Mainstreaming Nature-based Solutions Response to Independent Water Commission call for evidence

April 2025

Executive Summary

The water environment faces increasing stresses from climate change, population growth, societal pressures such as affordability, ageing infrastructure and the biodiversity crisis.

Nature-based Solutions (NbS) have a key role to play in addressing these pressures. They are multi-functional and can provide multiple benefits – tackling flooding, drought and water quality issues, supporting biodiversity, delivering social value and contributing to the climate adaptation and resilience of other land uses. However, systemic barriers currently hinder wider adoption of NbS and the full realization of their benefits.

Mainstreaming Nature-based Solutions (MNbS) is an £8.9m Ofwat Innovation Fund funded programme, bringing together 22 named partners and many other collaborators, including water companies, NGOs, supply chain, policymakers, regulators, communities and professional institutions, in a collaborative and evidence-led programme, to address systemic barriers to large-scale adoption of NbS.

The MNbS programme proposes the following key recommendations to remove barriers:

1. **Set a clear, long term strategic direction:**
   Embed NbS into a legally binding, cross sectoral national strategy (water, land use, agriculture, energy and others) with integrated, measurable and aligned targets, to be referenced in every major plan and strategy across different sectors.
   Where appropriate co-ordinate cross-border regulation (e.g., England and Wales), ensuring top-to-bottom policy coherence, so that legislation drives resilient, multi benefit outcomes.
2. **Improve regulatory frameworks to enable outcome-based, flexible delivery:**
   Shift from prescriptive outputs to outcomes; extend regulatory planning and delivery cycles; fast track and standardise permitting; and incentivise “green-

first" approaches.
Resolve the CAPEX bias by building in TOTEX incentives that account for the entire lifecycle of NbS assets, including long-term operation and maintenance.

3. **Integrate regional spatial planning and governance:**
   Establish (or strengthen) well-funded regional governance, with clearly mandated roles and responsibilities, to align WRMPs, DWMPs, WINEP, land use and other multi-sectoral plans across catchments.
   Fund and hold accountable multi-stakeholder catchment partnerships that map investments, surface trade-offs and synergies, monitor delivery, and represent a unified vision and voice at local scale.
4. **Secure sustainable, long-term funding:**
   Move beyond one off, tactical funding models to a model that guarantees predictable, long term multi-sectoral funding of NbS schemes, accounting for lifecycle investment (upfront capital and operational costs), as well as the capacity and capability building of organisations tasked with supporting and maintaining the integrity and upkeep of NbS.
5. **Adopt and deploy a Common Value Framework:**
   Mandate the use of a consistent valuation framework based on multiple capitals (such as the Common Value Framework proposed by the MNbS programme), to quantify and transparently report on the environmental, social and economic benefits of NbS.
   Leverage this valuation framework to unlock cross sectoral co-funding, ensuring value for money for customers and taxpayers, by aligning co-benefits with integrated targets, as proposed in recommendation 1.

These recommendations will resolve the fragmented planning, misaligned incentives and short-termism that currently hamper the mainstream adoption of NbS. Without these reforms, we will remain locked into unsustainable, costly infrastructure that is not fit-for-purpose to address critical societal challenges. The recommendations from the MNbS programme propose systemic changes driven by collaboration, evidence, and policy alignment to unlock the potential for NbS to deliver resilient catchments, cost savings, and broader societal value.

Introduction

The water environment faces increasing stresses from climate change, population growth, societal pressures such as affordability, ageing infrastructure and the biodiversity crisis.

Given these increasing environmental challenges, societal expectations, and the pressure for affordability, it is vital that every pound spent on the environment delivers multiple and wide-reaching benefits. At the same time, the pressures facing the water environment will continue to worsen unless there is more holistic and targeted funding and action.

Current regulatory frameworks tend to prioritize short-term, engineered solutions over the long-term, sustainable approaches provided by Nature-based Solutions (NbS), further reducing the sector's resilience. Unlike engineered approaches to water management, NbS and hybrid solutions can help resolve multiple pressures by tackling flooding, drought and water quality issues at a landscape scale, whilst delivering social and environmental benefit. They also contribute to climate adaptation by increasing the resilience of our environment to pollution and extreme weather events. A United Nations Environment Programme (UNEP) report states that for every $1 invested in NbS, up to $30 is created in economic benefits.[1]

However, there are systemic barriers preventing the use of NbS and hybrid solutions. These include fragmented, siloed and sometimes incompatible planning and investment priorities, lack of standardisation, and conflicting and unsupportive regulation. These barriers are hindering greater adoption of NbS and therefore prevent greater value being delivered for customers, society, economy and the environment.

Mainstreaming Nature-based Solutions (MNbS) is an £8.9m Ofwat Innovation Fund funded programme, bringing together 22 named partners and many other collaborators, such as water companies, NGOs including The Rivers Trust, supply chain, policymakers and regulators, communities and professional institutions. With an emphasis on cross-sectoral collaboration and co-creation, the programme aims to address barriers to the large-scale implementation of NbS, including policy and regulation, funding and finance, benefits valuation, standardisation, collaboration and integrated planning.

MNbS is continuing until 2028. This paper sets out the enablers to implementing NbS, as identified through the MNbS programme to date, and specifically where they are relevant to the scope of the Independent Water Commission.

As a supporting document to many of the recommendations in this paper, Appendix A contains a note produced by MNbS outlining policy barriers in detail.

[1] The State of Finance for Nature Report, UNEP, 2022

Recommendations:

1. *Set a clear long-term strategic direction*

Links to Independent Water Commission theme(s): Strategic direction for water industry and The Regulators

Without clear long-term policies, regulatory frameworks will continue to prioritize short-term, engineered solutions over the long-term, sustainable approaches provided by NbS. For example, strategic policy statements in England encourage the use of NbS but fall short of mandating their implementation. This lack of mandatory requirement means that water companies, regulators and other sectors often default to conventional engineered solutions, which are perceived as less risky and more certain in terms of regulatory compliance. Requirements (outcomes) need to be clearly mandated by national policy whilst also allowing flexibility to adapt at regional and local scale. Additionally, the current financial models and incentives are insufficient to attract large-scale investment in NbS, and the bias towards capital expenditure (Capex) over operational expenditure (Opex) further limits funding for NbS.

A clear strategic direction is crucial to overcome the institutional and cultural barriers including risk aversion which prevent NbS and hybrid options from being selected, even when they are the best value solution. This strategic direction needs to recognise the importance of functioning natural systems and nature-based solutions (natural infrastructure) in ensuring the long-term resilience of national infrastructure, including but not limited to water. This natural infrastructure approach goes beyond Local Nature Recovery Strategies, while also incorporating them. It would enable the co-ordination of action by all impacted and impacting sectors, rather than siloing action into sectors such as water, agriculture or energy. Further, it would help to surface the trade-offs between different, competing drivers for water management and land-use, and prevent decisions being made with a single objective in mind.

To bring about change, a clear strategic direction will also require top to bottom alignment; passing legislation may not by itself achieve the desired end goal. This is exemplified by the situation in Wales, which already has a clear strategic direction driven by legislation, including the 2015 Wellbeing of Future Generations Act. However, the impact of this legislation in increasing the use of nature-based and hybrid solutions in Wales is constrained regulatory positions and interpretation of legislation, and by a lack of recognition from Ofwat of the differences in Welsh policy. This situation would be improved by a decoupling of the regulators between England and Wales, and, in England, improvements to legislation to drive long-term sustainability and resilience.

Conclusion:

- **Embed NbS into a legally binding, cross sectoral national strategy (water, land use, agriculture, energy and others) with integrated, measurable and aligned targets, to be referenced in every major plan and strategy across different sectors.**
- **Where appropriate, co-ordinate cross-border regulation (e.g., England and Wales) ensuring top-to-bottom policy coherence, so that legislation drives resilient, multi benefit outcomes. In Wales, improved regulatory alignment is required to realise the strategic direction already set in legislation.**

2. *Improve regulatory frameworks to enable outcome-based, flexible delivery*

Links to Independent Water Commission theme(s): Water industry public policy objectives & economic regulation

The existing regulatory framework presents multiple barriers to mainstreaming NbS, including fragmented planning, misaligned policies, lack of incentives, inconsistent permitting processes, short regulatory timeframes and limited flexibility.

We need a broader perspective that enables resilience of the water system as a whole, and which values the resilience provided by nature-based solutions. There needs to be greater clarity on the roles of the different sectors and actors within a landscape, including the roles of regulators.

Policy alignment and flexibility

There is significant misalignment and conflict between various policies and legislation, which creates confusion and hinders the implementation of NbS. For example, the Environment Act 2021 promotes NbS, but also imposes stringent requirements on phosphorus reduction that can only be met through end-of-pipe solutions, so restricting the use of nature-based solutions. Similarly, the conflicting priorities between the Environment Act's Storm Overflow Discharge Reduction Plan (SODRP) and Ofwat's emphasis on cost-efficiency create challenges in aligning NbS with regulatory requirements.

Addressing these conflicts requires a coordinated effort to align policies in support of the long-term, multi-benefit solutions provided by NbS. This includes fast-tracking approval processes, extending regulatory timeframes, standardized permitting processes, creating strong incentives for NbS implementation and integrating NbS into broader climate resilience and land use strategies.

In addition, we need to enable more flexible, less prescriptive regulation that allows greater flexibility spatially and in time (for example regulatory deadlines or across

delivery cycles). This would help to facilitate the shift from output to outcome-based regulation, as well as 'green-first' approaches that deliver NbS where they would provide most value in the catchment. Greater flexibility in timescales would overcome the frequently encountered issue of water companies 'timing-out' in the funding cycle on the development of NbS, and reverting to quicker engineered solutions which do not provide the best value.

Operation and maintenance (O&M)

There is a critical need to improve funding, resources and incentives for operation and maintenance across all water sector solutions – engineered and nature-based – in line with robust asset management principles grounded on a whole lifecycle model, that prevents premature asset deterioration and reduces total cost of ownership.

Historically, the water industry in the UK has adopted a build-decay-repair asset management model. This model is driven by capital-heavy investments within five-year price control periods, thereby creating a Capex bias, which results in significantly increased long-term costs for a less resilient, and yet more expensive, asset base.

The sector's Capex bias, which is reflective of conventional asset management approaches not just in water but also other sectors, favours capital expenditure over operational expenditure. This particularly undermines the long-term viability of NbS because of the need for proactive ongoing ecological management and adaptive maintenance, funded by Opex; whereas traditional engineering solutions may be more "forgiving" of short term inadequacies in maintenance. Within the Capex bias therefore, NbS operational expenditure is not adequately accounted for in the current financial models, leading to NbS falling into disrepair and failing to deliver the intended long-term environmental benefits.

At PR24, Ofwat introduced a ten-year allowance mechanism for non-traditional solutions, predominantly classified as Opex-based, such as green or nature-based solutions, to bridge this funding gap and to incentivise their adoption. Although uptake was limited in PR24, this mechanism nevertheless offers a blueprint for integrating sustained O&M budgets into regulated plans, and for incentivising companies to propose NbS with proven whole-life performance benefits.

However, accountability for O&M of NbS remains uncertain. Water companies often lack in-house technical and operational expertise, which tends to focus primarily on the O&M of a more traditional asset base. Typically, the management of NbS schemes, such as river restoration and constructed wetlands, falls to landowners or NGOs like local Rivers Trusts, who often carry out voluntary maintenance. This reliance on voluntary, "goodwill" maintenance is fragile and can be problematic, especially for large-scale NbS schemes requiring consistent, long-term upkeep. Clear stewardship frameworks, perhaps underpinned by the PR24 ten-year allowance mechanism and "green-first"

incentives – with defined roles, budget commitments and performance targets – are therefore essential to secure the resilience and environmental outcomes of NbS.

Conclusion:

- **Shift from prescriptive outputs to measurable outcomes, by incentivising "green-first" approaches and ecological adaptive performance and resilience.**
- **Fast-track and standardise permitting for NbS schemes through pre-approved templates and guidance.**
- **Extend regulatory planning and delivery cycles beyond five years, thereby aligning price controls with NbS maintenance and benefit realisation horizons.**
- **Resolve the Capex bias by embedding Totex incentives, that optimise Capex and Opex together over the whole lifecycle of NbS assets.**
- **Establish formal asset-stewardship agreements – leveraging for e.g., the PR24 ten-year allowance mechanism or using "green-first" incentives – to clarify and secure long-term O&M responsibilities for NbS schemes and remove short-term Capex bias.**

3. *Integrate regional spatial planning and governance*

Links to Independent Water Commission review theme(s): Overarching framework for managing water

NbS are inherently multi-functional and provide multiple benefits – tackling flooding, drought and water quality issues, supporting biodiversity, delivering social value and contributing to the climate adaptation and resilience of other land uses. Fully realising their potential will lead to mosaics of land use changes across landscapes and over time, which requires more integrated planning both spatially (linking national strategy to regional and local plans) and temporally (to better align funding cycles and priorities). This must be underpinned by better collaboration across multiple sectors, utilising an integrated approach to planning that enables each sector's individual plans to sit within a coherent whole.

Achieving this vision demands enhanced collaboration across sectors. An integrated planning approach would ensure that the individual plans of sectors – such as water, agriculture, and land-use – coalesce into a coherent and aligned whole. However, within the water industry, the lack of a unified strategic direction across water and land significantly inhibits multi-sectoral collaboration and long-term NbS deployment. This is compounded by low levels of trust and limited communication among sectors, regulators, and stakeholders, often resulting in siloed planning and fragmented implementation. This further inhibits the development and scaling of NbS.

Multiple planning frameworks influence water and land management at regional level, including Water Resource Management Plans (WRMPs), Drainage and Wastewater Management Plans (DWMPs), the Water Industry National Environment Programme (WINEP) in England and National Environment Plan (NEP) in Wales, River Basin Management Plans (RBMPs) and Flood Risk Management Plans (FRMPs). These frameworks often operate in isolation, focusing on discrete regulatory outcomes rather than a joined-up, catchment-scale vision. Additionally, FRAPs (Flood Risk and Asset Performance plans) and RBMPs, which are intended to guide the water industry's and other sectors' environmental actions, do not currently fulfil their potential in delivering integrated solutions. Despite being designed to influence and shape WRMPs, DWMPs and other planning tools, they often remain disconnected from broader spatial and policy coordination mechanisms. If better aligned however, they could provide a more joined-up delivery of targets and better outcomes.

This fragmentation is further exacerbated by the differing timelines and regulatory cycles of these planning instruments, making alignment complex and difficult to implement without significant systemic change in policy, regulation, and delivery capacity. One potential solution would be to establish a coordinating body or mechanism at the regional level – an entity that brings together key organisations to collectively address shared environmental challenges and align funding with regionally agreed priorities within a more unified approach.

At the national scale, at least in England, proposals such as Recommendation 3 from the Corry Review (establish a Defra Infrastructure Board) could be broadened out such that it sets aligned strategy, priorities and targets relating to natural infrastructure, NbS and related land use changes, within the Land Use Framework. Linking national targets to local planning and delivery will require an integrated, regional governance framework, which aligns funding, data and regulation and coordinates (or at least aligns) planning and delivery across river basins, combined and local authorities, and a wide range of stakeholders. There is no ideal set of boundaries for this, as political and geographical boundaries rarely fully align, but an appropriate scale for this regional governance framework could be the water authority boundaries that were established by the 1973 Water Act. These align well with catchments – and so have a strong connection to the natural landscape – and broadly remain the operational boundaries for the sewerage function of water companies. Within regions, catchment partnerships in England (and cross-border areas) help to convene stakeholders to identify trade-offs at local scales.

Whatever regional scale is chosen, careful thought will need to be given to ensuring appropriate governance across borders, notably between Wales and England.

Conclusion:

- **Establish (or strengthen) well-funded regional governance, with clearly mandated roles and responsibilities, to align WRMPs, DWMPs, WINEP, RBMP, FRMP, land use and other multi-sectoral plans across catchments.**

- **Fund and hold accountable multi-stakeholder catchment partnerships to map investments and engagement, surface trade-offs and synergies, monitor delivery, and to be empowered to represent a unified vision and voice at local scale, to drive integrated NbS planning and implementation.**

4. Secure sustainable, long-term funding

Links to Independent Water Commission theme(s): Overarching framework for managing water and economic regulation

Investment planning processes are largely uncoordinated and system-specific. This means investments in one system might provide unrecognised benefits and/or disbenefits to another.

It is well recognised that NbS can drive value across a range of ecosystem services, for example regulation of water quality and aesthetic/cultural services. However, quantifying these benefits is problematic and interdependent on other natural variables. This reduces predictability, thereby limiting the quantification of wider value creation within benefits assessments. The result has been missed opportunities and an over-reliance on water companies, and the water sector, to deliver improvements that benefit the landscape as a whole and all the sectors which operate within it.

We should move away from each sector investing individually against specific drivers related to their assets and business models. Taking a wider value approach, and understanding variability, would allow sectors to co-fund multi-benefit solutions, leading to cost savings and enabling both business models and catchments to be managed more holistically.

Conclusion: Move beyond one off, tactical funding models to a model that guarantees predictable, long term multi-sectoral funding of NbS schemes to account for: lifecycle investment (upfront capital and operational costs); as well as for capacity and capability building of organisations tasked with supporting and maintaining the integrity and upkeep of NbS.

5. Adopt and deploy a Common Value Framework

Links to Independent Water Commission theme(s): Overarching framework for managing water and economic regulation

The move away from output led approaches, and towards an integrated and outcomes-based approach, requires a common way of valuing benefits. The Mainstreaming Nature-based Solutions Programme is developing and recommending the adoption a common value framework, initially focused on water companies, that evaluates the co-

benefits of NbS, including wider environmental and social outcomes. The Common Value Framework will support decision making, enabling water companies and regulators to assess value in a consistent way and allowing greater trust and transparency. Further, if we can adopt a standard approach to valuing benefits, we can start to collect evidence in the same way and thereby help to improve the evidence base for NbS. This will maximise value for money for water customers and taxpayers and support greater value delivery from programmes such as the WINEP including through integration of NbS and traditional solutions.

Conclusion:

- **Mandate the use of a consistent valuation framework based on multiple capitals (such as the Common Value Framework proposed by the MNbS programme), to quantify and transparently report on the environmental, social and economic benefits of NbS.**
- **Leverage this valuation framework to unlock cross sectoral co funding, ensuring value for money for customers and taxpayers, by aligning co-benefits with integrated targets, as proposed in recommendation 1.**

Appendix A: Draft MNbS Policy Barriers Briefing Note