



‘Economic Benefits of Local Climate Action’ Extract from upcoming report; Prepared for UK100

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Nature-based solutions (NbS)

Nature-based solutions are critical in the fight against the climate crisis. Too often decarbonisation and climate action debates devolve into fanciful ideas of technological saviourism and developing often expensive and unproven new ‘negative emissions technologies’, when in fact the technology we need to sequester carbon, preserve and repopulate our biodiversity, guard against flooding and extreme weather events, clear our air, and provide tangible economic benefits, is provided by the natural world. By definition, nature-based solutions are essentially “actions to protect, sustainably manage, and restore natural or modified ecosystems, which address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits”¹. In other words, NbS provide direct benefits for an environment under threat from unsustainable economic activity, while providing significant economic benefits and opportunities in the process.

As the recent *The Economics of Biodiversity: The Dasgupta Review* commissioned by the UK government notes:

“Conserving and restoring our natural assets will sustain and enhance their supply. It is less costly to conserve Nature than to restore it once damaged or degraded, all else being equal. In the face of significant risk and uncertainty about the consequences of degrading ecosystems, in many cases there is a strong economic rationale for quantity restrictions over pricing mechanisms. Expanding and improving the management of Protected Areas therefore has an essential role to play”.²

¹ https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_757823.pdf

²

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957629/Dasgupta_Review_-_Headline_Messages.pdf, p. 3

NbS benefits for employment & value-added

NbS are jobs rich climate interventions with significant benefits for employment, both within NbS sectors, and as a multiplier for broader economic activity. A remarkable study by Royal Society for Protection of Birds (RSPB) examined the economic benefits of habitat restoration in two ways: the labour intensive and high-value added process of the actually restoring various types of habitats, and the less labour intensive activity of maintaining restored habitats in the future.³ Using this method, the employment and value added benefits of investing in NbS were calculated for three of the most significant habitats in nature restoration – woodland, peatlands, and salt marsh (Table 1).

Table 1 – NbS employment and GVA benefits⁴

Type of nature restoration	Return in economic & social benefits for every £1 invested	Temporary jobs per 100 hectares of restoration	GVA per 100 hectares restoration investment
Woodland (afforestation)	£2.79	25	£1.2m
Peatlands	£4.62	3	£0.156m
Salt marsh	£1.31	14-74	£0.88m-£4.8m

The significant nature of these benefits, particularly on the employment front, shows the jobs-rich nature of NbS as an investment opportunity, above even other green investment choices. In particular, the restoration of woodlands offers major employment benefits, alongside myriad economic advantages (explored below). Curating and restoring peatlands, however, are less employment intensive as an investment, but as a fundamental carbon sink the economic and social benefits by way of return on investment are significant.

Moreover, these benefits have been explored, and similar results produced, in other important studies. Garrett-Peltier and Pollin found that investments in restoring and sustainably managing woodland habitats created more jobs per unit of investment than more carbon-intensive sectors such as agriculture, gas, mass transit and freight

³ <https://www.cam.ac.uk/stories/economicsofprotectingnature>

⁴ https://www.camecon.com/wp-content/uploads/2021/03/The-economic-costs-benefits-of-nature-based-solutions_final-report_FINAL_V3.pdf

rail construction, for example⁵ - for every \$1m invested in woodland restoration a total of 39.7 direct and indirect jobs are created, or almost 40 jobs directly and indirectly created per every £710,000 invested. The government have announced a £640m Nature for Climate fund to plant 40m trees⁶ – by employing Garrett Peltier’s above calculation, *we can estimate this could create over 35,700 jobs in NBS⁷ nationally, or equal to over 90 jobs per local authority⁸.*

Examples of job creation in major cities

The calculations above suggest that 25 jobs would be created for every 100 hectares of woodland that are restored during the restoration phase (further jobs are sustained during maintenance).

- **London's** forested area was estimated by the Woodland Trust to be 13,000 Ha in 2017 - a 50% increase (additional 6,500 Ha) out to 2050 would provide **1,625 new jobs**
- [Glasgow Forestry and Woodland Strategy⁹ seeks an additional 9,000 HA](#) to add to the 21% city region area already forested = additional 9,000 creates a further **2,250 jobs**
- [Leeds want to double coverage with an additional 9000 Ha¹⁰](#) in coming decades additional 9,000 creates a further **2,250 jobs**.
- **Greater Manchester** has 7,000 HA of woodland, about 5.6% of the city regional land areas. If this area was increased to 13% for example¹¹, the national average for forested land, would create over **2,300 jobs** in the Manchester city region alone¹².
- **The West Midlands** has 98,474 hectares of forest (7.6% of the total land area¹³), if this were to double (which would bring the region just above the national average of 13%), this would lead to **24,600 extra jobs**.

⁵ https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_757823.pdf

⁶ <https://www.gov.uk/government/news/budget-2020-what-you-need-to-know>

⁷ 640m/710k = 901. 901x39.7 = 35,785.

⁸ 343 Local Authorities.

⁹ <https://glasgow.gov.uk/article/26755/Woodland-strategy-aims-to-boost-tree-cover-over-Glasgow-City-Region>

¹⁰ <https://www.yorkshireeveningpost.co.uk/news/politics/climate-scientist-welcomes-plans-extra-two-square-miles-trees-leeds-1361858>

¹¹ <https://www.forestresearch.gov.uk/tools-and-resources/statistics/statistics-by-topic/woodland-statistics/#:~:text=The%20area%20of%20woodland%20in.and%20%25%20in%20Northern%20Ireland.>

¹² 7,000/5.6(%) = 1% - 1,250Ha. 1,250x13(%) = 16,250. 16,250-7000 = 9,250 additional Ha. 9,250/100Ha = 92.5 x 25 jobs per 100 Ha = 2,312 jobs created in Manchester.

¹³ 2002 Forestry Commission Inventory

<https://www.forestresearch.gov.uk/documents/3049/niwestmidlands.pdf>

The boost to output across the economy is also a compelling case for supporting NbS. For example, the investment required to restore a hectare of woodland generates £12,219 in gross value added (GVA) (during the restoration phase). After that, the conservation and management of this woodland contributes £3,139 in GVA over a period of a century¹⁴. *At the scale of afforestation recommended by the Climate Change Committee, 30,000 hectares of woodland afforested through capital investment would generate £366m in value added, totalling just under £1m in GVA per UK local authority*¹⁵.

Eco-services and broader economic benefits

For local authorities, the benefits of NbS investments extend beyond employment and value added. In both rural and urban areas, the broader benefits manifest themselves in different ways. In rural environments, local authorities have a greater opportunity to restore and preserve wide open spaces to become forest estates and public amenities, functioning as significant eco-tourist destinations as well as natural carbon sinks. In 2016, some 226 million visits were made to public forests¹⁶. More than 95 million people visit National Parks and their hinterlands each year, spending more than £4bn and supporting some 68,000 jobs.¹⁷ For rural local authorities with an option to utilise these large natural spaces, and to create and restore new ones through nature-based interventions, the benefits as an eco-service for tourism, hospitality and the local economy are clear.

In more urban environments, NbS offer a number of significant economic opportunities. Firstly, property values benefit from an increase in green spaces in towns and cities – studies show increases between 5% and 18% in property values in greener and more afforested streets¹⁸. By making town and city centres greener, we make them more attractive and more hospitable environments in which consumers like to spend time. As a result, urban afforestation drives increased footfall and

¹⁴ <https://www.ukgbc.org/wp-content/uploads/2020/08/Nature-based-solutions-to-the-climate-emergency.pdf>

¹⁵ <https://data.gov.uk/dataset/24d87ad2-ofa9-4b35-816a-89f9d92b0042/local-authority-districts-april-2020-names-and-codes-in-the-united-kingdom>

¹⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

¹⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

¹⁸ <https://www.treconomics.co.uk/wp-content/uploads/2018/08/GBU-Street-Tree-Cost-Benefit-Analysis-2018.pdf> - p23

demand in towns where high streets increasingly struggle to compete against online retail and delivery giants such as Amazon. Between 2013 and 2018 1-in-12 high street shops have disappeared in English and Welsh city centres – this equates in gross terms to the closure of at least 40 shops per town centre (in England and Wales).¹⁹ Figure 4 details these benefits in numerical terms.

Figure 4 – Economic benefits of NbS in urban local authorities²⁰



Afforestation

The economic benefits of afforestation (the establishment of a forest or stand of trees in an area where there was no previous tree cover) in particular warrant their own discussion as a policy choice. Beyond property prices and boosting high street consumption, afforestation, and related urban NbS initiatives, can provide economic benefits driven by the reduction of energy use through insulation, reducing surrounding air temperature, mitigating against flooding, and carbon sequestration helping to clear smoggy urban air²¹.

The function and placement of trees in urban areas is often to capture and absorb excess stormwater, a role quickly gaining in importance as we face the extremities of a

¹⁹ <https://www.theguardian.com/cities/ng-interactive/2019/jan/30/high-street-crisis-town-centres-lose-8-of-shops-in-five-years>

²⁰ <http://uknea.unep-wcmc.org/EcosystemAssessmentConcepts/EcosystemServices/tabid/103/Default.aspx>

²¹ <https://www.ukgbc.org/wp-content/uploads/2020/08/Nature-based-solutions-to-the-climate-emergency.pdf>

degrading climate. Depending on how and where trees are planted in urban areas, a conservative estimate of the economic benefit *per tree* over 50 years ranges from £1,200 to £8,000^{22 23}. Using this approach, *planting 6,000 trees strategically located across a large English town with flooding issues, for example, could deliver benefits of up to £48m over 50 years, or equivalent to almost £1m per year.*

However, only a small fraction of forested land in the UK is owned outright by local authorities²⁴, which restricts the pursuit of these benefits somewhat. Therefore, land agreements are typically used by local authorities where funding and afforestation is managed and coordinated with local landowners who agree to environmental improvements on their land. The Greater Manchester City region has 7,000 such hectares operating under this kind of agreement²⁵ - about 5.6% of the total city region land area – and is also involved in a pilot project called IGNITION to realise green infrastructure and climate resilience projects across the city region through NbS²⁶. If this area was increased to 13% for example²⁷, the national average for forested land, would create over 2,300 jobs in the Manchester city region alone²⁸. The city of Toronto preserve a cherished ‘urban forest’ whose economic contribution to the city region has been valued at £5.3bn (\$7bn) – the population of Toronto’s urban centre, for reference, is similar to that of the Greater Manchester Metropolitan area²⁹³⁰.

Social and health benefits

There are important social and health benefits advanced by NbS too. For instance, there is evidence showing a reduction in petty crime, violent crime and damage against property is achieved in areas where ‘greenness’ and natural life proliferates. Results

²² https://www.treeeconomics.co.uk/wp-content/uploads/2018/08/GBU_Street-Tree-Cost-Benefit-Analysis-2018.pdf - £1,223 cumulative benefit per open grown tree over 50 years, £8,000 cumulative benefit over 50 years for Root Space System planted trees absorbing large volumes of urban stormwater.

²³ According to authors, this valuation does not account for obvious economic benefits which were difficult to quantify – “Increased economic growth and prosperity (Rolls and Sunderland, 2014), including increased consumer spending and greater ground rents in leafier areas, increased productivity (Kaplan, 1993; Wolf, 1998), house prices and a reduction in crime.” – p44

²⁴ <https://www.forestresearch.gov.uk/documents/3107/nigreatbritain.pdf> - 3.1% in 2003

²⁵ https://www.greatermanchester-ca.gov.uk/media/1986/5-year-plan-branded_3.pdf - p61

²⁶ <https://www.ukgbc.org/wp-content/uploads/2020/08/Nature-based-solutions-to-the-climate-emergency.pdf>

²⁷ <https://www.forestresearch.gov.uk/tools-and-resources/statistics/statistics-by-topic/woodland-statistics/#:~:text=The%20area%20of%20woodland%20in.and%20%25%20in%20Northern%20Ireland.>

²⁸ $7,000/5.6(\%) = 1\% - 1,250\text{Ha}$. $1,250 \times 13(\%) = 16,250$. $16,250 - 7000 = 9,250$ additional Ha. $9,250/100\text{Ha} = 92.5$ x 25 jobs per 100 Ha = 2,312 jobs created in Manchester.

²⁹ <https://www.toronto.ca/city-government/data-research-maps/toronto-at-a-glance/>

³⁰ <https://www.manchestereveningnews.co.uk/news/greater-manchester-news/manchester-new-population-figures-statistics-18481319>



from a US study showed that for every 10 percent increase in tree canopy cover there was a 15 percent decrease in the violent crime rate and a 14 percent decrease the property crime rate. The researchers controlled for socioeconomic factors, including neighbourhood-level educational attainment, median household income, racial/ethnic composition, population density, vacancies and renter-occupied housing, suggesting that the results are not confounded by higher socio-economic neighbourhoods having more trees³¹. –The economic benefits of safer residential and economic areas are obvious, though difficult to quantify. Furthermore, not only are people more likely to spend time in tree-lined streets of internal shopping districts, but they are likely to be made healthier while doing so. Particulate matter can fall by as much by 60% in well-forested urban centres, with significant benefits for costs avoided in the health service and in worker productivity through days lost to illness.³² Afforestation in urban areas also assists with noise reduction, and *DEFRA conservatively estimates the benefits to the economy of this noise reduction amount to some £41m (2017 prices)*³³

About UK100

UK100 is the only network for UK locally elected leaders who have pledged to play their part in the global effort to avoid the worst impacts of climate change by switching to 100% clean energy by 2050. The most ambitious - our Net Zero Local Leadership Club - are doing everything within their power to get their communities to Net Zero as soon as possible, and by 2045 at the latest. To accelerate the transition to this Net Zero society, UK100 brings together local authorities, from cities to the countryside, to share knowledge, collaborate, and petition the UK government with their collective power. www.uk100.org

About PCAN

The Place-based Climate Action Network (PCAN) is about translating climate policy into action ‘on the ground’ in our communities. PCAN is an ESRC-supported Network that brings together the research community and decision-makers in the public, private and third sectors. It consists of five innovative platforms to facilitate two-way, multi-level engagement between researchers and stakeholders: three city-based climate commissions and two theme-based platforms on adaptation and finance, with a business theme integrated into each climate commission. The five-year project is led by an experienced team of researchers with strong track records of engaging with public, private and third-sector decision-makers. PCAN builds on the policy connections, networking capacity and research strengths of its host institutions: the Centre for Sustainability and Environmental Governance at Queen’s University Belfast; the Edinburgh Centre for Carbon Innovation; the University of Leeds, and the London School of Economics and Political Science. <https://pcancities.org.uk/about>

³¹ <https://www.sciencedirect.com/science/article/abs/pii/S0169204615001607>

³² https://www.treeeconomics.co.uk/wp-content/uploads/2018/08/GBU_Street-Tree-Cost-Benefit-Analysis-2018.pdf

³³ https://www.camecon.com/wp-content/uploads/2021/03/The-economic-costs-benefits-of-nature-based-solutions_final-report_FINAL_V3.pdf