The IGNITION Project: Nature-Based Solutions

What are nature-based solutions?

Nature-based solutions are interventions that use nature to help solve specific problems, like flooding or overheating, in our communities.

They are often used in place of, or alongside, grey infrastructure as they deliver solutions to climate change as well as providing social, economic and health benefits.

Some examples of nature-based solutions include green walls, green roofs, street trees, greenspace and rain gardens. These structures can alleviate **environmental** problems and help us tackle the climate emergency by:

Preventing flooding and droughts

Cleaning up water pollution

Improving air quality

Reducing urban heat island effect

Restoring biodiversity

Providing insulation and reducing energy consumption

Capturing and storing carbon

Reducing noise pollution

They can also provide **social and economic** benefits such as:

Decreasing crime levels

Encouraging local economic growth by creating pleasant places consumers are drawn to

Improving land and property value

Improving health and wellbeing by encouraging exercise and contact with nature

Nature-based solutions in an urban environment

Urban environments often have a lot of hard surfaces, densely packed together with very little open green space. This environment requires solutions that make the most of the limited space, while tackling big problems such as poor air quality and flooding.

Sustainable drainage systems (SuDS)

Sustainable drainage systems (SuDS) are a way of managing surface water. In cities and towns, they are used to slow the flow and contain surface water, mimicking the way that nature manages water, helping to reduce flooding and pollution.

Types of SuDS include swales, green roofs, raingardens, basins, ponds and wetlands as well as more engineered options such as below-ground storage and permeable surfaces. Used in urban areas, SuDS can increase green space.

Green roofs and walls

There are different types of green roofs; from lightweight, low-maintenance sedum roofs to large-scale roofs in parks and gardens. Blue-green roofs incorporate water, which can be stored and used to irrigate green areas, and bio-solar roofs which contain green roofs and solar technology.

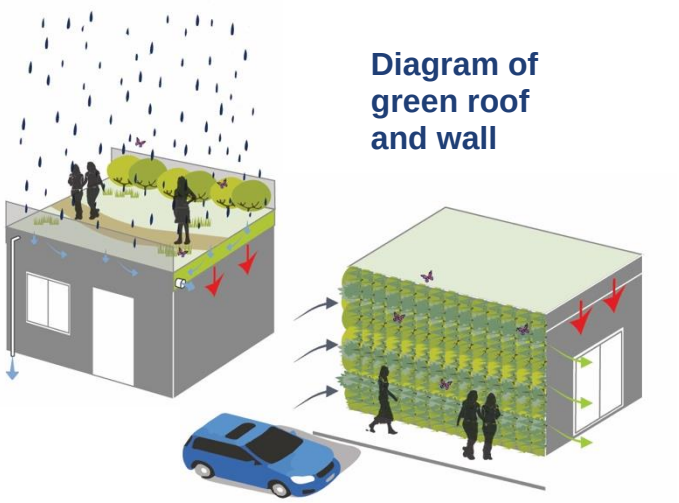

Diagram of green roof and wall

Street trees

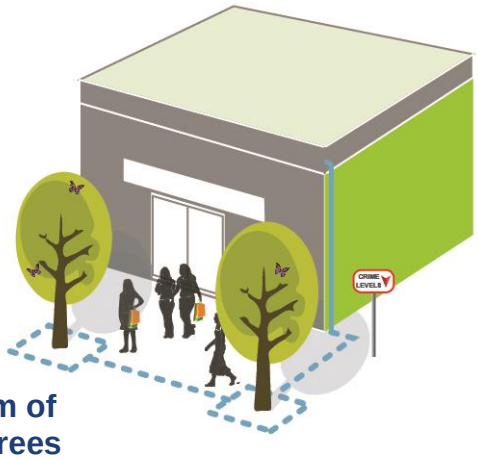

Diagram of street trees

Trees in urban areas are known to provide a wide range of benefits without needing a lot of dedicated land.

These examples give a snapshot of how nature can be used to provide solutions to climate change. Other approaches include mangrove or peat moorland restoration and more complex solutions like bio-reactive façades.

The IGNITION project's Living Laboratory of interconnecting nature-based solutions at the University of Salford will be monitored and researched to find out the exact benefits of solutions over time. The IGNITION project has also collated a nature-based solutions evidence base for the above solutions to quantify their benefits. This can be found on the **IGNITION website**.