can be broadly summarised as two or more parties working together to address shared objectives and deliver mutually beneficial outcomes.

Several authors have proposed that collaboration exists on a scale. Selden, Sowa and Sandfort (2006) consider that collaboration lies on a continuum between co-operation through co-ordination, collaboration and then to service integration. The Tamarack Institute (2017) defines a 'collaboration spectrum' which links competition at one end with integration at the other (Figure 0-1).

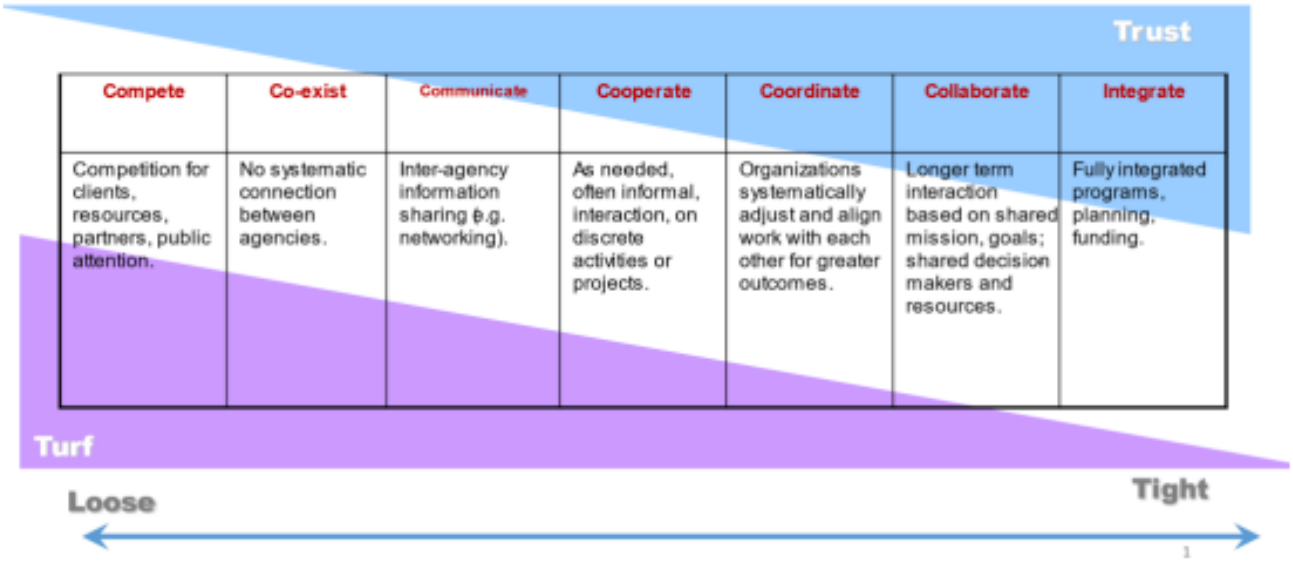


Figure 0-1: the collaboration spectrum (Tamarack Institute, 2017)

In these models, true collaboration requires different stakeholders to work together to understand challenges and develop solutions. Collaboration therefore requires common ways of working that take time to develop and embed. Effective collaborations also require trust, something that is time-consuming to establish but can be damaged very quickly. In fact, because true collaborations are resource intensive and take time to establish and refine, Huxham and Vangen (2004) guard against working collaboratively unless it is required.

Table 0-1 summarises the characteristics at each of the stages of a way of working continuum. It is not intended to be definitive, but rather to highlight how approaches other than collaboration might be suited to certain situations.

Table 0-1: Different ways of working

Way of working	Characteristic	Suited to
Competition	Entities working in isolation to secure benefits at the expense of others.	Situations when a market can be established.
Cooperation	Occasional and often informal interaction.	Discrete activities which have little interaction with each other.
Coordination	Alignment of activities such that stakeholders work separately to achieve a goal together.	Where common goals can be established and when a solution can be defined and activities are known.
Collaboration	Working together to address shared objectives and deliver positive and mutually beneficial outcomes.	Where common goals can be established but where problems are ill-defined and when solutions are unknown.
Integration	Fully integrated programmes, planning and funding.	Longer-term opportunities to work together that justify the effort in developing single processes and procedures.

Collaborations tend to be well suited to situations where common goals can be established but where problems are poorly defined and solutions unknown. They require advanced skills such as building trust, creativity, innovation, and effective conflict resolution.

In contrast, coordination is characterised by stakeholders working separately to achieve a shared goal. It requires a clear process for execution and accountability. As an example, the National Framework for Water Resources (2020) sets out the need for regionally-coordinated planning. Supported by other policy and legislation it has an emphasis on integrated, multi-sector supply and demand planning that reflects all elements of water management including public water supply, other water users including agriculture and industry, flood defence, environment and landscape management, and support to housing development and economic growth (Baringa and Mott Macdonald, 2022).

In contrast, competition can be effective in situations when a market can be established for particular goods or services. The efforts to establish nature markets are a good example but highlight the difficulties involved, for example where nature is undervalued leading to inefficient

use. The Taskforce on Nature Markets (2023) concluded that one part of the solution to the climate and biodiversity emergencies is to accurately and consistently price the value of nature in economic decision making across the global economy to incentivise nature-conserving market behaviour. A common total value framework is being developed as part of this programme. The mobilisation of finance to support NbS is being considered by Workstream 3.

Understanding when to collaborate, or when an alternative way of working together might be more appropriate necessitates that stakeholders understand why they might need to work together and that they are honest about what their individual and collective ambitions are. Processes such as participatory systems mapping could be helpful in this respect. This process records how, from multiple stakeholder perspectives, different systems function and how they interact (Mijic, A. *et al.* 2022). On a given project, there might be phases of work during which a collaborative approach is suitable and others where another way of working is more appropriate (coordination for example).

Where collaboration is identified as the most effective way of working, a next step is to consider the factors that enable collaborations to flourish. Antecedent conditions for effective collaborations include foundations like shared goals, trust and leadership. Processes that will help collaborations function include things like communication protocols and governance frameworks. A comparison of frameworks for understanding collaboration is presented by Bryson, Crosby and Stone (2015). Most frameworks are presented as comprising a series of elements which create these necessary antecedent conditions for collaboration, and processes required for effective collaboration.

Huxham (1996) outlines a series of stages for successful collaboration which comprises a total of 20 steps. These begin with consideration of why organisations should collaborate, who is involved, expectations, vision, goals and objectives. Focus is then placed on linking stakeholders to objectives, what each stakeholder can contribute, how new stakeholders are identified and the use of incentives and rewards. Later steps include governance, leadership and administration of the collaboration, barriers to progress and how they can be overcome, training requirements, and publicising the collaboration. The final steps focus on funding requirements and how progress will be monitored.

Takeaways for the Mainstreaming NbS programme:

- Collaboration is not always the most effective way of working. Stakeholders in NbS projects need to be able to identify which ways of working are most appropriate to their situation.
- The establishment of collaborations needs to consider the factors and processes that will enable them to flourish and be sustained. Shared goals, trust and leadership are important foundations.

4.2 Working together at the regional scale

Several Mainstreaming NbS programme partners have identified the important role that NbS can play in supporting transformation at regional or landscape scales. At this scale, a large number of stakeholders from multiple sectors need to come together to help define common goals, fund initiatives and programmes of work (as opposed to individual schemes) and deliver integrated solutions. This is made challenging by limited governance at regional scales.

At is also hampered by the lack of common vision for NbS at a national level, and the lack of a coherent steer from legislation, policy, strategy and plans in different sectors. NbS provide a wide

range of benefits and are therefore valuable tools for improving environmental health and providing societal benefits at broad scales. The need for a national steer applies to aspects of all of the programme's workstreams.

In contrast to the limited extent of regional land and water governance, catchment scale governance is fairly mature. Catchment partnerships are active in each of the 100+ Water Framework Directive (WFD) catchments across England, including those cross-border with Wales. Their development has reflected a gradual trend over several decades, influenced by the WFD and supported by Defra's catchment based approach (CaBA).

CaBA focusses on convening a wide range of stakeholders to manage land and water in an integrated way to deliver multiple benefits. Mainstreaming NbS partners identify that with more resources and a clearer mandate, CaBA could convene the full range of appropriate stakeholders as the basis for local coordination of land and water management. Bromwich, Crilly and Banerjee (2022) identify that CaBA has not realised significant changes in catchment characteristics and that private-sector engagement in the process has been patchy at best.

A report by Natural Course (2021) found that whilst partnership working in land and water management has helped identify trade-offs at these local scales, they do not sufficiently influence regional level planning. As such, catchment insights fail to drive the strategic decisions which direct investment in the water environment (i.e. through Environment Land Management Scheme, Flood Defence Grant in Aid, and the Water Industry National Environment Programme). Bromwich, Crilly and Banerjee (2022) explain that although the catchment is the key system boundary for flooding and water quality, business operates at larger scales. As an alternative, they explain that in France, water parliaments for each of the six main river basins are used to aggregate catchment perspectives. They provide a coordinating body at basin level that reflects government, agricultural, municipal and business concerns.

The WWF's Wholescale approach also acknowledges how interconnected our land, rivers, estuaries coats and seas are to the socioeconomic systems that affect and are affected by them. It comprises criteria to guide project design and implementation with the aim of maintain a balanced approach in tackling nature recovery, climate change and supporting sustainable communities, maximising synergies and identifying and managing trade-offs

The limited extent of regional governance has been identified as a 'missing middle', a term that has also been used to describe a lack of private sector involvement in land and water management (at all scales). Mainstreaming NbS partners have identified the need for a convenor to bring together regional organisations to identify funding opportunities aligned to regional priorities. Natural Course (2021) identify that priority should be directed towards governance which integrates water into the local economy, creating a more joined-up governance landscape.

Local Nature Recovery Strategies (LNRSs) are currently being prepared for 48 regions covering the whole of England (largely aligned to county boundaries) and could be one scale to focus refined governance on. They appear to be a key strategy aligned to government policy; amendments to the Levelling Up and Regeneration Act mean that all local planning authorities have a duty to take account of their relevant LNRS.

The Landscape Recovery initiative has potential synergies with LNRSs. Landscape Recovery is one of the three schemes under the government's Environmental Land Management approach and is focused on long-term, large scale projects (over at least 500 hectares) to enhance the natural environment

The first competitive Landscape Recovery round was run in 2022 and awarded funding to 22 projects collectively covering over 40,000 hectares. The majority of the successful projects involve groups of land managers and farmers, including tenants, working together to deliver a range of environmental benefits across farmland and rural landscapes. They aim to restore over 400 miles of rivers and protect and provide habitat for at least 263 species.

The second round is now complete and will fund projects that support net zero, protected sites, and wildlife-rich habitat. Successful projects progress through a staged series of phases, with the final implementation phase likely to run for more than 20 years. All private land managers and landowners were eligible to apply. Public bodies could also apply, but only in collaboration with private land managers.

It is the view of Mainstreaming NbS programme partners that more could be done to align Landscape Recovery projects with LNRSs, by requiring one to consider the other for example. This observation is symptomatic of the lack of alignment between initiatives and projects at regional scales.

Acknowledging this problem, Natural Course (2021) advocate for the county scale as the appropriate scale for regional governance citing it as the driving force for the economy and for nature recovery. Catchment boundaries cross county ones and so a coordinating structure would need to sit above and support the co-ordination that already happens at a catchment level.

The 10 river basin management plan areas could also be an appropriate scale for improved regional governance. Under the WFD Regulations, a river basin management plan (RBMP) must be developed by the Environment Agency for each river basin district and reviewed and updated every six years. These plans were first published in December 2009. They were updated in February 2016 and December 2022. The plans will be reviewed and updated again by December 2027.

Under the RBMP Guidance, the Environment Agency should work with other public bodies to strengthen links between river basin planning and other relevant planning processes and strategies, especially for those plans which have a statutory basis (for example development plans, the flood risk management plans developed by lead local flood authorities, local flood risk management strategies, LNRSs, water resources management plans and drought plans).

New regional groupings at the river basin scale could include local authorities, Regional Flood and Coastal Committees, regulators, regional businesses, water companies, food supply chain businesses, financial institutions, water resource groups and NGOs, along with agreed representatives of the Catchment and Coastal Partnerships in the region. Such an approach could also align to and enable a more outcomes based approach to water regulation, as explained and advocated for by Frontier Economics (2021) in its report commissioned by Wessex Water.

Takeaways for the Mainstreaming NbS programme:

- Catchment insight has limited influence on governance and alignment of objectives at regional scales.
- Mainstreaming of NbS could benefit from a convening of organisations at a regional scale to identify opportunities aligned to regional priorities.

4.3 Sustaining multi-stakeholder initiatives

NbS deliver a wider range of benefits than traditional grey infrastructure however these benefits often take longer to accrue.

Whereas grey infrastructure benefits are typically realised upon construction and commissioning, for NbS, the benefits are partly realised once the NbS is delivered but grow and widen as the solution matures and is used and experienced by people. Navigating this maturing phase requires ongoing management, monitoring and collaboration between stakeholders, aspects that are often overlooked.

Understanding how the initiatives that delivered NbS can be sustained in to the future is therefore important and has been identified by a range of Mainstreaming NbS stakeholders. Aspects to consider include:

- Funding and delivery of ongoing monitoring.
- Funding and delivery of maintenance.
- Sustaining engagement with multiple stakeholders and local communities.

Long term partnerships and/or agreements for NbS are rare but the Temperate Rainforest Programme is one. This programme between Aviva and the Wildlife Trusts will run for 100 years and will restore approximately 1,755 hectares of temperate rainforest across the British Isles. The programme will help meet Aviva's Net Zero ambition, create new Wildlife Trust nature reserves, and increase the area of temperate rainforest across the UK and Isle of Man. To date, the programme has acquired more than 150 hectares for rainforest creation plus nearly 160 hectares of other habitats including peatlands, species rich grasslands, heathlands and existing woodlands. The first trees were planted in March 2024. The 100 year time frame of the programme helps to ensure a focus on long-term management, maintenance and monitoring.

To identify how ongoing activities associated with NbS projects can best be delivered between the stakeholders involved, it is useful to understand and appreciate the inherently different styles of water governance that characterise the different stakeholders in catchments. Bromwich, Crilly and Banerjee (2022) explored this concept and presented an approach to understanding where different governance approaches exist on a three-dimensional scale from bureaucratic, egalitarian and entrepreneurial extremes. The authors advocate for the evolution of the water management system to blend all three cultures such that different stakeholders are assigned risks to manage that are most suited to their inherent culture.

Insight from programme partners suggests that stakeholder collaboration between organisations in traditionally discrete sectors is improving, reflecting opportunities associated with recent policy such as on Landscape Recovery and LNRS, the necessity of working together to access larger pots of funding, and an increasing realisation that current, project by project working is not and will not achieve the change needed to address the environment and biodiversity crises.

One particular challenge for sustaining NbS initiatives is their frequent reliance on key individuals. It is the experience of Mainstreaming NbS partners that successful multi-stakeholder initiatives are often characterised by an individual in a leadership role whose passion and hard work plays a primary role in driving the initiative forward. These individuals often go above and beyond to bring people together, remove barriers to progress and maintain momentum.

As much as initiatives benefit from these individuals, when that individual moves on, the initiative often stagnates or fails to sustain the momentum it once had. This is a particular problem for initiatives involving NbS because the benefits of NbS often take more time to be realised than traditional grey infrastructure. Succession planning if it happens at all, often focusses on traditional skills and overlooks the more human skills that are essential for sustaining successful collaborations.

Takeaways for the Mainstreaming NbS programme:

- As the benefits from NbS take time to accrue, partnerships need to be sustained to ensure NbS are managed, maintained and monitored effectively.
- One particular challenge for sustaining NbS initiatives is their frequent reliance on key individuals. Succession planning is an important consideration

5. Conclusions and next steps

This scoping report has identified several action areas related to how stakeholders work together to identify, design, deliver and maintain NbS. Action is needed in these areas so that the overall objectives of the Mainstreaming NbS programme can be delivered. They are:

- Initiate a cultural shift in relation to NbS.
- Tailor ways of working to the circumstances in question.
- Align behind a common vision and provide national steer.
- Improve governance at regional scales.
- Develop tools / guidance to sustain multi-stakeholder initiatives.

Table 0-1 presents opportunities to explore under each of these action areas.

Table 0-1: Action areas and opportunities for Workstream 1

Action Area	Description	Opportunity
Initiate a cultural shift in relation to Nbs	Changing the culture of organisations, regulators and politicians is important. The public also need to support and advocate for NbS.	At the Downstream scale, opportunities to raise awareness of and support for NbS in the wider public include engagement that leverages positive emotions, aligns to personal values and emphasises co-benefits. At the Midstream scale (in organisations), there is a need to disrupt traditional ways of working and decision making processes that were designed with grey infrastructure in mind. At the Upstream scale, policy and regulation needs to be refined to influence the scale and rate of adoption of NbS by organisations (Midstream) and the support of the public (Downstream). This is being addressed by Workstream 2.
Tailor ways of working to the circumstances in question	Collaboration is not always the most effective way of working and different models / principles may be more effective in certain situations.	Stakeholders in NbS projects need to be able to identify which ways of working are most appropriate to their situation. The establishment of collaborations needs to consider the factors and processes that will enable them to flourish and be sustained.
Align behind a common vision and provide national steer	Collaborative action across sectors is hampered by the lack of a clear vision and strategy for NbS	A clear vision for NbS. Coherent and aligned legislation, policy, strategy and plans.

Improve governance at regional scales	Governance and alignment of objectives at regional scales is holding back adoption of NbS at scale.	Mainstreaming of NbS could benefit from a convening of organisations at a regional scale to identify opportunities aligned to regional priorities.
Develop tools / guidance to sustain multi-stakeholder initiatives	As the benefits from NbS take time to accrue, partnerships need to be sustained into the long term.	Mechanisms to secure longer term funding agreements that can sustain maintenance and monitoring. Ensuring sufficient focus is directed towards partnership succession planning.

The Mainstreaming NbS programme comprises four broad phases:

- **Phase 1: identify and mobilise (2024-25)**

Identify, verify and prioritise key barriers and actions to address them

Phase 2: assess, synthesise and test (2025-26)

Test proposed actions through regional tests

- **Phase 3: consolidate and escalate (2026-27)**

Develop options / techniques / learnings to scale up and apply to other regional tests

- **Phase 4: Evaluate and transition to business as usual (2027-28)**

Recommendations embedded in to policy, strategies, plans and ways of working.

The next steps for Workstream 1 in Phase 1 are as follows:

- Collate feedback from programme partners on this scoping note to refine action areas.
- Develop action areas in to solution concepts.
- Refine solution concepts considering regional testing opportunities.
- Deploy solutions in regional tests (transition to Phase 2).

These next steps will feed in to coordinated planning for the remainder of Phase 1 and future phases conducted across the programme.

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7. Appendices

7.1 Appendix A: Other NbS Initiatives

Name and link	Description	Status
Nature-based Solutions Initiative	Broad initiative with outputs involving a case study bank, funding finding, and opportunity map for NbS.	Active
Agile initiative	Initiative focusing on tools to support the planning, implementation and funding of NbS activities, outputs include a Recipe for Engagement and funding finder tool and an opportunity map creator.	Complete (2022–2023[1])
Connecting Nature	Broad initiative to scale up NbS in cities. Developed a Connecting Nature Framework to help cities shape their NbS solutions through planning, delivery and stewardship. Also developed a Connecting Nature Business Model Canvas.	Complete (2017-2022)
UrbanByNature	Capacity building programme promoting exchange across cities, researchers, SMEs and NGOs. Includes a UrbanBynature methodology and co-creation guide aligned to ISO 37101 Sustainable Development in Communities.	Active
NetworkNature	Broad initiative with products including an NbS policy roadmap 2024 - 2030, needs and gap analysis, tailored capacity-building for local and regional authorities, decision-makers in governments, businesses and investors, and NbS hubs.	Active
Nature4Cities	Initiative promoting NbS in cities with outputs including planning tools and guidance for implementing NbS.	Active
Clever Cities	A platform to explore insights, tools, indicators and lessons learned about NbS for sustainable urban regeneration.	Complete (2018-2023)
Cities With Nature	Shared platform and knowledge hub for cities and partners to engage and connect.	Active
SuDS iQ	Initiative will deliver a national online collaborative Sustainable Drainage Systems (SuDS) platform that will support a collective understanding of what SuDS are, how SuDS work, and the benefits they provide. Ofwat Innovation Programme.	Active

[1] Further research to be taken forward under the Leverhulme Centre for Nature Recovery https://www.naturerecovery.ox.ac.uk/

Water Smart Communities	Initiative will explore and pilot how new roles, partnerships and stewardship agreements might enable Water Smart Communities. Ofwat Innovation Programme.	Active
Reconect	A Massive Open Online Course for NbS	Active
URBAN GreenUP	Urban NbS initiative with products including an NBS selection tool and an NbS scenarios generation tool as well as papers and good practice guidance	Complete (2017-2022)
NATURVATION	Initiative focussed on understanding what NbS can achieve in cities. Created an urban nature atlas and a navigator to assess potential contributions of different types of NbS	Complete (2017-2022)
Phusicos	Initiative focused on demonstrating how nature-based solutions provide robust, sustainable and cost-effective measures for reducing the risk of extreme weather events in rural mountain landscapes.	Active
Operandum	Initiative to develop tools and methods for the validation of NbS in order to enhance resilience in European rural environments. Outputs include case studies, an NbS co-creation pathway and legal frameworks for NbS	Complete (2017-2022)
NAIAD	Initiative to develop assessment framework for testing NbS in support of flood and drought management.	Complete (2017-2022)
Oppla	EU repository of NbS including advice, a marketplace for guidance, software and data.	Active
ThinkNature	A multi-stakeholder communication platform that supports the understanding and the promotion of NbS.	Complete (2016-2019)