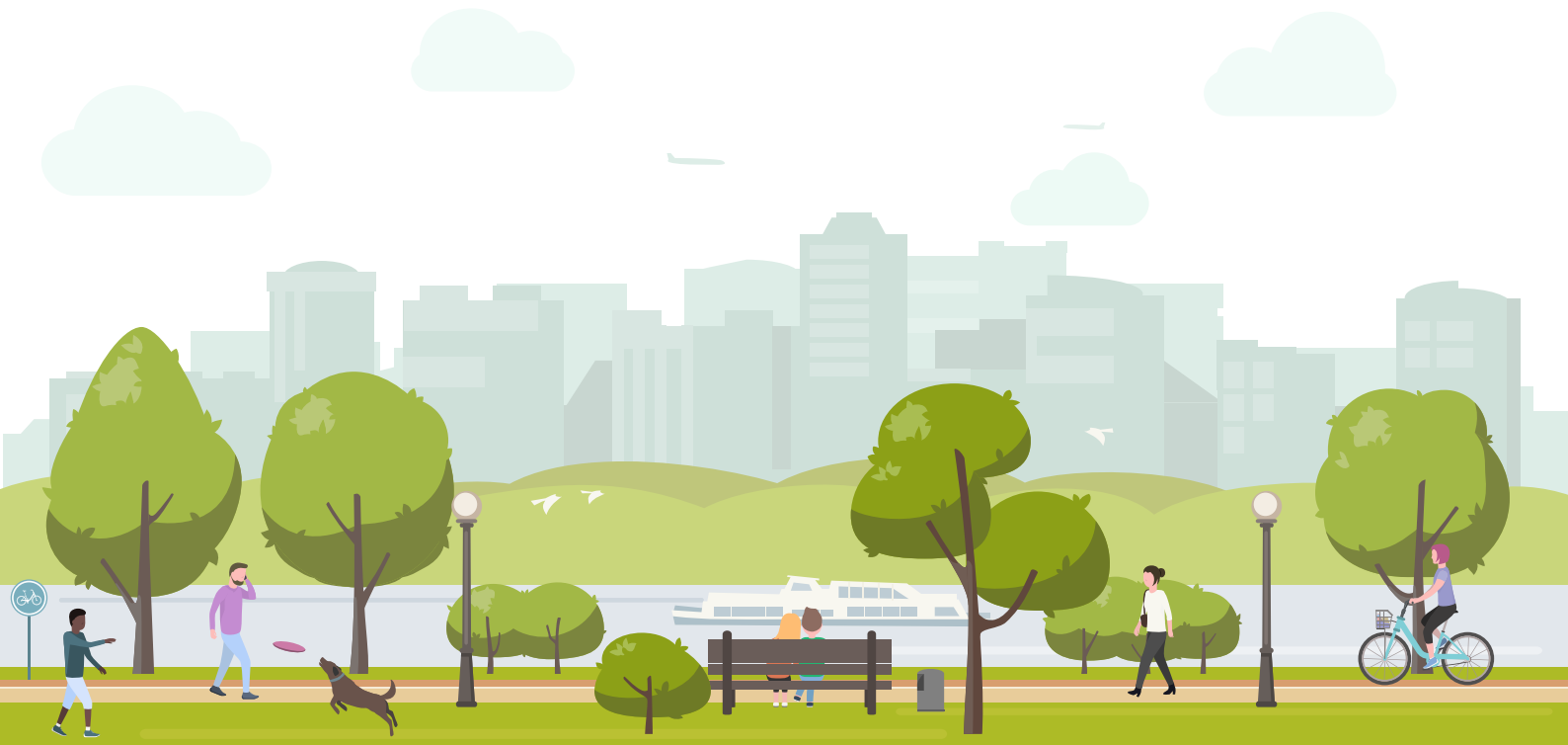


The 'go to' organisation for Local
Government improvement in Scotland



ELECTED MEMBER BRIEFING NOTE

Nature-based Solutions





Elected Member Briefing Series

The Improvement Service (IS) has developed an Elected Members Briefing Series to help elected members keep pace with key issues affecting local government.

Some briefing notes will be directly produced by IS staff but we will also make available material from as wide a range of public bodies, commentators and observers of public services as possible.

We will use the IS website and elected member e-bulletin to publicise and provide access to the briefing notes. All briefing notes in the series can be accessed at www.improvementservice.org.uk/products-and-services/skills-and-development/elected-members-development/elected-member-guidance-and-briefings

About this briefing note

This briefing note sets out key features and principles for Nature-based Solutions (NbS), and their contribution to a number of key Local Government priorities, such as:

- ▶ Tackling climate change and biodiversity loss.
- ▶ Recovering from Covid-19.
- ▶ Supporting inclusive economic growth.
- ▶ Improving health and wellbeing.
- ▶ Adopting place-based approaches.

Nature-based Solutions are defined by the [International Union for the Conservation of Nature](#) as ‘actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits’.

Nature-based Solutions have a critical role to play in responding to climate change, with a role in removing carbon, preventing emissions and helping us adapt to the impacts of climate change that are already occurring. They can include managing land to tackle climate change impacts, designing interventions that increase natural coastal resilience and ‘designing with nature’ within settlements to achieve a wide range of outcomes for people.

Nature-based Solutions will be at the heart of both the 26th UN Climate Change Conference of the Parties (COP26) and the 15th meeting of the Conference of the Parties (COP 15) to the UN Convention on Biological Diversity (CBD), both taking place in 2021. The contribution of NbS is increasingly recognised across all sectors and all tiers of government.



Summary

- ▶ Nature-based-Solutions (NbS) are about considering nature whenever we make decisions: nature can often help us address wider outcomes, ranging from climate change, to public health and a green recovery from Covid-19.
- ▶ The concept of NbS covers a range of approaches to addressing ‘societal challenges’ while preserving, managing and restoring natural and modified ecosystems. Well-designed and implemented Nature-based Solutions provide benefits for people and are central to tackling environmental challenges such as climate change, biodiversity loss, air pollution and flooding.
- ▶ Local authorities are taking steps to support NbS at a local level as part of their actions to respond to climate change, promote wellbeing and protect biodiversity. This briefing seeks to highlight why this is increasingly important in the light of the challenges Scotland faces.
- ▶ In a context in which Local Authorities are trying to deliver more with less, there is merit for you as an Elected Member in giving thought to how place-making and NbS can be mainstreamed and embedded across council services and corporate outcomes/targets to deliver more environmentally friendly places and sustainable, healthy communities.
- ▶ The briefing describes how NbS can help us to address the following shared outcomes:
 - Adapting to the impacts of climate change (adaptation).
 - Reducing carbon emissions and storing carbon safely (mitigation).
 - Preventing the loss of biodiversity and protecting our natural capital.
 - Improving health and wellbeing and reducing health inequalities.
 - Building stronger and more resilient communities.
 - Nurturing our young people.
 - Supporting a Green Recovery and a Just Transition to a net-zero economy



Questions for elected members to consider

As an elected member, you can play a central role in supporting your Local Authority to implement and mainstream the concept of Nature-based Solutions (NbS) across the wide range of services delivered by your Local Authority. You can do this through your political leadership, partnership action and community engagement. Thanks to your knowledge of local issues and priorities, you are best placed to help consider how and where NbS can be of most benefit to the communities you represent.

Questions to consider include:

- ▶ How could NbS improve the services delivered by the council, focussing on the places and the communities you represent?
- ▶ Is your council already taking steps to adapt to the impacts of climate change and helping to meet net zero targets?
- ▶ Are there examples of NbS in your local or neighbouring areas?
- ▶ Who has responsibility for leading on NbS in the senior leadership team of your local authority?
- ▶ Are NbS part of your decision-making processes for existing and new projects and programmes of work?
- ▶ Are your officers and partner organisations aware of the potential benefits of NbS and of collaborative approaches?
- ▶ How could NbS contribute to improving health and reducing health inequalities in your local area?



What is the problem and why does it matter?

The Problem

Climate change is one of the defining challenges of our time and is having profound effects on both people and nature, for example through more extreme weather events, drought, increased rainfall, rising sea levels and increased flooding. Climate change is also closely linked to the loss of biodiversity we are witnessing across the globe, with habitats and species disappearing at unprecedented rates.

The Covid-19 pandemic has brought the impacts of world-wide environmental degradation into sharp focus, with the United Nations and the World Health Organisation warning that the pandemic is a result of humanity's destruction and degradation of nature.

To address future climate change, 195 countries adopted the Paris Agreement in 2015, committing to taking action for emissions to decline rapidly, reaching 'net-zero' by 2050. The UK has set a legally binding target to achieve net zero by 2050, and Scotland aims to achieve this by 2045, with an interim target of a 75% reduction by 2030. Goal 13 of the UN Sustainable Development Goals calls for urgent action to combat climate change and its impacts.

Net-zero is reached when the emissions we produce are offset by the amount absorbed from the atmosphere, principally by nature, in the form of forests, peatlands, soils and the oceans. The lower the level of emissions, the easier this becomes.

Climate change mitigation to achieve net-zero requires that we reduce our greenhouse gas emissions, including by decarbonising power generation, adapting heating systems, modifying transport, transforming agriculture and improving industrial processes. At the same time, we must also remove or sequester carbon from the atmosphere. As outlined above, we can do this by creating new woodlands, restoring peatlands and ensuring our seas are healthy. It is also important that we put in place adaptation measures to help us respond to the changes already 'baked-in'; nature can help in this, for example by developing natural flood management schemes to help us cope with increased rainfall and by working with nature to increase the resilience of our coasts to rising sea levels.

The issue of climate change is inextricably linked to many of the challenges we face as a society – including looking after our communities' health and promoting sustainable social and economic development.

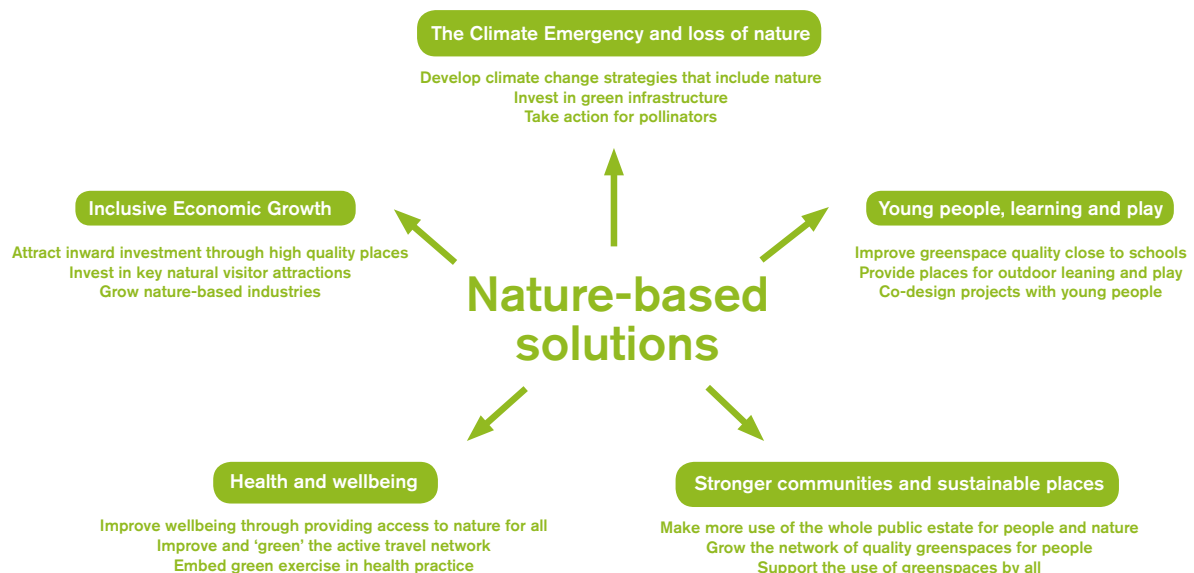
The problems we face, and the solutions we put forward, are three-fold. Not only do we need to respond to climate change and restore natural balance, we need to do so in a way that promotes human wellbeing and prosperity, and fairness needs to be at the heart of our approach, as advocated by the [Just Transition Commission](#) and its [advice to Scottish Government](#).

Nature-based Solutions in practice

Nature-based Solutions harness the power of nature to help provide cost-effective responses to challenges such as flooding and surface water management, urban heating and poor air quality, obesity, ill-health and health inequalities, and moving towards a net zero economy. They can also help us to address a range of additional social, economic and health outcomes which lie at the heart of a fair, low-carbon society and a sustainable recovery from Covid-19.

Nature-based Solutions can contribute to good [place-making](#), where they are tailored to the needs of a specific setting and shaped in consultation with local communities. They can be used to support the planning, design, delivery and good management of successful places where everyone can benefit more from nature, connect with nature, lead healthier lives and have an increased sense of ownership of natural spaces. Nature-based Solutions can also contribute to [20-minute neighbourhoods](#), particularly given their ability to support healthy natural spaces, contribute to stewardship of public places and promote access to attractive and well-maintained natural environments.

Nature-based Solutions contribute to a number of interlinked outcomes, as illustrated in the figure below.



The following key principles were framed by Connecting Nature - a project funded through EU Horizon 2020 and working with NbS in cities across Europe. The principles provide a useful outline for identifying and developing Nature-based Solutions.

Essentially, does what is proposed:

- ▶ Use nature/natural processes?
- ▶ Provide social benefits?
- ▶ Create economic benefits?
- ▶ Improve environmental benefits?
- ▶ Offer a net-benefit to biodiversity?

This is a simplified view and a degree of flexibility should be built in to allow for local circumstances. However, if the answer to the above questions is yes, then the approach could be identified as a 'Nature-based Solution', and the next step in establishing the benefits from the solution is to consider adding 'how' to each of the 5 questions.

Let us now take a look at some of the environmental, social and economic challenges that NbS can help address.



How Nature-based Solutions are helping us to tackle the challenges

Adapting to the impacts of climate change

Climate change and the associated increased frequency and severity of extreme weather events has increased the risk of severe flooding. Sea-level rise is already increasing the risk of damage to vital infrastructure, productive land uses and settlements from coastal flooding and erosion, while in some parts of Scotland climate change is increasing the risk of drought and wildfires.

Increased temperatures and poor air quality, particularly in urban areas, are damaging health with urban air pollution set to become the main environmental cause of mortality worldwide by 2050 and cooling becoming the fastest growing use of energy in buildings. With a significant proportion of the population living in urban settlements, the impacts on health from the 'urban heat island effect', in which built up areas experience elevated temperatures compared to their surroundings, could prove to be very significant.

Nature-based Solutions help us to adapt to the changes happening now and make the places we live in more resilient. Blue-green infrastructure such as green corridors, street trees, sustainable drainage systems (SuDS) in which wetland vegetation decontaminates water run-off, raingardens, green roofs and living walls, and greenspaces in general all have an important role to play in managing increased flood risk. These measures all help us to adapt to the impacts of climate change in urban areas in ways that also provide benefits to people and biodiversity.

Reducing carbon emissions and storing carbon safely

Scotland has made great progress with reducing carbon emissions, mainly by decarbonising the power sector, but we can also help tackle carbon emissions by protecting what is already stored in the environment and by managing nature to collect and store more carbon.

Forestry is an important net carbon sink, as growing trees absorb more carbon than they emit. Creating new woodland delivers carbon sequestration and provides a range of other benefits for people and the environment through improved air quality, flood alleviation and recreation opportunities. Peatland is also important; the UK Committee on Climate Change recommends restoring 450,000 ha of deteriorated peat bog in Scotland by 2045 at a minimum rate of 18,200 ha per year, and Scottish Government recently committed to investing over £250M over the next ten years in peatland restoration.

In the coastal and marine environment, habitats such as saltmarsh, seagrass meadows and maerl beds store large quantities of carbon, where it is described as ‘blue carbon’.

A healthy natural environment stores large amounts of carbon. Nature-based Solutions help to remove greenhouse gases from the atmosphere and increase the amount of carbon safely stored in vegetation within restored habitats and ‘green infrastructure’, and as ‘blue carbon’ in our seas. Careful creation of new woodlands and maintaining our existing woodlands, restoring peatlands and rivers, caring for our soils, and ensuring that our coastal and marine ecosystems are healthy are all ways that NbS are helping us to tackle climate change and deliver a Net Zero future.

Preventing the loss of biodiversity and protecting natural capital

The [Edinburgh Declaration on Biodiversity](#), developed through the ‘Edinburgh Process’ in consultation with subnational governments around the world, urges national governments to elevate their ambition to halt biodiversity loss through a new set of international targets for nature to be met by 2030. The forthcoming Scottish Biodiversity Strategy will address the new international targets in alignment with Scotland’s biodiversity priorities. The Edinburgh Declaration recognises the critical role of Local Governments in contributing to international biodiversity targets through delivering and co-coordinating actions for biodiversity. COSLA signed the Edinburgh Declaration in June 2021.

The [Infrastructure Investment Plan for Scotland 2021-22 to 2025-26](#) sets a long-term vision of Scottish infrastructure supporting an inclusive, net zero carbon economy in Scotland and introduces a new expanded definition of infrastructure to include ‘Natural Infrastructure’. It describes Natural Infrastructure as ‘natural areas or systems that are managed to provide multiple benefits for the environment and human wellbeing’. The Plan confirms that natural capital, defined as the world’s stocks of natural assets, including geology, soil, air, water and all living things, is fundamental to our economy and wellbeing. The Plan proposes increased investment in natural infrastructure and Nature-based Solutions to enable the transition to net zero emissions and environmental sustainability.

The Planning (Scotland) Act 2019 has introduced a new requirement to consider how development and the planning system can best contribute to the enhancement of Scotland’s biodiversity. As a result, one of the key statutory outcomes of National Planning Framework 4, to be published in 2022, will be to secure ‘positive effects for biodiversity’, intended as actions that leave biodiversity in a better state.

Nature-based Solutions can help to prevent biodiversity loss by ensuring that the actual and potential biodiversity value of natural spaces and green infrastructure is recognised in plans and projects. Nature-based Solutions in new developments can help to deliver positive effects for biodiversity, and greenspaces can provide opportunities to involve local communities and young people in learning about and taking actions to enjoy, enhance and look after their local biodiversity.

Improving health and wellbeing and reducing health inequalities

Many people in Scotland experience poor health outcomes, although these vary considerably across the country and between regions. Non-communicable conditions such as cardiovascular disease, cancers, diabetes and obesity now outweigh communicable ones; this requires a greater emphasis in public health on preventative spend.

Poor environmental quality, which is often characterised by issues such as surface water flooding, contaminated sites, vacant and derelict land, air pollution and an absence of good quality greenspace, impacts negatively on our health and is often experienced disproportionately by communities also experiencing multiple deprivation.

Nature-based Solutions can help to promote good health and reduce health inequalities arising from environmental factors. For example, NbS can help to improve air quality, reduce exposure to the risk of flooding, and improve mental and physical health by increasing the opportunities for physical activity, active travel, and contact with nature.

Building stronger and more resilient communities

Communities value a clean and healthy local environment with access to nature and shared spaces. Projects based around NbS, such as improving local green infrastructure, including paths, parks and greenspaces, can provide a focus for building resilience and empowering local communities to gain a sense of ownership and to act as stewards of their local environment.

Nature-based Solutions can help to create new greenspaces and improve existing ones that bring communities together, reduce loneliness, increase community resilience, and build social capital, ownership and connectedness.

Nurturing our young people

Natural play and contact with nature support young people's social and cognitive development and have a positive impact on their learning, health and wellbeing. Outdoor Learning is an established component of Curriculum for Excellence and effective Outdoor Learning can help to close the attainment gap.

Access to a healthy and clean environment, the right to a wide range of leisure and play activities, and the need for education to encourage a child's respect for the environment are reflected in the United Nations Convention on the Rights of the Child (UNCRC), which is currently being incorporated into Scots law. This will require that public bodies, including councils and other bodies performing functions of a public nature (for example, contracting on behalf of a local authority), will have a duty to act compatibly with the incorporated UNCRC requirements.

In response to Covid-19, the Play Strategy for Scotland (2013) underwent a Progress Review in 2021, which recommends that we ‘renew and develop the national and local commitment to outdoor play’.

Well-planned NbS, established with the needs of young people in mind, can help to provide accessible and good quality greenspaces close to homes and schools that benefit the health, development, wellbeing and learning of all our young people.

Supporting a Green Recovery and a Just Transition

The economic impact of the Covid-19 crisis has been severe and has resulted in an unprecedented global economic shock. As we work to recover from this economic downturn, it is important that our actions are consistent with our climate change ambitions, while also ensuring that they do not exacerbate inequalities given the disproportionate impact of Covid-19 on some groups in society.

Nature-based Solutions can help to ensure that our recovery does not worsen climate risk and increase greenhouse gas emissions. The recommendations of the Advisory Group on Economic Recovery and the UK Climate Change Committee Report to the Scottish Parliament emphasise that developing and promoting ‘nature-based investments’ can protect and enhance Scotland’s natural capital and promote investments that are resilient to future climate risks. [NatureScot’s baseline analysis of nature-based jobs](#), published in 2020, reveals the huge opportunity for nature-based jobs to help Scotland secure a green recovery from the pandemic and support a Just Transition to a net-zero economy. The image below summarises the key points identified in the baseline analysis.



Local Authorities and Nature-based Solutions

With their natural focus on place, Local Authorities are critical to developing practical Nature-based Solutions to climate change, biodiversity loss and other socio-economic outcomes and public goods as outlined above.

These practical approaches include:

- ▶ Caring for nature through **managing land and buildings** and ensuring that biodiversity is protected and enhanced through wildlife-friendly management of parks and greenspaces, the creation of pollinator corridors, creating new woodlands and local nature reserves. Retrofitting NbS such as green roofs and raingardens to buildings in Council ownership could also be considered.
- ▶ Developing **strategic approaches to spatial planning, transport and development** that aim to secure the multiple benefits of NbS, for example by delivering high quality greenspaces through **Open Space Strategies** and mapping **Integrated Habitat Networks** within and between settlements for use in spatial planning and data dashboards. Placing an increased emphasis on multi-functional green infrastructure and seeking positive effects for biodiversity through policies and processes on managing new developments, including setting out clear requirements within **site development briefs, design frameworks and post-construction management plans**. Upstream consideration of NbS can also feature in **Regional Spatial Strategies** and by integrating Open Space Strategies and appropriate elements of Masterplans into **Local Development Plans**. Practical measures might include installing natural flood management measures set out in **Local Flood Risk Management Plans** or boosting coastal habitat resilience through **Shoreline Management Plans**.
- ▶ Helping to leverage private investment in NbS through **developer contributions**.
- ▶ Using NbS to unlock the development of **Vacant and Derelict Land (VDL)** and to support the reduction in amount of VDL.
- ▶ Facilitating **outdoor recreation and active travel** and **connecting people and nature** through improved provision of paths, parks, green active travel routes, nature reserves and open spaces and associated Ranger Services, focussing on disadvantaged communities to help address health inequalities and provide opportunities for young people. Coupling this infrastructure with information and interpretation to raise public awareness of opportunities to enjoy the outdoors and to understand our access rights and responsibilities, particularly at present with increased numbers of people visiting the countryside as lockdown restrictions ease.

- ▶ Protecting and restoring **features of biodiversity value** such as wetlands, peatlands and floodplains, native woodland habitats, native grasslands, locally rare or threatened species populations, blue carbon habitats, maintaining and enhancing the biodiversity value of Vacant and Derelict Land, adopting a strategic approach to monitoring and controlling invasive non-native species, putting in place a system of Local Nature Conservation Sites and by ensuring that a Local Biodiversity Action Plan is in place.
- ▶ Working with Community Planning Partnerships, the Community Learning and Development Service and the voluntary sector to facilitate **community involvement** in local initiatives and projects that support environmental improvements, protect and enhance nature and increase opportunities for people to benefit from and participate in managing their local environment.
- ▶ Supporting and delivering **outdoor learning and sustainable development education** by building capacity and leadership within the early years and teaching profession to implement Learning for Sustainability and to integrate NbS into STEM subjects, and by providing nature-rich schools grounds and nearby greenspaces for regular and frequent outdoor learning and play.
- ▶ As **suppliers of skills** to the Scottish economy through the education system and as one of Scotland's largest employers, and by equipping our workforce with the technical, leadership and carbon literacy know-how to help us chart our way through an age of unprecedented change.
- ▶ As **providers of services and procurers of goods and services** through cross-functional working to improve the economic, social and environmental wellbeing of constituencies, acting in a way to secure improvements as outlined in the Sustainable Procurement Duty within [The Procurement Reform \(Scotland\) Act 2014](#).

Further support and contacts

NatureScot has agreed a [Vision for Nature Rich Towns and Cities](#) and provides information and advice on Nature-based Solutions and related topics such as green infrastructure, health and outdoor learning and play. It provides [Advice for planners and developers](#) to encourage new developments to contribute to Scotland's nature and landscapes, covering greenspace, flooding, coastal change, woodlands and other topics. In 2019 NatureScot [published a leaflet](#) aimed at policy-makers in local public bodies outlining many of the opportunities and benefits that can be derived from NbS.

The **Improvement Service (IS)** is the 'go-to' organisation for local government improvement in Scotland, supporting councils to provide effective community leadership, strong local governance and high quality efficient local services.

The **Sustainable Scotland Network (SSN)** is Scotland's public sector network on sustainability and climate change. The network supports the public sector to drive action on climate change, scaling up impact through leadership, policy, and research.

ICLEI – Local Governments for Sustainability is a global network of more than 2500 local and regional governments committed to sustainable urban development. Active in over 125 countries, ICLEI partners influence sustainability policy and drive local action for low emission, nature-based, equitable, resilient and circular development.

Connecting Nature is a €11.4m five-year Programme funded by the European Commission's Horizon 2020 Innovation Action Programme that aims to position Europe as a global leader in the innovation and implementation of Nature-based Solutions. With 30 project partners from industry, local authorities, local communities, NGO's and research in 16 countries: Glasgow is one of Connecting Nature's [lighthouse cities](#).

NATURVATION is a 4-year project funded by the European Commission that seeks to develop understanding of what nature-based solutions can achieve in cities, examine how innovation can be fostered in this domain, and contribute to realizing the potential of nature-based solutions for responding to urban sustainability challenges by working with communities and stakeholders.

The **COP26 Universities Network** published a [briefing](#) on Nature-based Solutions in April 2021 promoting simple guidelines developed by the [Nature-based Solutions Initiative](#) at the University of Oxford. The Network is a growing group of more than 50 UK-based universities and research institutes working together to deliver an ambitious outcome at the UN Climate Summit in Glasgow in 2021 and beyond including promoting the global adoption of good practice principles for NbS at COP26.



Examples of Nature-based Solutions involving Local Authorities

A Climate Resilience Zone in East Lothian

In East Lothian a multi-agency steering group led by East Lothian Council is producing a strategy for a 'Climate Resilience Zone' within the western part of East Lothian that will set out an [overall vision for the future development](#) and the use of land as a place-based response to the Council's Climate Change Strategy.

A Development Framework for Granton Waterfront

At a large masterplan scale the City of Edinburgh Council has worked with the Dynamic Coast project, NatureScot, and other Agencies on a [Development Framework for Granton Waterfront](#) that will improve the quality of the living environment through Nature-based-Solutions and showcase low carbon living in an environment that is climate resilient, inclusive and beautiful.

North Maryhill Regeneration Area

Glasgow City Council and Maryhill Housing Association are working with NatureScot, Scottish Government and others to explore and propose strategic design interventions to address the climate and nature emergencies through the [Maryhill North Neighbourhood Masterplan](#).

The ERDF Green infrastructure Strategic Intervention projects

Projects, part-funded by NatureScot's ERDF Green Infrastructure Fund, are piloting innovative approaches to NbS. These projects include [The Greater Easterhouse Integrated Green Infrastructure Project](#) led by Glasgow City Council to create new integrated green and blue networks to transform over 29ha of land in an area of multiple deprivation, and [Fernbrae Meadows](#) led by South Lanarkshire Council where a disused golf course has been transformed into a community greenspace providing multiple benefits.

Natural flood management

The Tweed Forum was contracted by Scottish Borders Council to demonstrate how [natural flood management](#) of the Gala Water can complement the Galashiels flood defence scheme to protect the town from flooding.

Green Health Partnerships

Four pilot [Green Health Partnerships](#) led by local health boards and local authorities have demonstrated how cross-sectoral co-ordination can increase physical activity and improve mental health through engaging with the natural environment.

Dune management at West Sands, St Andrews

Fife Council is a key member of a wide Partnership that has employed NbS to help strengthen the [West Sands dune ridge](#) to reduce the risks of coastal flooding and erosion on a coastline of high asset and recreational value.

Dee Catchment Partnership

Aberdeen City Council and Aberdeenshire Council are core members of this [Partnership](#) which oversees a wide range of NbS projects, including riverside management and woodland planting to reduce the flood risk in downstream settlements while also sequestering carbon and improving priority habitats.

For further information please contact:

alan.cameron@nature.scot

elisa@cosla.gov.uk

iHub
Quarrywood Court
Livingston
EH54 6AX

Tel: 01506 282012
Email: info@improvementservice.org.uk
www.improvementservice.org.uk

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