

Blue Sky Green Space

Understanding how **quality parks and green spaces** aid in the mitigation and adaptation of **climate change**

Climate change today

The vast majority of the scientific world agrees that human activities have and are increasing the amount of greenhouse gases in the atmosphere, and this is a major contributing component of climate change. Since the industrial revolution, carbon dioxide emissions have risen 150 parts per million (ppm) to 430ppm. Whilst we may not be able to do anything to reverse the current global warming, it is imperative we understand how parks and green spaces can help in mitigating and adapting to climate change. The ways in which green spaces contribute to meeting the challenge of climate change are numerous, they reduce harmful elements, energy use, urban heat island effect, flood risks and erosion and improve biodiversity and air quality and increase opportunities for local food production, alternative transport links and natural waste management.

Mitigation

Parks and green spaces act as carbon sinks, removing carbon dioxide from the atmosphere and storing it away. Carbon dioxide is thought to be responsible for causing about half of the greenhouse effect. One hectare of trees and shrubs can absorb one tonne of CO² – equivalent to 100 family cars – a single tree will produce enough oxygen for 10 people. Within urban areas, a 10% increase in green cover could potentially eliminate the effects of climate change on increasing surface temperatures.

Vegetation from green spaces reduces daytime temperatures by 2-3°C in an urban park than the surrounding streets. Research shows the cooling effect of green spaces can be felt up to 100 meters from the site. Strategic planting of trees provide shade, act as a wind break, generating 10-50% savings in cooling and 4-22% savings of heating costs, in addition to the trees' ability to lower carbon emissions by 2-3%.

They can also provide alternatives for transportation and energy. Parks and green spaces play a significant role in supporting more sustainable patterns of transport. Of the 2.5 billion annual visits to the parks, 10% are to take a shortcut to another destination, and over 70% of all journeys to parks are made either on foot or bicycle. Many miles of car-free footpaths and cycle paths are provided by the networks of parks and green spaces within our towns and cities contributing to the national networks of:

- Sustrans National Cycle Network
- Safe Routes to Schools
- Rights of Way
- Bridleways

Tree belts have been shown to be very effective at trapping toxic particles such as lead.

Bradshaw, A., Hunt, B. & Walmsley, T. (1995). *Trees in the Urban Landscape : Principles and Practice*

Trees moderate local microclimates – urban areas with trees are cooler in summer and warmer in winter and can help to alleviate fuel poverty.

Forestry Commission England. (2010). *The case for trees in development and the urban environment.*

A study in Merseyside revealed that the temperature was 7°C cooler where vegetation cover was 50% compared to where the vegetation cover was only 15%.

Whitford, V., Ennos, A. R. and Handley, J. F. (2001). *City form and natural process – indicators for the ecological performance of urban areas and their application to Merseyside, UK. Landscape and Urban Planning, Vol. 57(2), pp.91-103.*

Contributing to sustainable transport relies on continued maintenance of the pathway systems and ensuring that green spaces are attractive, high quality spaces that people feel safe using.

The production and consumption of food in the UK is estimated to account for almost a fifth of our overall greenhouse gas emissions. Food transport accounts for an estimated 12% of all greenhouse gases associated with UK food production emissions. Local food production decreases food miles while at the same time raising awareness of this global environment issue, encouraging people to move towards self-cultivating or purchasing from local growers. Local food production can also contribute towards biodiversity and the conservation of less-common varieties of fruit and vegetables.

Adaptation

Green spaces provide the capacity to respond to the impacts of climate change. They moderate urban temperatures, help to reduce the risk of flash flooding, provide storm water storage and retention opportunities and natural waste management opportunities. In this way they help us adapt to the stresses and fluctuations caused by climate change.

Within hard landscaped areas surface water has to be removed by man-made drainage systems, many of which are antiquated or inadequate, increasing the risk of flash flooding during periods of heavy rainfall. Green space soil and vegetation is capable of soaking up substantial rainfall, at the same time filtering storm water and recharging natural groundwater supplies, creating a more sustainable urban drainage system. With trees and grass, run-off rates are 50% lower than for hard landscaped areas. Ensuring that river flood plains are conserved as green space relieves pressure on engineered drainage systems.

Investment in an urban area's green infrastructure networks, as part of a planned approach to sustainable urban drainage, would quickly pay for itself through savings on the cost of engineered drainage approaches. It would also improve the landscape, replenish water table levels, provide opportunities for car free transport routes and make a major contribution to biodiversity.

Trees and plants play an important role in improving air quality, reducing dust, pollutants and carbon emissions. Trees absorb gases such as carbon monoxide, nitrogen dioxide and sulphur dioxide that can cause respiratory problems such as asthma and bronchitis. They also filter fine particles known as PM10s that irritate these chronic diseases.

86.5% of people agreed that 'improving off road footpaths and cycle-ways between open spaces is important.' And 78% agreed 'improved traffic free footpaths and cycle routes would encourage me to walk or cycle.'

GreenSpace. (2010). GreenSTAT visitor survey system

Environments with trees are more robust. Water quality is improved as trees act as natural filters. The root systems of trees also counter soil erosion.

Forestry Commission England. (2010). The case for trees in development and the urban environment.

'Food transport is responsible for the UK adding nearly 19 million tonnes of carbon dioxide to the atmosphere each year. Over 2 million tonnes of this is produced simply by cars travelling to and from shops.'

Climate Choices, Children's Voices & Food Climate Research Network

green space = village greens squares play areas

Released for Climate Week 2011, this executive summary; understanding how quality parks and green spaces aid in the mitigation and adaptation of climate change is an outlet of our Blue Sky Green Space report which documents the entire array of benefits that quality green spaces bring to our health and wellbeing, communities and our economic and environmental value.

GreenLINK

Blue Sky Green Space was developed by GreenLINK; an open forum where knowledge can be shared, duplication can be avoided and robust and effective responses to challenges that impact on the sector can be jointly developed. It brings together, at a national level, organisations that are active in the parks and green space sector. Participating organisations include charities and trusts, social enterprises and other non-governmental bodies. GreenLINK is hosted by ourselves, GreenSpace, the national charity working to improve parks and green spaces by raising awareness, involving communities and creating skilled professionals.



www.green-space.org.uk | Registered Charity No.1108803 | Company Reg No.03741111

multi use games areas. accessible countryside
city (urban) farms play areas skateboard parks
multi use games areas accessible countryside
nature reserves allotments community gardens

urban forestry scrub grasslands downlands commons
meadows wetlands open & running water cycleways
river & canal banks rights of way tennis courts sports pitches
bowling greens golf courses athletics tracks churchyards
school & other playing fields outdoor sports areas squares
recreation spaces amenity space around housing plazas
domestic gardens tree lined streets village greens scrub
cemeteries urban parks country parks formal gardens
multi use games areas accessible countryside woodlands
city (urban) farms play areas skateboard parks downlands
wetlands multi use games areas accessible countryside
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