

BIODIVERSITY & BLUE GREEN INFRASTRUCTURE

BEGIN

City-to-City Learning Programme 2021: Key Takeaways

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BGI & BIODIVERSITY: KEY TAKEAWAYS

Best practices developed to implement effective BGI while delivering improved biodiversity & ecosystem services

While the climate crisis is well documented, it has advanced in tandem with a lesser known but equally as devastating biodiversity crisis, which has seen the destruction of over 60% of the world's wildlife since 1970 (WWF).

To reverse this, restoring and protecting biodiversity is an EU priority, with the EU 2030 Biodiversity Strategy introducing legally binding restoration targets. However, to make a difference it's crucial that we consider biodiversity everywhere.

By 2050, close to 70% of the world's population is expected to live in urban areas (United Nations, 2018). Among other factors, including land use, invasive species, and climate change – urbanisation can pose a direct threat to biodiversity.

Luckily, however, small interventions can make a big difference. Sustainable urban initiatives such as Blue Green Infrastructure (BGI) are an ideal way to re-introduce habitats and foraging sites into cities, with additional co-benefits for humans.

Two recently executed BGI projects in Hamburg and Aberdeen provided a number of key lessons to ensure biodiversity is centered in BGI. In Aberdeen, the East Tullis Burn Improvement Project transformed a fragmented, unloved space with low biodiversity, flooding and pollution issues into a wetland popular with people and wildlife. In Hamburg, the Filter Basin Bremer Strasse project replaced a grey water collection solution with an integrated BGI alternative that offered multiple co-benefits, including to biodiversity.

KEY TAKEAWAYS

If You Build It, They Will Come

Aberdeen found that wildlife quickly moved into the new, biodiversity friendly habitat at the East Tullow Burn. Since the Burn was transformed with biodiverse planting and expanded ponds, over 49 bird, 19 insect, 9 plant, and 8 mammal species have been recorded. **Diverse elevations, flora, and soil types** can also create the right conditions for different animals to thrive in the ecosystem. To understand the effects of a

project, **conduct monitoring**, including regular site reports and detailed **biological records** of biodiversity to back up the case for biodiversity-friendly BGI to stakeholders. This data can later demonstrate the many co-benefits of BGI and help garner support. To build community support, **citizen science initiatives** are an ideal way to monitor the new flora and fauna.

Think in 4D

Biodiversity can thrive in small, connected spaces. If there is no opportunity for a large-scale intervention, small, interconnected blue-green **habitat mosaics** can be effective steppingstones for wildlife. Habitat mosaics are a series of spaces in close proximity that imitate the structure and ecological diversity of an ecosystem, offering well connected **food, foraging and nesting sites**. To be effective, these should be at

multiple levels: think **ground, canopy, rooftops and green corridors** connecting corners of public parks, private gardens and small plots. **Collaborate with the private sector** to integrate biodiverse habitats throughout the city. In Edinburgh, for example, the Square Meters for Butterflies project worked with business to create **rooftop gardens** and green roofs.



Focus on Co-benefits

In high-pressure urban areas it's important to design **resilient, multi-functional BGI projects** that complement the wider infrastructure system with multiple **co-benefits**, including biodiversity. In Hamburg, for example, the Hohe Strasse drainage project offered long-term lower costs than pipes, with additional benefits in terms of **flood prevention**, improved aesthetics and a boost to biodiversity. Other co-benefits to consider are **increased storm water retention capacity, improved water quality, residential amenity, better air quality, health,**

increased carbon capture, and mitigation of the heat island impact. From this perspective, consider using biodiverse BGI as part of the infrastructure system – for example, by replacing walls with hedges or chicanes with mini rain gardens. It's important to collect good data on these co-benefits to back up the business case. Highlighting the co-benefits can be a good route to gaining the multi-departmental and cross sector support required for BGI projects, and to acquiring **multi-organizational funding.**

Unique Ecosystems, Universal Objectives

While there are general objectives that can be widely applicable, the unique nature of ecosystems means there is **no one size fits all solution** to enable biodiversity. Ensure the **right species are selected to suit the site, weather conditions, and local use cases.** Consider the use of **native species.** In Hamburg, external expertise was used to select plants resistant to changing water levels and pollution. Make maintenance easy by working with the unique

features of the site. At East Tullos Burn, the design was chosen based on the constraints and opportunities at the site, including, for example, selecting raised paths instead of wooden walkways to minimise the need for maintenance and the risk of vandalism. When upscaling across a city or region, consider **identifying processes** that can be replicated rather than site specific solutions.

Bring Everyone Onboard

It's important to **communicate** with all stakeholders from the start to maintain awareness and build understanding and support for these interventions. **Involve the local community at an early stage** through consultations, maintenance volunteering, and **citizen science projects.** For example, in Aberdeen a

local school helped with wildflower planting. Use a **participatory approach.** Hold a roundtable with affected stakeholders – from water companies to ministers and local businesses – to understand their concerns, demonstrate the positive co-benefits of BGI, and create a common language.

BGI & BIODIVERSITY WORKSHOP

Host Cities: Aberdeen City Council & LSBG Hamburg

This City-2-City Online Learning Workshop was organised in the framework of the BEGIN project. BEGIN's aim is to create more attractive, enjoyable and sustainable climate-proofed cities. The workshop is part of a series of peer-learning workshops during which host cities from the BEGIN network learn from each other's best practices in various blue green infrastructure (BGI) challenge areas, brainstorm new ideas and think about the next steps for their BGI practices.

During the interactive BGI & Biodiversity workshop, Hamburg and Aberdeen shared their experiences and results implementing BGI projects in their cities. This document outlines the key lessons learnt.

Other workshops and briefs in this series:

Past workshops: BGI & Health, BGI & Maintenance

Coming up: BGI & Art and Culture, BGI Business Cases

Reference this document:

De La Haye, A., Van Herk, S., Aivalioti, S., Giraldo, P., (2021): Blue Green Infrastructure & Biodiversity: Key Takeaways; BEGIN city-2-city learning programme 2021

