



## NATURE-BASED SOLUTIONS FOR SUSTAINABLE URBAN DEVELOPMENT IN GERMANY



### KEY POINTS

- Nature-based solutions (NBS) are a promising tool to address the diverse societal challenges German cities are facing
- Leipzig is an example of a city addressing the increasing pressure on its natural resources by using nature-based solutions.
- While communities and NGOs can help buffer the negative impacts facing cities, local and national political support is needed with regard to:
  - Developing a minimum standard on accessible green space
  - Mainstreaming nature-based solutions as an alternative or complement to traditional grey infrastructure solutions
  - Securing land use rights for communities working for social inclusion and the protection of (peri)urban natural resources.

### THE NATURVATION PROJECT

NATure-based URban innoVATION is a 4-year project involving 14 institutions across Europe in the fields of urban development, geography, innovation studies and economics. We are creating a step-change in how we understand and use nature-based solutions for sustainable urbanisation.



## Protecting urban nature: The role of local, subnational and national governments



Local and subnational governments are increasingly recognised for their central role in protecting and restoring nature for sustainable urbanisation. Nature-based solutions (NBS) are at the forefront of such discussions, boasting a multifunctional character which can simultaneously contribute to social, environmental and economic goals. Nature-based solutions can, for example, improve public health and wellbeing, reduce pollution, conserve biodiversity, decrease flood risk, increase resilience, and regenerate urban spaces. Yet these benefits have not yet been realised to their full potential.

Wider implementation of nature-based solutions requires, amongst other factors, increasing awareness of their benefits as an alternative to traditional grey infrastructure, leveraging resources and finances for implementation, capacity building and pilot projects,

and developing standards for urban nature (e.g. quality, quantity and access). National governments have an important role to play in creating these conditions and developing a regulatory framework which supports local and subnational governments in mainstreaming nature-based solutions across planning and policy.

This brief builds on the lessons learned throughout the EU-funded NATURVATION project and the experiences gathered in Leipzig's activities therein to increase the local consideration of nature-based solutions. Based on identified gaps, the brief further highlights opportunities for increased support which can be provided by the national level (i.e. by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety; Federal Ministry for Economic Affairs and Energy; Federal Ministry of the Interior, Building and Community; and Federal Ministry of Education and Research) to encourage wider impact in cities across Germany and help urban decision-makers to overcome identified barriers.

### What are nature-based solutions?

**Nature-based solutions are spatial interventions that use the natural properties of ecosystems to deliver multiple benefits. As such, they have the potential to limit impacts of climate change, enhance biodiversity and enhance the environmental qualities of the living environment while contributing to economic activities and social well-being**

## Leipzig: Paving the way towards sustainable urbanisation

Leipzig has engaged in a process of change over the last four years through the NATURVATION project in terms of how nature-based solutions are understood and are integrated into local policies and plans for sustainable urbanisation. The Leibniz Institute for Regional Geography, together with strategic urban governance actors like the cities of Grimma and Leipzig, the Chamber of Architecture as well as local NGOs are bridging knowledge between research and policy to create a shared vision for how to address critical sustainability challenges through nature-based solutions.

The main challenges identified in the city of Leipzig relate to its changing socio-economic and political fortunes over the past decades. Relevant factors include: environmental legacies of industrialisation, consequences of economic recovery and population growth after decline, rising inequalities, increasing pressure on land, traffic-related air pollution, extreme heat and drought, loss of natural habitats, and decreasing biodiversity.

To address these challenges, a series of interactive events, workshops, awareness raising campaigns and meetings



were held to discuss for example the opportunities and challenges for the “Master Plan Green” in Leipzig and a SimCity-like app developed by NATURVATION for citizen engagement. In addition, the city of Leipzig has worked with cutting-edge tools which can be applied in other cities, such as the Urban Nature Atlas - the world’s largest database of nature-based solutions with over 1,000 cases worldwide - and the Urban Nature Navigator Tool to evaluate nature-based solutions and identify how they contribute to sustainability goals.

Towards the end of 2019, the local network facilitated a collaboration between the city of Grimma and the German Association for Landscape Conservation, environmental NGOs and associations, and city representatives of Leipzig, gardening initiatives as well as neighbourhood initiatives. For the remainder of the NATURVATION project (ending in early 2021), the city of Grimma and the German Association for Landscape Conservation will focus on exhibition activities, sustaining collaboration with local stakeholders and increasing political support at the local and national scales to promote nature-based solutions development in other German cities.

### **Nature-based solutions in action: Green for vibrant urban communities**

Leipzig’s socio-economic and political situations have changed dramatically in the last decades, going through periods of industrialisation, economic recovery and population growth after decline. These factors have had a negative impact on the environment in terms of decreasing biodiversity, natural habitat loss, extreme heat and drought, traffic-related air pollution, increased pressure on unsealed land and increasing social inequity.

As a consequence of municipal measures to manage vacant plots, collaborations between the city, NGOs, citizen groups, local businesses and land owners have emerged to implement a range of nature-based solutions. These measures have contributed to the revitalisation of Leipzig’s East Quarter, one of the city’s most disadvantaged yet most culturally vibrant areas. Nature-based solutions include communal gardens and a larger-scale project to build a green corridor to foster social interactions and environmental learning.

### **Opportunities for increased national support for NBS implementation in German cities**

Building on the lessons learned throughout the NATURVATION project and the experiences gathered in Leipzig’s activities, several opportunities have been identified for how national level bodies can provide increased support for local and subnational governments to implement and mainstream nature-based solutions. In particular, the recommendations target the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety; the Federal Ministry for Economic Affairs and Energy; the Federal Ministry of the Interior, Building and Community; and/or the Federal Ministry of Education and Research. Specifically, a need has been identified to adapt a number of regulatory frameworks to include the following aspects:

- Create a minimum standard for accessible green spaces (e.g. through the Baugesetzbuch, Bundesnaturschutzgesetz)
- Prioritise nature-based solutions before grey solutions when trying to find ways to address societal challenges, e.g. in the Baugesetzbuch and Bundesnaturschutzgesetz. This includes highlighting the multifunctional potential of nature-based solutions to reach diverse sectoral targets and serve as a cost-



effective complement or alternative to grey solutions. Means to do this include: awareness raising campaigns, the production of guidance documents, holding capacity building workshops and creating financial incentives.

- o In Leipzig, this is needed for the alluvial forest that could be used as retention space for flood waters. Pilot studies could showcase the multiple values generated by prioritising nature-based solutions over purely grey solutions as a tool to mitigate urban flooding.
- Secure land use rights for communities working for social inclusion and the protection of natural resources, and therefore for the health and well-being of society (e.g. through the Baugesetzbuch Bürgerliches Gesetzbuch).
- Make it mandatory to obtain a permit and compensation for the removal of green in the city (e.g. through the Baugesetzbuch, Bundesnaturschutzgesetz), as removal is currently allowed in many cases without any license.
- Adapt the Bundeskleingartengesetz to include, for example, a ban on pesticides and an obligation for biodiversity-friendly and sustainable natural resource management (e.g. using local species and species adapted to the local context, grow wildflowers for insects and particularly bees, etc.).

Key aspects that national authorities should consider regarding nature-based solutions are budget and space (such as land use rights). These aspects can be tackled through the development of a shared vision and strong network, supported through transparency (e.g. organising participatory co-creation engagement activities to develop guiding documents or strategies,) capacity building workshops and the integration of citizen engagement processes in relevant regulations. Such engagement measures are key to ensure sustainable and nature-based solution implementation and maintenance and can lead to the development of new and innovative nature-based solutions being implemented after the initial plans have been realised.

## How can the Dutch national government support the up-scaling of NBS across the country?

Building on the lessons learnt from Utrecht's activities within the NATURVATION project, several opportunities were identified for the national government to better support local and regional governments regarding nature-based solutions. The example provided in the previous section shows that the conception, implementation and maintenance of nature-based solutions can be supported by the local government. The national government could support this process through the following actions:

- a) Make national funds available to support the emergence of innovative ideas at the local level, e.g. through local competitions sponsored by the Ministries and national agencies responsible for promoting sustainable development and healthy living across the country;
- b) Make national funds available and / or develop R&D programmes to support inclusive and transparent engagement platforms that can secure the active involvement of potential participants in the conception and realisation of nature-based solutions, e.g. via user-friendly online portals and social events;
- c) Monitor the processes and outcomes of local experiences as a basis for identifying the success factors and lessons learnt, collect socially-relevant research questions to inform the agendas of national ministries, the National Environmental Assessment Agency (PBL) and the Institute for Health and the Environment (RIVM);
- d) Provide funds and further support for creating local capacities to maintain nature-based solutions in the long-term and foster a sense of responsibility in local populations that foster collaboration and inclusiveness among different cultural and age groups.

Moving beyond its established role of coordinating research and development efforts, the national government can make significant contributions to all of the outlined conditions. However, given the complexity of the national-to-local stakeholder landscape and the decentralised governance structure, specific attention is needed for the efficacy and difficulties of multilevel, multidisciplinary and interactive governance. There is scope, for example, for improving communication by municipalities with citizens/communities and business actors around the opportunities for and potential values of urban nature. Alternative organisational forms, awareness raising tools and different apps for citizens' consulting can also support the reinforcement of networks important to urban nature, while informing policy change. Cultural drivers should also be considered, such as the search for consensus-building ('draagvlak') and the periodic manifestations of resistance from the side of local communities to top-down interventions that may impact local landscapes and environments<sup>5</sup>.

A challenge-focused approach is also needed for nature-based solutions as their development and implementation take place in different ways depending on place-specific urban challenges. A devolution of natural environment policy to regional and local levels provides a potential path to adopt a more area-specific challenge-based approach, while a national policy on urban nature is likely to inspire a more coordinated effort. Experimentation using, for example, living labs, city deals, and green deals offers great potential to develop new business models, more integrated working and better alignment between the policy and practice of nature-based solutions' development. However, there is a need for overcoming challenges around limited government commitment and/or policy learning from these experiments.

Finally, there is scope for developing product or building certifications that include (more) nature-based indicators and are used as part of procurement/tendering processes. Given the need for urban densification, developers need to be encouraged to integrate nature with buildings. Development contracts in which developers are responsible for maintaining the developed project can also support investment in sustainability measures. The design of urban development plans can also be improved using big data and computer (3D) modelling, taking into account a range of variables. Alongside these aspects, there is also still a need to create visions about urban nature and narratives to engage a broader diversity of stakeholders.

Through the outlined opportunities for action, the national government and its decision-makers can play an important role in realising the development of a regulatory framework and creating the enabling conditions to support local and regional governments in mainstreaming nature-based solutions across planning and policy.