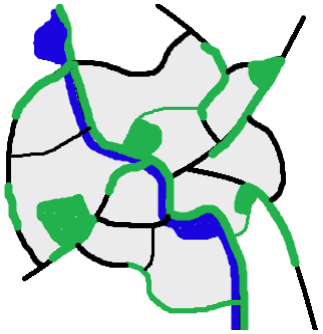
Green Infrastructure and Planning

GI for biodiversity and people

Introduction



This guidance document is intended to provide clarity on the concept of Green and Blue Infrastructure (GI) to aid district councils in the development of GI. Green Infrastructure is a tool for providing ecological, economic and social benefits through natural solutions. The concept of green and blue infrastructure promotes the multifunctionality of our finite lands and waters so that their use is the most sustainable it can be. The term green relates to ecological process rather than colour. GI can help connect people to nature, use natural processes to solve environmental problems, aid wildlife in recovering and coping with forthcoming climate change and provide safe and attractive routes for people to connect, while improving the landscape quality and visual amenity and increasing the economic wealth in an area. It requires a long term vision for an area and interaction between various disciplines and groups of people on strategies and projects to enable this multifunctionality to occur. Such interaction will help us to live and work sustainably, protect the environment and create a place where people want to live.

"*The roles of GI are highly interdependent for example, societal wellbeing in coastal and river areas depend on flood retention by wetlands or natural drainage systems, which in turn depend directly on the provision of ecosystem services such as soil or water regulation. These in turn are highly reliant on biodiversity to uphold the health of the ecosystems to provide ecosystem services*"
Science for Environment Policy.

Box 1 – Green and Blue Infrastructure
Green infrastructure is a strategically planned network of natural and semi-natural features, land (green) and water (blue) that sustain natural processes, and intersperse and connect villages, towns and cities.

Policy Context

GI supports the following aims of the Regional Development Strategy

- Support strong, sustainable growth for the benefit of all parts of Northern Ireland;
- Support our towns, villages and rural communities to maximise their potential;
- Promote development which improves the health and well-being of communities;
- Improve connectivity to enhance the movement of people, goods, energy and information between places;
- Protect and enhance the environment for its own sake and;
- Take actions to reduce our carbon footprint and facilitate adaptation to climate change

Department of Agriculture, Environment and Rural Affairs
www.daera-ni.gov.uk

NIEA Northern Ireland Environment Agency
www.daera-ni.gov.uk

The cross cutting nature of GI supports the Strategic Planning Policy Statement for Northern Ireland Core Planning Principles which have the aim of furthering sustainable development:

- Improving health and well-being;
- Creating and enhancing shared space;
- Supporting sustainable economic growth;
- Supporting good design and positive place making; and
- Preserving and improving the built and natural environment.

Benefits

Biodiversity

Well designed, connected and managed GI has the potential to increase biodiversity in the local area. GI can encompass ecological networks which functionally link up areas of high biodiversity to allow for migration and spread of species. This allows for more resilient populations which can deal with climate change or localised impacts. Good design with nectar rich species for pollinators, seed and berry bearing trees for birds, bare soil/ banks and less manicured areas for insects can support a broad range of species.

Box 2 – Ecological Networks

Ecological networks are made of core areas of high nature conservation interest, ecological corridors, buffer zones and restoration areas which together make a functional and resilient network for wildlife.

Health and Wellbeing

GI has the potential to provide connected high quality greenspace through urban and rural areas which people use and enjoy. Research has shown that use of, proximity to and even views of greenspace can improve mental and physical health. The magnitude of the benefits is partly dependent on the quality of the greenspace and the greatest benefits are found in the poorest socio-economic areas.

Air Pollution

GI can reduce exposure to air pollution as the vegetation traps and removes fine particulate matter. In addition, connected green infrastructure can reduce pedestrian exposure to pollution by providing alternative routes away from heavy traffic.

Box 3 - Community Path Networks.

Connectivity of green space and community path networks can help deliver a modal change in the movement of people from motorised transport to cycling and pedestrian with many associated benefits.

Economic

GI contributes to place making and improving our neighbourhoods using nature as one of the solutions. It increases the value of neighbourhoods where it is used and its connectivity and multifunctionality is cost effective to society. The environmental improvements from GI can attract investment and jobs to an area due to enhancement of the local environment, and by providing the workforce access to open spaces nearby, they are healthier and more productive.

Water Management

GI can improve water quality in a catchment and decrease the flood risk in the long term if there is widespread incorporation into plans. Slowing the flow and improving water quality requires catchment wide implementation of GI over the long term. The solutions to attenuate water run-off range across many scales: from street trees to water gardens, swales to larger sustainable drainage systems (SuDS) and ponds to retaining intact and functioning flood plains.

Box 4 – SuDS

Sustainable Drainage Systems (SuDS) integrate storm water management into the design of mainly urban landscapes. These tend to use a combination of some GI features, such as green roofs, rain gardens, bio swales and created ponds. They slow the flow, improve water quality and provide areas for amenity and biodiversity.

Local Distinctiveness

GI can protect and enhance the landscape character and visual amenity of an area and contribute to the local distinctiveness and sense of place. It can act as a catalyst for regeneration projects which improve the quality of the living environment and provide linkages for both people and wildlife. It encourages engagement with local communities and stimulates a sense of belonging.

Principles

Promote connectivity and good design through policy and plans

GI is at its most useful when connected and well planned to include a range of functionality. Connectivity will not occur overnight and requires a long term strategic vision for an area. Multifunctionality requires good design teams with a breadth of expertise to include the range of interests that are possible with well designed GI. Plans such as local development plans have the opportunity to plan both strategically and locally, where GI could be most useful and where the greatest opportunities for connectivity and multifunctionality are available in an area. GI needs to be considered early in the process and form part of the assessment of alternative development scenarios. Alternative policy or zoning options with mitigation measures can be informed by considering multifunctional scenarios. This then needs to be backed by policies both in the Plan Strategy and in the Local Policies Plan.

Identify and protect existing GI assets

It is important to identify and protect existing GI assets before planning where connectivity can occur. Existing assets include areas of priority habitat, sites of local nature conservation interest, woodlands, wetlands, canals, watercourses, ponds, lines of trees, sites of archaeological and historic interest, floodplains, parks, paths, greenways and gardens. Some GI assets associated with settlements have in the past been identified as LLPAs in local development plans which brought together areas of landscape quality and visual amenity, biodiversity and heritage. GI builds on these to include a wider breadth of interests which could be identified within local development plans.

Consider a council wide strategy

Planning for GI, is wider than just development plans. A wider GI strategy could pull in all interested parties including community groups, businesses and NGOs working towards a

shared vision for an area. It is important to take a strategic approach to integrated GI because it provides a focus for multiple initiatives operating at various levels. Local and neighbourhood schemes can contribute incrementally to the bigger strategic picture.

Project level

At both the strategic and local level, GI contributes to good place making. To be truly effective, GI has to be integrated into the design of development from the early stages of a project. To manage water effectively requires a hydrologist for detailed SuDs designs, an ecologist to select the most appropriate species and effective design for wildlife, a landscape architect to provide a visually pleasing and people centred design and a recreation officer to connect pedestrian transit. A collaborative approach can bring all these disciplines into a design and make it work for all. To be effective in the long term requires sound management. This should also be considered at the project level.

Further information

The following documents and web sites have additional details on this topic:

CIRIA (2011) Delivering biodiversity benefits through green infrastructure C711 http://www.ciria.org/ItemDetail?iProductCode=C711&Category=BOOK

CIRIA (2007) The SuDs Manual C753 free at

http://www.ciria.org/Resources/Free_publications/SuDS_manual_C753.aspx

Department for Infrastructure Greenway Strategic Plan: www.infrastructure-ni.gov.uk/publications/exercise-explore-enjoy-strategic-plan-greenways

Box 5 – NI case study

The Connswater Community Greenway, Belfast

The Connswater greenway based along the Connswater River in Belfast, restored sections of river, connected people to the river, provided flood relief areas, connected the biodiversity from the coast to the hills with a wildlife corridor and habitat creation and the landscape quality and visual amenity of the area and created linkages including paths and cycle ways which helped people enjoy safe and pleasant non-motorised transit in a highly urbanised area.
Source: http://www.connswatergreenway.co.uk/

Department for Infrastructure (2014) Living Places - An Urban Stewardship and Design Guide for Northern Ireland https://www.planningni.gov.uk/index/policy/supplementary_guidance/guides/livingplaces_-_web_dfi.pdf

Department for Infrastructure Strategic Planning Policy Statement for Northern Ireland (SPPS) Sept 2015 https://www.planningni.gov.uk/index/policy/spps.htm

Department for Infrastructure (2016) Sustainable Water. A long term water strategy for Northern Ireland (2015-2040) https://www.infrastructure-ni.gov.uk/articles/long-term-water-strategy-northern-ireland

Ecosystem Knowledge Network at http://ecosystemsknowledge.net/resources/tools-guidelines/green-infrastructure

Houses of Parliament (2008) Postnote: Ecological Networks http://researchbriefings.files.parliament.uk/documents/POST-PN-300/POST-PN-300.pdf

Houses of Parliament (2013) Postnote: Urban Green Infrastructure http://researchbriefings.files.parliament.uk/documents/POST-PN-448/POST-PN-448.pdf

Houses of Parliament (2016) Postnote: Green Space and Health http://researchbriefings.files.parliament.uk/documents/POST-PN-0538/POST-PN-0538.pdf?dm_i=21A8,4JDJK,GDXE87,GW9Q4,1

Landscape Institute (2013) Green Infrastructure. An integrated approach to land use https://www.landscapeinstitute.org/PDF/Contribute/2013GreenInfrastructureLIPositionStatement.pdf

Natural England (2007) Green Infrastructure and the Urban Fringe. Learning lessons from the countryside in and around towns programme http://publications.naturalengland.org.uk/publication/36009

Natural England (2009) Green Infrastructure Guidance http://publications.naturalengland.org.uk/publication/35033

Outdoor Recreation NI (2015) Toolkit for the Development of Community Trail Networks www.outdoorrecreationni.com/publication/outdoor-recreation-ni/best-practice/toolkits/community-path-networks/

Royal Institute of Chartered Surveyors (2011) Green Infrastructure in Urban Areas http://www.rics.org/uk/knowledge/professional-guidance/information-papers/green-infrastructure-in-urban-areas/

Science for Environment policy (2012) The multifunctionality of Green Infrastructure http://ec.europa.eu/environment/nature/ecosystems/docs/Green_Infrastructure.pdf

The Water and Sewerage Services Act (2016) came into operation on 23 March 2016. https://www.infrastructure-ni.gov.uk/publications/water-and-sewerage-services-act-northern-ireland-2016 Section 4 of the Act extends the powers of NI Water to adopt sustainable drainage systems (as they define them) and to require construction of SuDS. Section 5 supports this by introducing restrictions on the right to connect new surface water sewers to the public network.