



# **MAINSTREAMING NATURE-BASED SOLUTIONS**

Social Inclusion

Andrea Armstrong

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Led by Durham University, NATURVATION involves 14 institutions across Europe working in fields as diverse as urban development, innovation studies, geography, ecology, environmental assessment and economics. Our partnership includes city governments, non-governmental organisations and business. We will assess what nature-based solutions can achieve in cities, examine how innovation is taking place, and work with communities and stakeholders to develop the knowledge and tools required to realise the potential of nature-based solutions for meeting urban sustainability goals.

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# SERIES INTRODUCTION

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Cities are increasingly seen as a key arena for governing global environmental, social and economic challenges. Nature-based solutions – such as green roofs, parks or sustainable urban drainage – are gaining traction as a promising approach to sustainable urban development. They are a cost-effective and efficient strategy that can address multiple challenges in cities simultaneously.

The mobilisation of nature to enhance urban sustainability is taking place through various experimental projects. But such solutions have yet to be widely adopted and implemented. In order to realise their potential, there is an important need to develop our understanding of how to generate promising pathways for mainstreaming nature-based solutions.

Nature-Based Solutions (NBS) are defined by IUCN as actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

Drawing on extensive research in the UK, Sweden, Germany, the Netherlands, Spain, Hungary and at level of the EU, we have identified 20 actions – stepping stones – that can build the potential for mainstreaming nature-based solutions. Rather than seeking universal pathways for mainstreaming nature-based solutions, diverse combinations of stepping stones can support their uptake to address different sustainability challenges and under diverse urban, financial and policy conditions.

This series of five reports presents promising pathways for mainstreaming nature-based solutions to address: climate change; biodiversity; economic regeneration; social inclusion and the sustainable development goals agenda. Each report asks: how can the mainstreaming of nature-based solutions be supported through this agenda? And what in turn can working with nature-based solutions do to ensure that sustainability challenges are mainstreamed at the urban level? We find a variety of complimentary pathways that can help to foster more sustainable cities for the future.

# EXECUTIVE SUMMARY

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Greater understanding of social inclusion is vital to decision making about mainstreaming nature-based solutions. Social inclusion in this context means understanding how vulnerable, marginalised and under-represented voices are included (rather than excluded) in processes and practices to mainstream nature-based solutions (see Anguelovski et al., 2020). Central to this, is an examination of the specific ways that power is exerted and re-configured to produce and exchange knowledge and extend or create networks when mainstreaming nature-based solutions.

Although nature-based solutions and social inclusion are usually addressed separately, there are a myriad of connections between them. Drawing on extensive research on the opportunities and pathways for mainstreaming nature-based solutions in six countries in Europe and at EU level, this report identifies four pathways to mainstream nature-based solutions for social inclusion:

## **Pathway 1: Broaden participation in nature-based solutions**

This pathway focuses on broadening participation, in order to ensure that when nature-based solutions are mainstreamed they also deliver on social inclusion. Broadening participation means engaging beyond the 'traditional' power hierarchies and the 'usual suspects' by bringing in different urban stakeholders, e.g. volunteers, health services, religious groups and others. The aim is that interests of diverse constituencies are considered, and their needs are accounted for and included in the design and development of nature-based solutions.

## **Pathway 2: Embed political commitment to social inclusion within nature-based solutions**









This pathway focuses on the importance of ensuring there is a genuine political commitment to social inclusion within nature-based solutions. Our analysis found that existing political commitment to nature-based solutions is varied at best and at worst sparse, usually falling far short of a truly embedded commitment to social inclusion. Aligning policy priorities on social inclusion and nature-based solutions will help to ensure that existing inequalities are understood and a meaningful attempt is made to address them.















### Pathway 3: Make public health and well-being a priority

Nature-based solutions provide an opportunity to align social inclusion with public health and well-being agendas. The physical and mental health benefits of being in and around nature are widely acknowledged, whether walking and cycling in urban parks, growing food in allotments and community gardens or enjoying the birds, insects, plants and trees in your own garden and neighbourhood. Designers and practitioners of nature-based solutions who focus on the health benefits that can be generated will help to advance social inclusion. This is an agenda that requires inclusive processes and nature-based solutions can address underlying inequalities (see Anguelovski et al. 2018a).



			
<b>Provide a public mandate</b>	<b>Regulate for No Net Loss</b>	<b>Include in contractual requirements</b>	<b>Align with strategic priorities</b>
The mainstreaming of NBS can benefit from policy-makers and investors giving a clear mandate for NBS to be included in urban development through tender and procurement policies, policy instruments (e.g. land use planning guidance), and where possible mandatory regulation.	No net loss / net gain regulation for urban nature (biodiversity) has the potential to generate greater interest in NBS across Europe. Developing harmonised regulation across Europe with strong monitoring and sanctioning to increase effectiveness has the potential to support NBS mainstreaming	Utilities (e.g. water, waste, energy) and network service providers (e.g. road and rail authorities, waterway authorities) are either publicly owned or operate on long-term contracts that are bound by regulatory requirements for service provision. Including NBS as required for the delivery of mandated functions (e.g. water quality treatment) or for the upkeep of land-holdings (e.g. train sidings, roadside verges) provides an important avenue for mainstreaming.	Positioning urban NBS as generating benefits for prioritised policy goals through generating narratives and evidence (i.e. climate change mitigation & adaptation, circular economy and healthy urban living) can widening their relevance and community of practice.
			
<b>Create intermediaries</b>	<b>Generate partnerships</b>	<b>Establish demonstration projects</b>	<b>Engage insurance sector</b>
In order to overcome institutional silos within both public and private sector organisations, new organisational forms that work across these divisions are required. Intermediary units can either be established within organisations or outside (by external bodies) and provide co-ordination between departments as well as platforms for innovation.	Stimulating partnerships between public, private and third sector organisations for the co-design, development and maintenance of urban NBS is critical for generating initial action on the ground and increasing support for mandatory urban greening policies.	Demonstration or pilot NBS projects, often involving research, can create shared learning and knowledge development as well as providing tangible demonstrations of how NBS can work in practice, creating confidence amongst partners about their potential.	Engage the insurance sector to support upscaling of urban NBS based on their risk reduction needs and damage cost expertise

			
<b>Facilitate community-based action</b>	<b>Provide economic incentives</b>	<b>Develop markets</b>	<b>Build co-financing arrangements</b>
Facilitate and support community-based action for local urban NBS through improving citizen awareness and support	Provide economic incentives (tax cuts, subsidies) for integrated delivery of urban NBS as a component of urban sustainable development.	Positioning NBS as a sustainability solution offering wide societal and reputational benefits can support the development of demand for NBS projects which in turn can stimulate supply.	Build governance arrangements between the public and private sectors to enable co-funding for NBS development and maintenance
			
<b>Work with investment cycles</b>	<b>Stimulate institutional investment for risk reduction</b>	<b>Target areas of low land value</b>	<b>Improve data &amp; monitoring</b>
Integrating urban NBS into infrastructure projects and renovation cycles to increase their (multi)functionality and can save costs by reducing the need for additional outlay and drawing on existing budgets	Institutional investment for urban NBS is likely to be forthcoming based primarily on their climate risk reduction value (adaptation and mitigation), and specific data/modelling may be required to realise this potential.	NBS can face competition from other land-uses which return a higher rate on investment. Using urban space with a lower value can suit some forms of NBS and provide a more cost-effective means of urban greening (e.g. street green, pocket parks and building-integrated green)	Mainstreaming NBS will require the development of evidence on their performance urban NBS, through the use of 'big data' and new assessment tools that can support effective monitoring, evidence-building and assessments of their effectiveness in addressing key urban goals.
			
<b>Advance valuation models</b>	<b>Grow practitioner expertise</b>	<b>Incorporate in green investment products</b>	<b>Promote certification schemes</b>
Making the case for NBS requires that we develop and disseminate valuation models that specify the different (monetised) benefits and costs of NBS, to facilitate public and private investment decisions.	Make practitioner-oriented expertise on urban NBS available to facilitate integration of NBS in the actual urban development process (i.e. practitioner guides and collaborative design).	Include urban NBS into (existing and new) green / impact / sustainable investment products in order to enable projects to access this source of finance.	Integrate urban NBS criteria into green certification schemes, in particular for buildings, based on recognition of NBS the contribution NBS can make towards sustainability goals.

## NATURE-BASED SOLUTIONS FOR ACTION ON SOCIAL INCLUSION

'Leaving no-one behind' is a central aspiration underpinning the 17 UN Sustainable Development Goals (SDGs) adopted in 2015. Amongst these goals, access to and participation in decision making about the use of green spaces is an important aspect of tackling exclusion. The physical and mental health benefits of access to nature are widely acknowledged. Yet access is not always available to everyone and the social, cultural, spatial, economic and political reasons for this are complex and interrelated. There is also evidence that the integration of nature-based solutions can exacerbate social exclusion, raising questions about who the city is for, and pointing to aspects of 'green gentrification' (see Anguelovski et al. 2018b; Anguelovski et al. 2018c; Garcia-Lamarca, M. et al. 2019).

Marginalisation associated with deprivation in urban areas is a particular challenge. Certain parts of urban areas lack green and open spaces, private and community gardens, trees, or water bodies, and civic engagement and participation that determines how green spaces are constituted can be inequitable. To avoid 'green gentrification' whereby low-income residents are displaced or excluded from urban areas undergoing green or sustainability planning and processes, it is vital to consider how urban nature-based solutions can be mainstreamed into cities and support social inclusion. Based on an extensive study of nature-based solution practices across six European countries and at the EU-level, we identified three key pathways to improve the integration of urban nature-based solutions and social inclusion. Each of these is further broken down into stepping stones, providing insight into concrete actions that decision-makers can take to help activate the pathways.

### **PATHWAY 1: Broaden participation in nature-based solutions**

This pathway highlights ways in which broadening participation in nature-based solutions can also deliver on social inclusion. Considering and engaging with diverse urban stakeholders ensures that different voices are heard and included in the creation and development of nature-based solutions. Broadening participation in nature-based solutions, however, is not without its challenges, as our analysis demonstrated. Participation is common at the Masterplan phase of development when civil society representatives and policy makers are most likely to be consulted. In some cases, however, participation is limited to publicity events, and in the context of new buildings there are no residents to engage with in the development stage.

In the Netherlands, we found that some interviewees expressed minor criticisms about the participatory culture in urban developments. Specifically, they raised issues about how participatory processes can prolong urban development/implementation processes, which leads to management challenges i.e. letting everyone join the conversation can slow the process. These critiques are important to address because if broadening participation and social inclusion is viewed as requiring long decision making processes there is a risk that policy makers will try to avoid participatory processes.

This pathway addresses these commonly raised challenges that were uncovered in our research exploring the key avenues toward broadening participation in nature-based solutions. The stepping stones we recommend for embarking on this pathway include:

**Generate partnerships:** As a first step, it is vital to secure knowledge of the various public, private and third sector organisations (e.g. charities, voluntary and community organisations, mutual cooperatives, religious organisations, etc.) located and active in the area that have an interest in and/or expertise around nature and nature-based solutions. To nourish existing partnerships and foster new ones, this knowledge can be mobilised early on to ensure social inclusion when mainstreaming nature-based solutions. This information should also be kept up-to-date locally, for example via practitioners in municipal authorities that specialise in public engagement. Gatekeepers of local knowledge, such as existing and prospective partners that have expertise in nature and nature-based solutions, are crucial in generating and maintaining momentum for partnerships and development projects. Other ways to generate partnerships without extending development processes unnecessarily include: integrating nature expertise and social justice expertise early on in development processes, incentivising collaborative design processes, and stipulating integrated ways of working as a requirement of external

funding. New strategic system-level partnerships can help foster green developments whilst also supporting social inclusion. For example, Local Nature Partnerships in England,<sup>1</sup> which bring together local organisations, businesses and individuals who want to improve their local natural environment. Developing effective and equitable partnerships can be challenging, but these partnerships are also rewarding when they offer useful exchanges of knowledge, experience and skills.

Facilitate community-based action: To facilitate community-based action, it is important to understand and enhance mechanisms that promote active citizenship. For example, a fixed municipal contact person can act as a gatekeeper as mentioned above, and up-to-date databases that keep track of local public, private and third sector organisations as well as social enterprises can provide crucial information. The facilitation of such community-based action is challenging and it often involves a learning process for all involved. As long as there is a genuine desire from all parties involved to co-design an equitable and respectful process of community-based action, then mutual trust can be developed. Understanding and working through existing power relationships is a critical element of tackling barriers to participation. Fostering community-based action also implies reaching out to those who will be affected, but who may not be able to afford to participate or do not feel comfortable to participate. It is therefore important to engage diverse types of audiences by using creative methods and providing a variety of opportunities such as workshops, exhibitions, festivals, social media, website interaction, broadcasts, events, etc.

## WHAT IS NEEDED TO ACTIVATE THIS PATHWAY?



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<sup>1</sup> Local Nature Partnerships (LNPs) <https://www.gov.uk/government/publications/map-of-local-nature-partnerships>



## Green Neighbourhood Citizen Initiative (Bewonersinitiatief Oost Indisch Groen) – Amsterdam, Netherlands<sup>2</sup>



'Oost Indisch Groen'<sup>13</sup> (East Indian Green) is a green citizen initiative to make an Indian neighborhood in Amsterdam more sustainable, fun and healthy through the engagement of the local population. The central nature-based solution in this initiative is a community garden and kitchen where vegetables are grown and prepared. All of the activities of the initiative is organised by the local population, including the design, implementation, and maintenance of the garden. The space serves as a meeting area where local residents can garden, cook together and exchange ideas. Besides promoting social cohesion and inclusion, the community garden also supports sustainable food production as crops are grown using organic agriculture and permaculture techniques. Moreover, the initiative supports educational tours and workshops that teach children and adults about nature, ecosystems, gardening, healthy living and sustainability. The initiative also adds green space that improves biodiversity and recreation opportunities.

(Photo credit: CSMimages)

<sup>1</sup> <https://www.naturvation.eu/nbs/amsterdam/green-neighbourhood-citizen-initiative>

<sup>2</sup> Oost Indisch Groen <http://oostindischgroen.nl/projecten/>

## **PATHWAY 2: Embed political commitment to social inclusion within nature-based solutions**

The main barrier to incorporating social inclusion in nature-based solutions is that policymakers view these two arenas as separate debates with different policies and approaches rather than seeing the connections between them. To address this, we found that there must be a genuine political and policy commitment to the participation of disadvantaged and marginalised people within efforts to mainstream nature-based solutions in cities. The stepping stones along this pathway include:

**Alignment of strategic priorities:** Creating this 'fit' between different agendas—social inclusion and nature-based solutions—requires the alignment of strategic priorities in institutional policy-making at the EU, national and local levels. It also requires working across silos, whether between different government departments or across the public and private sectors. Embedding a political commitment to social inclusion and working across silos, in the development of nature-based solutions will realise multiple benefits including the empowerment of marginalised peoples.

**Provide economic incentives:** Funding mechanisms that require the integration of nature-based solutions and social inclusion are vital to stimulating smaller and larger-scale initiatives in towns and cities. Rent controls, or ceilings for home and land prices, are emerging in the literature as effective policy mechanisms to align social inclusion and nature-based solutions. These mechanisms help to avoid the financialisation of assets located close to new or refurbished nature-based solutions. When funding mechanisms stipulate that projects foster integrated ways of working, this challenges silos and promotes new and innovative partnerships.

**Create intermediaries:** Working across scales and domains with diverse directorates, agencies and gatekeepers can create opportunities for capacity building to further improve coordination across silos. While intermediaries can help bring different actors together, it is important to be aware that gatekeepers can also be selective and contribute to a pattern of exclusion. Community engagement initiatives that work with intermediaries or gatekeepers to build local capacity and participation at the local level are an important way to build engagement on the local scale.

**Target areas of low value land:** Marginalised groups in cities are more likely to live in disadvantaged areas with limited access to green space. Therefore, developing nature-based solutions in those areas, and in particular utilising areas of low value land, can produce significant social benefits for marginalised groups and hence contribute to social inclusion. For example, a project of the Scottish Government's Green Infrastructure Fund developed a former primary school site that was inaccessible and severely contaminated in a nature-based solutions. The site was transformed into a Community Green Space with areas of biodiverse plantings, raised bed allotments, recreational areas for children, outdoor exercise equipment, and outdoor education areas. The project also offered information about the historical heritage of the area. While multiple benefits can emerge from targeting areas of low land value, such initiatives should be accompanied by rent controls or measures that maintain housing prices in order to prevent a new wave of gentrification.

## **WHAT IS NEEDED TO ACTIVATE THIS PATHWAY?**



## Scottish Green Infrastructure Fund



The Scottish Government's Green Infrastructure Fund (SGIF) is a £15 million grant programme led by Scottish Natural Heritage as part of the 2014 – 2020 European Regional Development Fund (ERDF) programme. The aim of the ERDF is to invest in communities to help them to grow economic activity and employment. The SGIF funds capital green infrastructure projects in urban deprived areas in Scotland and also provides community engagement grants. The funding specifically targets urban areas with over 10,000 deprived people and areas that fall within the deprived 20 per cent of Scotland as defined by the Scottish Index of Multiple Deprivation. The Index takes into account several forms of deprivation, including financial, access to green space, education, crime and health. The programme funds 40 per cent of a capital green infrastructure project and the other 60 per cent must be secured through mechanisms such as City Deal Funding or Lottery Funding. The vision of the SGIF is that:

*...greenspaces in Scotland are multifunctional, providing improved benefits for communities, helping the Government to adapt to and mitigate climate change, increasing biodiversity, improving air quality, managing surface water runoff and reducing flooding. Green infrastructure close to where people live provides economic, health and recreational benefits and enhances their quality of life. More people use greenspace for healthy activities and more people say that the greenspace meets their needs<sup>4</sup>.*

Only public or third sector organisations are eligible as grantees and the funding can only go towards non-statutory initiatives. The programme also provides smaller grants for community engagement around existing green space.

(Photo credit: Kirsten Drew/Unsplash)

<sup>4</sup> <https://www.greeninfrastructurescotland.scot/our-outcomes-and-themes>



### **PATHWAY 3: Make public health and well-being a priority**

This pathway focuses on how prioritising health and well-being in nature-based solutions will further social inclusion. There is a growing body of evidence that ‘when contact with nature is combined with physical activity, social connection, living together, and adventure’ we can create a range of interventions and initiatives that are ‘effective, accessible and affordable in many urban contexts’ (Pryor et al. 2006:122; see also van den Bosch and Sang, 2017; Vujcic et al. 2017). Public health strategies that focus on the social and environmental aspects of human health are seen as key (Chu and Simpson, 1994) yet as our example below shows social inclusion as a way of achieving health and well-being can also be instigated and achieved by communities themselves. The main stepping stones for achieving this pathway are:

**Facilitate community-based action:** We found that in some situations municipal planning, and policy documents and guidance, can facilitate community action. For example, surveys and maps of urban neighbourhoods that demonstrate the lack of green spaces can provide useful data and information for residents and community groups. Often, such surveys and maps that identify the presence or absence of green and open spaces are produced by municipal governments but not acted upon due to lack of funding. Giving communities access to this data can provide an opportunity for communities to act by using this evidence to improve their own localities.

As we see in the example of the Sea Heroes Community Garden in the Netherlands, it was exactly this scenario that prompted local citizens to gather a petition. They convinced the municipality that green space was required, resulting in a community garden with multiple benefits for humans and the environment.

**Target areas of low-value land:** Land in urban areas varies in value, from premium land that is of extremely high value and can command high investment and returns in commercial areas, to smaller and fragmented parcels of land that are considered to be of low value. It is often such ‘low value’ land that can provide an opportunity for nature-based solutions. Approaches that promote ‘green attached to grey’ bring together buildings and infrastructure with community gardens, pocket gardens, etc. These nature-based solutions can be created in areas where there is little or no green space, thus increasing the associated health and well-being benefits of being close or with nature.

**Generate partnerships and build co-financing arrangements:** To make community-led initiatives a reality, it is important to generate partnerships and build co-financing arrangements. Partners that may volunteer their time and experience are extremely valuable. For example, partnerships between universities and communities can lead to student architects and designers contributing to projects (see example below). There are mutual benefits in such arrangements, which is a vital consideration when negotiating any partnership.

### **WHAT IS NEEDED TO ACTIVATE THIS PATHWAY?**



## Sea Heroes Community Garden (De Zeeheldentuin) – The Hague<sup>5</sup>



The Sea Heroes Community Garden was initiated by citizens in a disadvantaged neighbourhood with no green spaces. While planning guidance ('Bestemmingsplan Zeeheldenkwartier 2010' / Development Plan of Sea Heroes Quarter) identified the lack of green space in the neighbourhood, there were no plans to create new green spaces. To rectify this, citizens collected 2,500 signatures from the neighbourhood, convincing the municipality of The Hague that more green spaces were required and supporting the development of the community garden.

Local citizens then formed a board to oversee the project and coordinate activities. The garden itself was designed by DGJ architects and volunteer students from the Technical University of Delft, based on ideas put forward by citizens and drawings from school children. The project was financed by Stichting De Versterking, a foundation that bought the land from the housing corporation HaagWonen; various private funds (Fonds 1818, Jantje Beton and Oranjefonds); a bank (Rabobank); the municipality of The Hague; a health care facility (Zorg Hotel Residence Haganum) and citizens themselves. Neighborhood residents and volunteers of the organisation De Groene Eland maintain the garden.

The key goal was to create a garden in which children can play, fruit and vegetables can be grown organically, and people can enjoy recreation. The creation of such green spaces supports activities and recreation, and promotes the health and well-being of citizens, which is particularly important for the elderly. In the garden, multiple measures allow for storm water retention and heat stress reduction. The vegetation in the fruit orchard and ornamental garden is chosen to provide optimal habitat, food and nesting possibility for species. Moreover, the project also supports the education of children about food production and the value of biodiversity.

(Photo credit: Roel Wijnants / <https://flic.kr/p/2b96v6D>)

<sup>5</sup> Sea Heroes Community Garden (De Zeeheldentuin), The Hague, <https://naturvation.eu/nbs/hague/sea-heroes-community-garden>



## CONCLUSION

Nature-based solutions have the clear potential to support social inclusion. When there is an alignment of both agendas, there is the potential to tackle social, cultural, environmental, economic and political exclusion as well as improving health and well-being. To fully achieve this potential, we present three promising pathways and their associated stepping stones to stimulate the mainstreaming of nature-based solutions to support social inclusion.

**Pathway 1: Broaden participation in nature-based solutions;**

**Pathway 2: Embed political commitment to social inclusion with nature-based solutions;**

**Pathway 3: Make public health and well-being a priority**

These pathways reinforce each other and include some core interventions that are fundamental for building strong pathways for nature-based solutions, such as the generation of partnerships and facilitating community-based action. No one pathway will be sufficient on its own for mainstreaming nature-based solutions, rather they offer complimentary routes that can be taken together to support social inclusion.

While the relevance of these pathways to specific urban contexts will vary, the underlying stepping stones can be applied in diverse settings. We encourage you to use these resources to explore how, together with stakeholders and communities, you can take the next steps to advance social inclusion through action at national and local levels.



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# Mainstreaming Nature Based Solutions

Promising Pathways for Sustainability Goals



The NATURVATION project uncovered specific pathways that advance Nature Based Solutions and address challenges as diverse as climate change, biodiversity, social inclusion, and economic regeneration. Each pathway is made up of stepping stones, which are summarised in a set of 20 briefing cards. The stepping stone highlight actions in the realms of either policy, finance, or urban development, as well as real-world examples collected during research in the UK, Sweden, the Netherlands, Germany, Spain, Hungary, and at the EU level. Policymakers and others interested in pursuing Nature Based Solutions may select a pathway that aligns with their particular context, and use the designated stepping stones to learn about key actions that will advance that pathway.



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Mainstreaming Urban Nature-Based Solutions

## Work with investment cycles

Integrating nature-based solutions into building developments and renovations expands the functionality of that infrastructure and reduces costs by drawing on existing budgets. One approach is to identify strategic partners for large green infrastructure projects, as Rooftop Revolution in the Netherlands did with housing corporations planning roof renovations. Roofing firms may also opt to work with homeowners associations to increase the scale of the green roof investment. Water utilities provide a similar opportunity in the UK, where there is increased investment in sustainable drainage systems and flexibility in the financing of infrastructure investments. Public infrastructure providers can require greening or water management in agreements with developers. The Swedish Transport Administration developed guidelines that articulate the integration of ecosystem services into transportation investments.



Municipal investment in urban infrastructure in Sweden offers a substantial opportunity for synergies and cost savings through multi-functional infrastructure that delivers on climate adaptation, mitigation, and ecosystem services. The government articulated that urban greenery and ecosystem services must be integrated into the planning, building and administration of Swedish cities by 2025. Significant investment in transportation, public housing, culture, and recreation flows through local governments, supported by revenue from taxes. Green streetscapes can be pursued through transportation budgets, for example, rather than environmental protection budgets. Overcoming the perceived conflict between policies that promote dense urban infrastructure and policies on urban greening will help unlock public infrastructure investment for nature-based solutions.



# Mainstreaming Nature Based Solutions

Promising Pathways for Sustainability Goals



## Climate Change

With the race to reach 'net zero' targets and build back resilience, nature-based solutions are increasingly seen as a critical tool for responding to climate change. Whether by cooling cities and reducing energy demand or providing new ways of managing flooding, nature-based solutions are gaining support globally. We identify four pathways through which mainstreaming is taking place: recognising their potential as a climate solution; investing to reduce climate risk; integrating climate action with other sustainability goals; and learning through practical experience on the ground.

## Biodiversity

As the world seeks to develop a transformative agenda for biodiversity over the next decade, we explore how mainstreaming nature-based solutions can enable cities to conserve, restore and thrive with nature. Four pathways are identified based on regulating for 'no net loss' of biodiversity, developing co-governance arrangements for public-private finance, integrating biodiversity with existing sustainability priorities, and integrating biodiversity into urban development and the built environment.

## Social Inclusion

Nature Based Solutions such as new parks, rooftop gardens, and tree-lined streets play an important role in improving wellbeing and enhancing community spaces. However, the potential for gentrification and displacement of lower income groups means that these solutions must actively foster social inclusion and tackle inequalities. We identify three pathways that strengthen social inclusion: broadening community participation, securing genuine political commitment and policies that support social inclusion, and pursuing social inclusion measures as a way of achieving health and wellbeing.

## Economic Regeneration

Nature-based solutions can create economic regeneration through increasing economic activity and employment and by improving the quality of life. Nature-based solutions both directly contribute to economic vitality and well-being, and leverage new forms of economic activity in cities that generate opportunities. Mainstreaming for economic regeneration takes place through developing partnerships for investment, increasing our knowledge of their economic value, seizing opportunities emerging from other sustainability initiatives, and stimulating market demand for nature-based solutions.

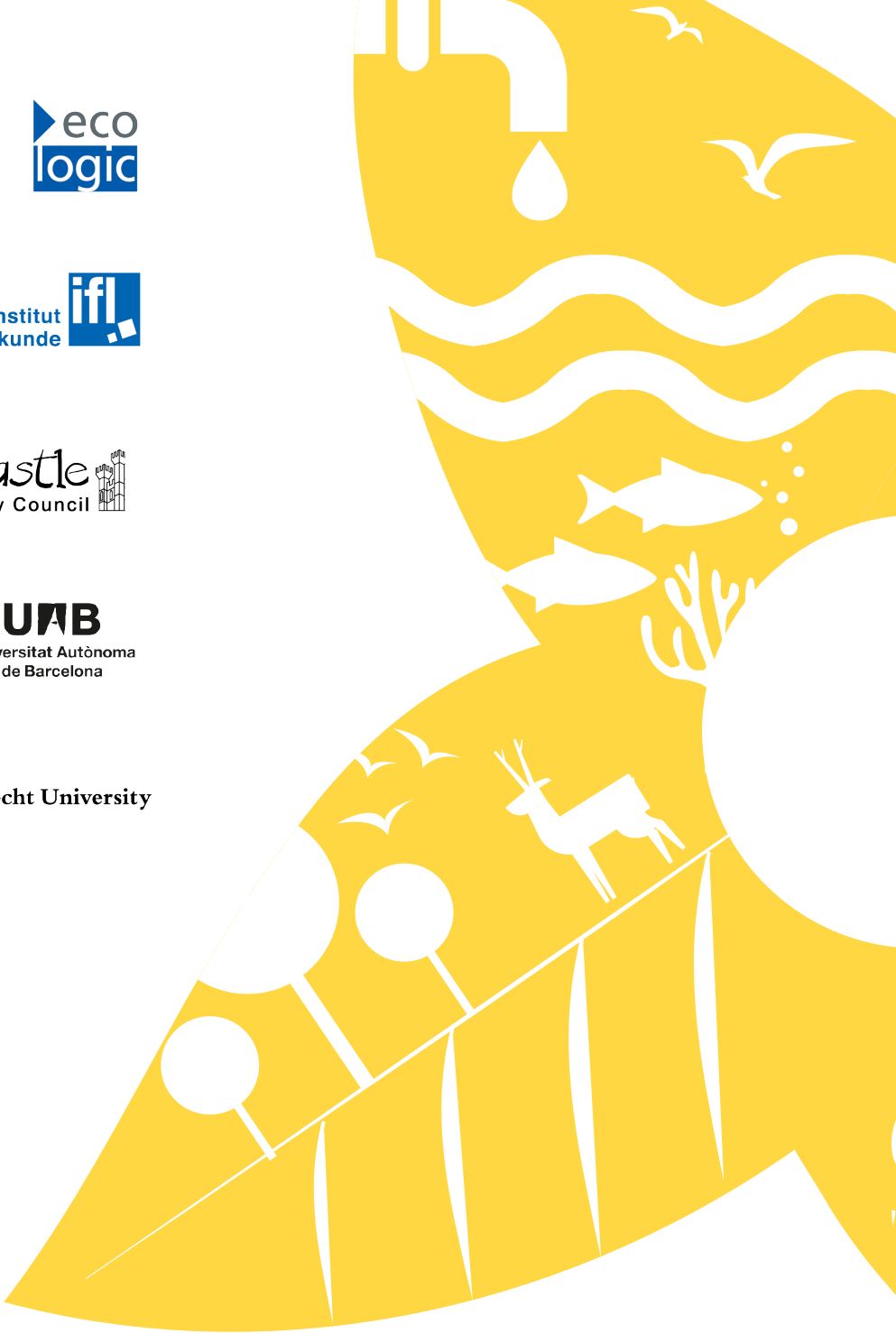
## Sustainable Development Goals

To achieve the SDGs, urban development must prepare for growing populations while also creating sustainable and inclusive cities. Nature Based Solutions can address a range of sustainability goals from climate resilience to health to economic development. For example, green space provides cooling, reduces pollutants, and encourages physical activity. Pathways that engage urban Nature Based Solutions to address SDGs include: involving diverse actors, strengthening local engagement, addressing multiple sustainability objectives simultaneously, establishing institutional arrangements that integrate sustainable development, and monitoring and assessing sustainable urban transformation.





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