



POLICY ACTIVATION BRIEF

FOSTERING URBAN BIODIVERSITY THROUGH LOCAL ACTIONS

DECEMBER 2020

Prepared by



With support from



On behalf of



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety



I. INTRODUCTION

Three-quarters of the earth's natural resources are consumed in urban areas, and as urbanization continues to rapidly increase around the world, the role of cities in the massive erosion of biodiversity cannot be denied. Urban expansion has led to soil sealing and destruction of habitats, and the consumption patterns of urban dwellers have caused pollution and environmental degradation. In short, cities are key to resolving the biodiversity crisis.

This fact has been established by science and acknowledged by policy makers at national and international levels, through related policies and legislation, and via supporting decisions adopted at the Conference of Parties to the Convention on Biological Diversity (CBD COP) from 2008 onward. Several National Biodiversity Strategies and Action Plans (NBSAPs) now contain provisions which apply directly to local authorities. With the Strategic Plan for Biodiversity 2011-2020 now coming to an end, subnational governments, cities and local authorities need to influence the formulation of the Post-2020 Global Biodiversity Framework – which is expected to be adopted at the CBD COP15 in Kunming, China in 2021 and actively support its implementation.

The purpose of this policy activation brief is to suggest contributions to the Post-2020 negotiation process and provide local governments with a list of reflections, solutions and best practices that can stimulate discussions in participatory processes initiated during COP 14 such as the Edinburgh Process¹ and can be used to set targets and goals presented during the CBD COP 15. Finally, the content of this policy activation brief can be used to feed actions and policy taken by the local governments as well as the drafting process of voluntary commitments such as Local Biodiversity Action Plans.

In order to effectively bring the global biodiversity framework to cities, there are three key areas to tackle. Firstly, local governments must bring new narratives about biodiversity to city dwellers, inviting them to reconnect with nature and reflect on the impacts of their lifestyle. Secondly, biodiversity should not be seen only through the lens of conservation; instead, the values of urban ecosystem services need to be better recognized and taken into consideration by planners and decision makers. This will require a cultural change in spatial planning. Finally, leaders across sectors must work towards a more holistic governance of urban biodiversity with coordinated efforts and political commitments from all levels of government with decision making processes based on scientific evidence. At the same time, this new governance should facilitate the development of new business models to channel financial resources and increased investments towards urban biodiversity.



II. MAKING THE CASE FOR NATURE

55 percent of the global population lives in urban areas² and most metropolitan cities have an average of only 23.4 percent green space. These numbers indicate that city dwellers may feel disconnected from nature in their daily life and highlights the importance of implementing the global biodiversity framework at the local level.

Consequently, the first step for fostering biodiversity in a city should be to address this societal aspect by promoting the benefits of nature to local communities. To do so requires acknowledging the cultural and sometimes spiritual relationships different communities have with nature in order to be able to understand the best way to foster connectivity to nature and acceptance of the efforts of local governments to enhance biodiversity. Connecting citizens to nature might require breaking down psychological barriers preventing them from accessing nature and enjoying it, such as the sense that some sections of the community might have that they do not belong in a green area, or do not feel safe there.³ Therefore, green infrastructure should be designed to be inclusive to allow everyone to feel welcome.

Reconnecting city dwellers to nature should not only be about their relationship to nature but also about how their lifestyles have an impact on nature. Cities consume more than 75 percent of the resources produced on earth,⁴ and many of those resources are not used in a sustainable manner because city dwellers tend to have unsustainable consumption habits. For instance, city dwellers tend to consume more meat than in people living in the countryside.⁵ Since their consumption patterns do not directly impact their surroundings but in distant areas where those resources are produced, there is often a lack of awareness by individuals in cities of the impact they are having on biodiversity. Thus, it is important to raise awareness and incentivize behavioral change to better protect nature.



Local governments are well-positioned to reconnect their citizens to nature by taking actions such as:

- Integrating nature in education programs of schools and kindergartens to create an emotional link to nature from a young age. There are several ways to bring nature into early childhood education, such as the concept of a 'Forest Kindergarten' where the children and the daycare staff spend most of their time outdoors and the children are encouraged to discover, learn and play with what can be found in nature.
- Encouraging sustainable consumption patterns through local initiatives. In order to create incentives for citizens to reduce their biodiversity footprint, local governments need to promote and support initiatives that offer viable alternatives to the traditional consumption cycle. These initiatives can take several forms, from urban gardening projects that bring agricultural food production closer to the buyer, to circular economy practices such as repair cafés and secondhand markets that give a second life to manufactured products and reduce waste generation.
- Incentivizing sustainable consumption. Local governments can use a wide array of regulatory powers to drive change on many environmental matters. For instance, Mexico City adopted a plastic bag ban that went into effect Jan 1, 2020,⁶ and in France, 1204 municipalities have pledged not to use any type of pesticides in the management of their green areas.⁷

There are many ways for local governments to change the behaviors of their citizens in order to reduce their biodiversity footprint, but city administrations also need to reform their planning processes in order to promote sustainable urban development.

III. CHANGING SPATIAL PLANNING PRACTICES: FROM NATURE CONSERVATION TO ENHANCEMENT

A. The Value of Nature in Urban Life

Traditionally, biodiversity and ecosystems have only been taken into consideration by land use planners from a conservation perspective. This is reflected in most NBSAPs and land use planning laws where nature and natural ecosystems are only referred in the context of environmental impact assessments with the idea that development should not be detrimental to the environment.

However, research has shown that urban natural ecosystems and the nature surrounding cities can play an important role in making cities more resilient and in maintaining and improving the livelihoods of city dwellers. The benefits of nature in the cities are among others:

- **Air pollution reduction.** A study from The Nature Conservancy (TNC)⁸ established that trees play an important role in reducing pollution in cities, with the tree canopy absorbing up to 24 percent of the small particles present near a tree. Reducing air pollution has a lot of benefits for public health since it helps reducing asthma, strokes and heart attacks.
- **Urban heat reduction.** Cities are very vulnerable to heat waves resulting from climate change with some cities, such as Ljubljana, Slovenia, expected to be up to 8° C warmer by 2050.⁹ Cities are usually warmer than the countryside because of grey infrastructure such as buildings and other concrete or asphalt structures, which tend to store heat, creating a latent heat. Green infrastructure fights this urban heat effect; for example, a tree can cool an area of up to 30 m² around it, reducing the temperature by up to 3° C depending on the area and time of day.¹⁰
- **Noise pollution reduction.** With a high concentration of people and vehicles, cities tend to be loud places. Noise in cities, the constant roar of traffic, incessant construction noise, piercing sirens, honking, and loudspeakers are a nuisance that affects the well-being of city dwellers. But it is also a danger since many studies have showed that noise pollution increases the risk for cardiovascular problems, sleep disturbances, and mental health issues. Planting noise buffers made of trees and shrubs has proven to be an effective method to reduce urban noise. A study from the City of London has shown that these natural buffers can reduce noise by five to ten decibels for every 30m width of woodland, and this reduces noise to the human ear by approximately 50 percent.¹¹
- **Psychological health improvements.** Studies have shown that a connection to nature is usually beneficial for mental health. For instance, a study from the University of Stanford concluded that walking 90 minutes in a natural area, as opposed to an urbanized area, reduces brain activities associated to key depression factors.¹²

- **Increased resilience.** As extreme weather events increase due to climate change, cities are more vulnerable to hazards such as flooding, drought, wildfires or landslides. Nature can be an important ally to help city planners mitigate those risks. For instance, planting trees can prevent landslides and flooding, and green infrastructure can also be used to manage rainwaters flows and enhance groundwater reserves.
- **Social Fora.** In cities, parks and green areas have a crucial role to play in building social cohesion. They provide gathering places for families and social groups, as well as for individuals of all ages and economic status, regardless of their ability to pay for access. They are places of recreation but also of social interaction where people can gather and undertake activities together, such as outdoor gyms or urban gardening. Especially in the midst of the COVID 19 pandemic where indoor activities are very limited, urban parks and gardens have been crucial spaces for people to live their social life while respecting social distancing measures. For all those reasons, urban parks provide identity for citizens and are a major factor in the perception of quality of life in a given community.

The value of nature and the ecosystems services that it can provide has led to the development of the concept of Nature Based Solutions (NBS), also called Green Infrastructure (GI). This concept, which emerged at the beginning of the 2000s, is defined as *“actions to protect, sustainably manage and restore natural or modified ecosystems, which address societal challenges (e.g. climate change, food and water security or natural disasters) effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits.”*¹³ In an urban context, NBS can take many forms such as urban forests, natural areas, greenways, streams and riparian zones, meadows and agricultural lands, green roofs and green walls, parks, gardens and landscaped areas, community gardens, and other green open spaces such as rain gardens and engineered wetlands.

NBS are slowly gaining traction in the context of land use planning, especially in urban areas, since they can help local governments to conserve or restore biodiversity in urban ecosystems and at the same time, provide them with cost effective solutions to important urban issues such as air pollution or urban heat islands. Research has shown that multi-functional NBS can provide significant advantages over single-service grey infrastructure (e.g. an anti-noise wall has only one function). For instance, planting an urban forest would not only help capturing carbon and reducing air pollution but also noise pollution and urban heat and will at the same time contribute to the cultural and historical landscape of the city, giving an identity to reforested areas and improving the scenery and quality of life for urban dwellers. Finally, NBS are often more affordable than grey infrastructure: planting trees and bushes is usually less expensive than building a concrete structure and the maintenance costs are lower.

B. Examples of Nature Based Solutions Good Practices

1. Space management: Fostering Biodiversity in a dense urban ecosystem in Hamburg, Germany¹⁴

During the last decades, the city of Hamburg has made strong voluntary commitments toward nature through strategies, action plans and programs to enhance urban biodiversity. The main challenges faced by city planners result from the fact that Hamburg, like most centuries old large European cities, is densely built, and green areas are scattered across the city. Therefore, city planners have focused their efforts on expanding the green coverage of the city, improving connectivity between green areas and revising building and spatial planning standards to provide more habitat for local fauna.

This commitment to urban biodiversity has been translated into a myriad of projects such as the 10 years project “*Natürlich Hamburg*” which plans to re-connect Hamburg green areas through the creation or expansion of several protected areas and the creation of a new green corridor. Similarly, the projects in preparation “Bio Build” and “Green Diversity in Apartment Housing” aim to integrate biodiversity concerns into the city building and planning standards as well as “re-naturalizing” the green spaces located in areas of the city that were built in the 1950s- 1970s. The aim of revitalizing these spaces is to transform biodiversity poor green areas which have existed for decades into biodiversity hotspots with local flora providing habitat for insects and animals.

One of Hamburg’s most iconic illustrations of its effort to foster urban biodiversity has been its comprehensive and ambitious “Green roof strategy” which has been widely acknowledged as a best practice. In 2014, the city of Hamburg adopted a goal of covering 70 percent of the roofs of new and renovated buildings with plants and flowers. To achieve this goal the city will plant 100 hectares of green roof surface within the metropolitan area by the end of 2020. The purpose of this strategy is to improve the water management systems through rain water retention and natural evaporation. Green roofs retain between 40 – 90 percent of the rain water, easing the burden on sewage systems. In addition, green roofs also provide improve building insulation and reduce the urban heat island effect.

Hamburg’s green roof strategy has four pillars of implementation:

- Financial incentive: The city of Hamburg has a budget of three million euros to provide subsidies to each owner who voluntarily installs a green roof until the end of 2020.
- Communication: A city-wide campaign using posters, brochures, press articles and internet promotion to promote the benefits from green roofs has been launched to raise citizen awareness.
- Policy and Regulation: The strategy has led to a revision of the Hamburg building law, wastewater law, planting regulation and land use plans to embed the green roof strategy in the urban planning landscape. As a result, it will be compulsory by law for buildings built from 2020 onward to have a green roof.
- Scientific support: HafenCity University has been engaged in the implementation of the strategy and provides technical support for its implementation by evaluating international findings on green roofs, developing their own recommendations for Hamburg’s green roof construction, and collecting data on water retention and the water management effectiveness of green roofs especially with severe cloudbursts.

2. Building resilience: the Yanweizhou wetland restoration in Jinshua, China¹⁵

The city of Jinshua, in the province of Zhejiang, is located along the shores of three rivers: the Wuyi River and Yiwu River, which converge at the Yanweizhou wetland to form a third river, the Jinhua. The three rivers and the 64-acre Yanweizhou wetland constitute natural barriers separating the densely populated communities in the region and preventing access to many cultural facilities such as the opera house. At the same time, it is also a source of natural hazards for the city since the area is subject to annual flooding during the monsoon season. In order to tackle this, the municipality first started to build floodwalls to protect urban areas from flooding. However, the construction of grey infrastructure would have resulted in the destruction of the wetland ecosystems since it would have created dry parkland above the water. Thus, an alternative solution using NBS was designed; instead of fighting the flooding, the planners decided to give space for it by designing a park around the wetland using a cut-and-fill strategy to balance earthwork and by creating a water-resilient, terraced river embankment that is covered with flood-adapted native vegetation that benefits from the fertile silt deposited over the terraces by the floods.

In addition to the terraced river embankment, the inland area is entirely permeable in order to create a water-resilient landscape through the extensive use of gravel that is re-used material from the site. Finally, a water-resilient pedestrian bridge was also built over the river to link the parks along the riverbanks in both the southern and northern city districts, and connect the city with Yanweizhou. This project not only provides a solution to the flooding problems faced by the city of Jinshu but also gave a new identity to the city by highlighting the scenery of its riverbanks. The Yanweizhou Park is also very popular among the city dwellers, with an average of 40,000 visitors using the park and crossing the bridge every day.

3. Territorial planning: conserving local fauna through connectivity in Campinas, Brazil

The city-region of Campinas is one of the pilot cities of the ICLEI-led IKI project InteractBio¹⁶ which aims to mainstream biodiversity, nature-based solutions and ecosystem management into city planning and integrate these approaches into subnational Biodiversity Strategy and Action Plans. In this context, the city-region of Campinas decided to develop a multifunctional connectivity area with the aim of connecting its strategic protected areas and remaining forests as well as protecting springs and endangered species. The connectivity area is multifunctional as it conserves biodiversity and also provides local communities with ecosystem services such green areas for leisure, urban mobility and food production.

In order to design this connectivity area, the city-region formed a working group with ICLEI and RECONNECTA-RMC, and designed a connectivity line based on hydrography, protected areas, highways and environmental zoning in collaboration with all the municipalities in the city-region. In a second phase, an evaluation of the benefits provided by the connectivity area was conducted showing the ecosystems services in terms of cultural, recreation and tourism, geological and hydrological process regulation, and finally habitat support and water flow regulation provided by the different land use class (original vegetation, silviculture, agriculture, grass, green urban areas, urban areas, and water). The result of the evaluation was summarized in a map and was submitted to EMPLASA, the Planning Company of the State of São Paulo, which is currently working on a revision of the Integrated Urban Development Plans to be ready by January 2021. Once accepted by EMPLASA, the connectivity area will become officially part of the regional development plan.

4. Improving air quality: The kindergarten green wall from Yerevan, Armenia¹⁷

Yerevan, the capital city of Armenia, faces important issues related to soil and air contamination by heavy metals and dust resulting from its industry and car traffic. In order to tackle those issues, the Center for Ecological-Noosphere Studies (CENS), in cooperation with the Yerevan Municipality worked on a Nature Based Solution to clean the city's atmospheric pollution. In this context, CENS decided to focus on Yerevan's 160 kindergartens since children are usually more exposed to diseases resulting from poor air quality. CENS found that a high number of the kindergartens were particularly exposed to high levels of air pollution, especially those located close to busy streets. Thus, after securing funding from the EU Horizon 2020 project "Connecting Nature", CENS developed a targeted program aimed to analyze the pollutants in the atmosphere and select species of trees and other vegetation which would be best suited to absorb those pollutants. The first action implemented by this program was the installation of green walls next to one of the kindergartens. The green wall presented several advantages since it did not require much time to be installed, and requires limited care and maintenance, allowing it to function for years without extra-costs. The project was praised by the municipality and the local community and will be replicated in other kindergartens and schools across the city. It also serves as an awareness raising tool to teach the value of nature to children.

5. Hybrid grey and green infrastructure: Seattle flood protection and habitat restoration, USA¹⁸

The Thornton Creek Watershed is the largest watershed in Seattle, flowing through 7,402-acres with an estimated urban population of 75,400 living on its shores. Unlike many other watersheds, 90 percent of the Thornton Creek Watershed is above ground and is surrounded by backyards, parks and natural areas. It is also an important habitat for many endemic species such as the endangered Chinook salmon.

However, the Thornton Creek Watershed is also prone to flooding events resulting from storm water. During such events, water tends to submerge the arterial roadway, significantly affecting traffic. Traditionally, the preferred measure to fight against this flooding has been to install culverts to prevent water levels from rising, but these measures have proven to be insufficient. Therefore, the Seattle Public Utilities (SPU) developed a different scenario to improve the efficiency of culverts while at the same time improving the protection of the Chinook salmon and the other local species.

With the support of Earth Economics, SPU designed a plan to replace the current culvert system with salmon-friendly pipes and transform the riparian urban landscape grass back to confluent floodplains with native vegetation and wetland areas. After an economic assessment of this NBS comparing it to the status-quo and to a simple upgrade of the existing grey infrastructure without NBS, SPU decided to select the NBS despite the fact that constructing a confluent floodplain required a higher investment. The confluent floodplain does not only provide the greatest flood relief, reducing peak flows, but it also requires less maintenance and provides many ecosystem services that are beneficial to the environment such as providing beneficial habitat restoration for the conservation of the Chinook salmon population.



C. Challenges in implementing Nature Based Solutions

As can be seen from the examples above, green infrastructure can take many different forms and be used to address a wide array of environmental problems faced by local governments. NBS also provide other benefits such as leisure, health, education, and food production. However, it should be kept in mind that integrating NBS in planning practices requires tackling a diversity of challenges:

- The **need to change planning practices**. One of the main results of the consultations that ICLEI conducted with technical staff from local governments is that there is a lack of awareness among local planners on the benefits of nature. Indeed, urban planners tend to see the biodiversity in their city from a conservation perspective and are often not aware that it can be an asset which can help them to tackle some of the issues that they face such as urban pollution, disaster risk management, and urban heat. Therefore, there is a need to train local planners on how to identify biodiversity assets of a city and the ecosystem services they provide in order for them to be able to better integrate nature in their planning practices. Similarly, it is necessary to build the capacity of city planners on the different kinds of green infrastructure and their benefits so that they are aware of the alternatives to grey infrastructures when they design their urban land use plan.
- Using NBS measures requires a **good understanding of the urban landscape** in order to be effective. Every city is different with a different architectural history and relationship to nature and no NBS measure can be deployed in the same way everywhere. For instance, it is more challenging to integrate NBS in old towns with historic urban landscape than it is in a newly urbanized area. Century-old urban landscapes tend to be protected through various legal frameworks (e.g. UNESCO heritage) and therefore cannot be modified easily.



- In order to be sustainable, the integration of biodiversity in the urban landscape requires **a strong acceptance from local communities**. Engaging local communities in an NBS project can be highly beneficial since it will create a sense of ownership of the project among the local residents which can be an incentive for them to contribute to the project by taking part in its implementation and maintenance. Working hand-in-hand with city dwellers is also a good way to address cultural challenges such as the disconnection between nature and local communities or the sentimental attachment to the existing urban landscape, which is usually especially strong in the case of an old town. However, integrating the local communities in NBS projects supposes **securing access right** for the locals to the places where the project is implemented. Similarly, it also requires breaching the information barrier by reaching out to the people and informing them of the benefits of nature.
- Finally, it is important to **acknowledge the limits of NBS** since green infrastructure cannot always be used to entirely replace grey infrastructure. Indeed, green infrastructure can take more time to be fully operational than grey infrastructure and might not be adapted to situations which require immediate action. For instance, planting a green buffer against floods will only be fully operational once the trees have grown strong enough to absorb the rainwater, whereas a floodwall will be effective immediately after its construction. Therefore, it is important that planners are trained to identify the benefits and drawbacks of planning an NBS project and can take some creative measures such as considering hybrid options which could mix both green and grey concepts.

Clearly, land use planning practices can be adapted to better integrate biodiversity with not only the objective to conserve nature but also to enhance it. However, for NBS measures to be as effective as possible, city officials should plan them keeping in mind that they should be integrated in a broader context where several other actors such as other public authorities, scientists, and businesses need to be involved in order to build coherent and collaborative governance of nature in urban areas



IV. DEVELOPING HOLISTIC GOVERNANCE FOR URBAN NATURE

In order to best integrate nature in urban development plans, local governments must first create an enabling environment which will provide for the sustainability of local biodiversity policies and actions. This enabling environment would rely on three main pillars:

- Improved integration of the biodiversity policies at the different levels of governance
- Stronger science-policy dialogues in the process of urban biodiversity policy making
- Development of business models to finance Nature Based Solutions

A. Vertical and Horizontal Integration

From a governance perspective, urban areas are subject to regulatory frameworks of several levels of government. If the municipal level is usually the level of governance associated with urban areas, other levels of governance such as regions and central governments also play an important role since infrastructure in cities such as train rails or highways are designed and managed at those levels. Also, from a policy perspective, many decisions taken by the central government have to be implemented at the local level in order to be effective. In the case of biodiversity for instance, the National Biodiversity Strategies and Action Plans (NBSAPs) adopted by the central governments cannot be implemented effectively without the support of local governments.

Therefore, building a coherent approach to enhance urban biodiversity requires collaboration and dialogue between the different levels of public entities that play a role in urban development as well as in the planning of the land around urban areas. Establishing a dialogue between the different layers of governance ensures that policies adopted by different public authorities are aligned and form a coherent and intelligible framework for biodiversity.

However, the need for coherence within the policy framework is not limited to vertical integration and requires also horizontal integration, which means better coordination of diverse administrations within one level of governance. Indeed, it is not unusual to see within a local government different administrations with different regulatory powers over the same issue, such as the urban ecosystems, which do not cooperate with each other. Thus, breaking silos as well as ensuring coherence of the overall policy framework are crucial to providing an enabling environment for the implementation of the global biodiversity framework at the local level. Vertical and horizontal integration of governance systems have multiple benefits such as providing a clear and stable policy framework necessary for the long-term sustainability of urban biodiversity projects as well as improving transparency by ensuring that information flows easily between stakeholders. From an institutional perspective, fostering integration in governance can take many forms. It could mean regular multi-departmental meetings or ensuring that different public authorities use the same tools and maps and have the same information available, as well as promoting a holistic approach in planning and decision making so that it takes into account the full picture and not only some selected issues. Also, engaging external brokers, such as competent NGOs, can facilitate and enable effective multilevel governance and actions to conserve and enhance urban biodiversity and ecosystems.



From a political perspective, this integration can be an effort to align local and national policies. In the context of biodiversity, this can be done through the adoption by local governments of voluntary commitments such as Local Biodiversity Strategies and Action Plans (LBSAPs). LBSAPs are political commitments through which a local government sets up its objectives and targets for the conservation of biodiversity under its jurisdiction. In order to be effective, LBSAPs should be aligned with their NBSAPs and complement and support the efforts made by the national government to implement the global biodiversity commitments. The adoption of LBSAPs by local governments has been strongly promoted by the Convention on Biological Diversity since the adoption of the Plan of Action on Subnational Governments, Cities and Other Local Authorities for Biodiversity during COP10 in 2010. Local plans are increasingly requested and integrated by central governments. For example, in Peru, all three levels of governance are requested to adopt locally specific BSAPs.¹⁹



The process of drafting an LBSAP can be summarized in the following steps:

1. Develop a good understanding of the local context such as the economic, social and environmental concerns of a city but also of the priorities set in the NBSAP
2. Draft a strategy which will be based on principles and a vision of biodiversity protection which will translate into the goals of the LBSAP. In order to be effective the main goals of LBSAPs should be the following:
 - Assess and monitor the state of biodiversity and ecosystem services
 - Raise awareness of the importance of conserving biodiversity and ecosystem services
 - Use or improve policy to favor biodiversity and ecosystem services
 - Ensure participation and consultation of a broad group of stakeholders
 - Directly maintain and improve biodiversity and ecosystem services
 - Integrate the consideration of biodiversity and ecosystem services in all activities that impact on them

3. Plan the implementation of the strategy and its goals through the elaboration of measurable targets and an action plan to reach them.
4. Assess the results of the implementation through a monitoring and evaluation process. To be effective the elaboration of an LBSAP needs to be iterative, therefore the result of the evaluation will feed into the revision of the strategy, the targets and the action plan. Those feedback loops should also contribute to the revision process of the NBSAP.
5. Finally, elaborating a LBSAP is collaborative process; therefore the relevant stakeholders shall be engaged in all its phases of development.

In order to support the efforts of local governments in developing and adopting LBSAPs, ICLEI, in partnership with IUCN and TNC, has launched the CitiesWithNature (CwN) initiative. The purpose of this initiative, endorsed by the Secretariat of the Convention for Biological Diversity, is to create a community of local governments that are committed to biodiversity and to offer them the possibility to learn from each other. Thus, CwN provides a registry for local biodiversity actions where local governments can share their policies, plans, commitments, actions and results related to nature and the ecosystem services, allowing them to find the tools and the support that they need to develop their own LBSAPs. But at the same time, the purpose of CwN is also to bridge the gap between practitioners and academia by providing a place for knowledge sharing where good practices and new scientific findings can be shared.²⁰

B. Science-based Planning

Gathering scientific data is crucial for the policy planning process since it allows decision makers to have a better understanding of the reality of the field and adapt their policies to this reality. In the context of urban development, science has already been integrated into urban planning processes by the end of the 19th century and the undertaking of the first surveys and it is now widely accepted that land use planning decisions needs to be based on scientific data.²² However, despite being recognized as an important part of the planning process, the collection of scientific data is not used in the most effective manner. Indeed, in most cases the role of science is viewed through a utilitarian prism which means that research follows policy and therefore research is policy-driven.²³ In other words, scientific data are collected to analyze the effect of a political decision. The main risk of researching for policy sake is that it is highly selective since it narrows down the field of research to areas which have been identified as policy problems.²⁴ As a result, this can lead to opportunistic behavior from the policy maker. They may only collect the scientific data that they need to justify their actions – in such a case, science would be submitted to ideology.

In order to avoid such a situation, it was suggested by many academics that science should not be limited to solving specific policy problems but should provide a wider understanding from the context in which a policy is taken.²⁵ Under this model, coined as the “*Enlightenment Model*” by Prof. Davoudi,²⁶ the emphasis is on providing a deeper understanding of the conditions within which different policies might be effective.

In practice, scientific data are usually collected during a process of environmental assessment such as an Environmental Impact Assessment (EIA) or a Strategic Environmental Assessment (SEA). The purpose of EIA is to provide an understanding of the environmental impact of a policy or a change of land use prior to its adoption. Similarly an SEA will review all the plans and programs taken by a public authority such as a land use planning department to evaluate their level of sustainability.

Hence, SEA and EIA complement each other and in practice a SEA is usually conducted before a corresponding EIA is undertaken. The scope of an EIA is smaller since it is project-specific, whereas a SEA has a broader range and provides a wider understanding of the context under which a policy is taken, corresponding more to the "*Enlightenment Model*" of science-policy interface promoted by Davoudi. Unfortunately, while EIAs are widely implemented in many domestic planning practices, SEAs are for now mostly used in Europe despite the fact that most biodiversity protection conventions such as the CBD or the Ramsar Convention recommends the use of SEA as a tool for the conservation and sustainable use of biodiversity and ecosystems.

From a biodiversity perspective, local governments should ensure that science is used to provide the decision makers with an evidence-informed policy by integrating SEA practices in their land use planning practices. In order to do so, the design of the SEA should integrate the nine international best practice principles on assessing biodiversity and ecosystem services in impact assessment identified by the International Association for Impact Assessment (IAIA).²⁷ Following these guidelines, local authorities should use impact assessment in a transparent and participatory manner to maintain or enhance biodiversity, integrate data related to biodiversity and ecosystem services. They should identify benefits and dependencies on biodiversity to local communities as early as possible in their development planning, and finally, use the precautionary principle when there is a lack of clarity on the impact of a development on biodiversity.

In order to be efficient, the process of impact assessment needs to be done in cooperation with local communities and should be implemented in an inclusive manner. Citizen engagement is vital from a good governance perspective to ensure transparency and accountability in the planning process but it also important from a scientific perspective since local communities usually have the best knowledge of the local biodiversity and ecosystems services. An inclusive process, which gives a voice to all stakeholders including the most vulnerable who may be most affected by the changes in ecosystem services, is critically important.

Mainstreaming science into policy and land use planning requires that practitioners are aware of the latest scientific findings and best practices. Planners and policy decision makers can learn from their peers in other cities through platforms that bring members of the science community as well as practitioners from different cities together. For instance, the Naturvation platform has been developed in the context of an EU Horizon 2020 project by a consortium of cities and universities that have been working together to identify best practices which could be mainstreamed through factsheets, webinars and Massive Open Online Courses (MOOC).²⁸

Finally, in order to effectively integrate science into policy planning, it is important to address barriers related to a lack of time or ability to review scientific data.²⁹ This means that data needs to be presented in a manner that is accessible to everyone without scientific background and can be quickly assessed. Often, a visual medium such as a map or an atlas of urban nature representing the biodiversity assessment of an urban area can be a good tool to engage policy makers. Examples of this kind of work are numerous, such as the thematic atlases developed by ICLEI for the cities of Belo Horizonte in Brazil, Dar el Salam in Tanzania, and Kochi in India through the IKI-funded Interact-Bio project or the communal biodiversity atlases developed by the French Agency for Biodiversity.³⁰

C. Financing Urban Biodiversity

Addressing the matter of financing biodiversity is important not only to ensure urban biodiversity sustainability but also to create incentives to change urban development practices and promote the use of NBS. Public authorities are usually the main funders of green infrastructure. According to research conducted by the projects Natur4Cities and Naturvation around 74 percent of investments in NBS are financed by the public sector.³¹ However, one of the main challenges local governments face is that budgets specifically allocated for nature and green spaces are usually insufficient. Thus, some cities have started to make some innovative use of their budgets by pooling funds from different departments to finance biodiversity projects with cross sectoral benefits such as education, health or disaster risk management. For example, in the UK, the National Health Services (NHS) has been keen to support some NBS projects around its hospitals in Scotland. In Poland, the city of Wroclaw has used funds dedicated to education to the greening of its schools through the installation of a rain garden and pollinators' meadow.³²

This tendency could also be fostered by changing the procurement policies of local governments. Public purchases represents on average 12 percent of GDP of OECD countries. Most of it is spent by the local governments, which makes up 63 percent of overall public spending in OECD countries.³³ In this context, the European Union has promoted the use of green public procurement as a mean to foster the transition of the economy toward sustainability. To do so, the EU recommends that all levels of governance, including local authorities, adopt green procurement policies with clear targets, priorities and timeframes, a clear scope of purchasing activities covered, and some performance monitoring mechanisms.³⁴ From a nature perspective, a green procurement policy having specific biodiversity targets could be a good tool for a local government wishing to support the development of green infrastructure in the context of urban development. Similarly, local governments have also the possibility to use their regulatory power in term of taxation and subsidies to promote the installation of green infrastructure. Taxation can be used as a sanction but can also be used as positive incentive. For instance, in France, local governments have the possibility to grant some rebates on property taxes to promote the management of protected areas on privately owned lands.³⁵ Subsidies can be used in a similar way to promote the use of NBS by the private sector. Hence, one of the pillars of the successful green roof strategy from Hamburg was to offer subsidies for building owners who would install plants on their roofs.³⁶

Mainstreaming NBS in urban development will also require leveraging funds from the private sector. This can be done through a better integration of ecosystem services in the business models of the local enterprises to make them better realize the dependencies that they have on those ecosystem services as well the impacts on nature that their activities might have. Local governments can support this process by promoting the use of the Natural Capital Protocol (NCP) approach by local businesses. NCP is a process developed by the Natural Capital Coalition which allows companies of all sizes, in all sectors and operational geographies to self-assess how their operations rely on natural capital.³⁷ This tool allows awareness raising among businesses in urban areas on their relationship to nature but can also be used as a decision-making tool for companies to revise their business plans in a more sustainable manner. Similarly, the Natural Capital Coalition has developed a specific protocol to support financial institutions in loan decision-making which could also be used by local authorities in their grant or subsidies processes.³⁸



Another approach is for local governments to foster the creation of a dynamic local business fabric that supports the development of nature in urban areas by supporting the development of Nature Based Enterprises (NBE). NBEs are defined as being “an enterprise using nature directly as a core element of their product/services offering or indirectly by contributing to the planning, delivery, or operation of a nature based solution”.³⁹ Examples of NBEs could be companies involved in the development of green infrastructure such rain gardens, green walls, or sustainable water management but also companies managing protected areas.

Finally, a means to finance NBS implementation is to create ownership from local communities. Local initiatives can contribute to the implementation of NBS by providing in kind work or support in raising funds within the local community and take over the maintenance once the NBS is implemented. For instance, the city of Ljubljana has developed urban gardens by leasing for free some lands to local communities.⁴⁰

V. CONCLUDING REMARKS AND KEY RECOMMENDATIONS

Cities are among the most important contributors to the biodiversity crisis; therefore, bending the curve of biodiversity loss requires a full engagement of local governments. With the development of the new global biodiversity framework which will be adopted at the CBD COP 15 in Kunming, there is a momentum for local authorities to better incorporate nature in their urban development plans, through political commitments such as the adoption of LBSAP with clearly defined goals and targets. Doing so requires a revision of their planning practices to prioritize biodiversity conservation and NBS. The creation of an enabling environment by improving the coordination of governance of biodiversity between the different layers of governments, fostering the integration of scientific data in the decision processes, providing financial incentives through innovative use of the budgets of the public authorities, greening of the public procurement processes, as well as supporting business investment in NBS are some key steps that local governments should consider adopting.

Key Recommendations

Based on the assessments and consultations, the key recommendations to the Post 2020 negotiation process and a set of reflections, solutions and good practices which could be used by local governments to establish targets and goals, are provided below.

1. Leverage the power of citizens as engines of change. They need to be engaged:
 - a. As citizen-scientists to facilitate data collection, monitoring and reporting
 - b. As key to decision making processes in urban planning
 - c. However, they need to be capacitated through education, awareness generation, and evidence for them to be effective
2. Make a distinct shift from conventional urban planning practices, to planning and managing spaces and their interconnectedness in urban areas
 - a. Develop multi-functional spaces, with citizen access as one of the key factors
 - b. Adopt a systems / territorial approach that integrates and builds on the interconnectedness, rather than focusing on segregation
 - c. Take into consideration informal uses of space; reward practices that contribute to maintaining the flow of services, and compensate for services lost due to development activities

3. Develop consistent and aligned policies across sectors that complement each other and integrate nature and biodiversity, while meeting their respective objectives and goals.
 - a. Engage external brokers, such as competent NGOs, to facilitate and enable effective multilevel governance and actions to conserve and enhance urban biodiversity and ecosystems
 - b. Establish formal agreements for coordinated action between politicians, administrators, and citizens as a transformative mechanism for conserving and improving the management of nature and biodiversity in and around urban areas.
4. Foster the use of scientific data in policy making processes
 - a. Conduct strategic environmental assessment to and use scientific data collected to generate a deeper understanding of the conditions within which different policies might be effective.
 - b. Promote peer to peer learning between cities and cooperation between academics and practitioners in order to facilitate good practices exchanges.
5. Create an enabling financial environment for the development of a nature-based economy
 - a. Integrate biodiversity in the budgets of local governments through the use of budget pooling, green procurement processes and natural procurement protocols.
 - b. Support the development of local nature based enterprises which can implement NBS projects.

It should be kept in mind that mainstreaming biodiversity into urban areas supposes that local communities are supportive of those political changes. Naturalizing the urban areas does not only require rethinking the policy and institutional framework but also requires behavioral changes from local communities. Hence, in order to win the support of local communities, it is important to not only approach biodiversity through a deficit-oriented lens aiming only at tackling biodiversity loss, but instead to focus on a positive narrative stressing the value of nature in urban life and the benefits that it provides to urban communities.



References

- ¹ Edinburgh Process for Subnational Governments, Cities and Local Authorities on the development of the Post 2020 global biodiversity framework was delivered through an online consultation (30th April – 29th May 2020) taking place with a series of webinars from the supported by a series of online information sessions (5 – 8 May 2020) and thematic webinars. The Edinburgh Process is part of the work programme of the Convention on Biological Diversity (CBD) Open-ended Working Group (OEWG) for the development of the Post 2020 global biodiversity framework, as a partner event.
- ² United Nations Population Division, World Urbanization Prospects: 2018 Revision
- ³ Statistic from the World Cities Culture Forum: <http://www.worldcitiescultureforum.com/data/of-public-green-space-parks-and-gardens> , last accessed in January 2020
- ⁴ Puppim de Oliveira, Jose & Balaban, Osman & Doll, Christopher & Moreno-Peñaranda, Raquel & Gasparatos, Alexandros & Iossifova, Deljana & Suwa, Aki. (2010). Cities, Biodiversity and Governance: Perspectives and Challenges of the Implementation of the Convention of Biological Diversity at the City Level. UNU-IAS Policy Report 2010
- ⁵ Regmi and Dyck, Effect of Urbanization on Global Food Demand in USDA Changing Structure of Global Food Consumption and Trade, WRS-01-1, 2001
- ⁶ Daina Beth Solomon, Sharay Angulo, Mexico City goes back to the future with plastic bag ban, Reuters, last accessed January 2020
- ⁷ Statistic from the initiative "Villes et villages sans pesticide". <http://www.villes-et-villages-sans-pesticides.fr/> last accessed January 2020
- ⁸ Mc Donald, Kroeger, Boucher, Longzhu and Salem, (2016) Planting Healthy Air, a global analysis of the role of tree in addressing particular matter pollution and extreme heat, The Nature Conservancy
- ⁹ Bastin J-F, Clark E, Elliott T, Hart S, van den Hoogen J, Hordijk I, et al. (2019) Understanding climate change from a global analysis of city analogues. PLoS ONE 14(7)
- ¹⁰ Ibid 8
- ¹¹ East London Green Grid Case Study: <http://parklands.greengrid.co.uk/>
- ¹² Bratman, Hamilton, Hahn, Daily, and Gross (2015), Nature experience reduces rumination and subgenual prefrontal cortex activation, PNAS
- ¹³ Cohen-Shacham, E., Walters, G., Janzen, C. and Maginnis, S. (eds.) (2016). Nature-based Solutions to address global societal challenges. Gland, Switzerland: IUCN. xiii + 97pp
- ¹⁴ Case Study: Four pillars to Hamburg's Green Roof Strategy: financial incentive, dialogue, regulation and science (2016) on the European Climate Adaptation Platform Climate-ADAPT, <https://climate-adapt.eea.europa.eu/metadata/case-studies/four-pillars-to-hamburg2019s-green-roof-strategy-financial-incentive-dialogue-regulation-and-science>, last accessed in January 2020
- ¹⁵ Kongjian Yu, Yanweizhou Park: A resilient Landscape (2015) in Topos issue n° 90 "Resilient Cities and landscapes", 20.03.2015
- ¹⁶ <https://cbc.iclei.org/project/interact-bio/>
- ¹⁷ Case Study: Yerevan-Nature-Based Solution: a green wall for Kindergarten, Think Nature Platform, <https://platform.think-nature.eu/nbs-case-study/18930>, last accessed January 2020
- ¹⁸ Case Study ValuES - Combining flood protection and habitat restoration, GIZ <https://www.arcgis.com/apps/MapJournal/index.html?appid=bc6c0a1a5ef54081a001f99bec5bdea1> last accessed January 2020
- ¹⁹ Perú, Ministry for Environment: Estrategia Nacional de Diversidad Biológica al 2021, Plan de Acción 2014 - 2018
- ²⁰ Dr. Balakrishna Pisupati, Effective Implementation of NBSAPs: Using a decentralized approach Guidelines for Developing Sub-National Biodiversity Action Plans, UNU-IAS 2007
- ²¹ Abercrombie, P. Town and Country Planning, (1933) London: Oxford University Press (3rd ed).
- ²² Davoudi, Simin Evidence-Based Planning. (2012). *disP - The Planning Review*. 42. 14-24. 10.1080/02513625.2006.10556951.
- ²³ Weiss, Evaluation Research in the Political Context, (1975) Struening and M. Guttentag, Handbook of Evaluation Research, Vol. 1. London: Sage
- ²⁴ Young et al, Social science and the evidence-based policy movement, (2002), Social Policy and Society
- ²⁵ Ibid 20
- ²⁶ IAA, Biodiversity and Ecosystem Services in Impact Assessment, Special Publication Series No. 8 March 2018
- ²⁷ Naturvation Platform, <https://naturvation.eu/home>, last accessed in January 2020
- ²⁸ Ibid 23
- ²⁹ Website, Agence Francaise pour la Biodiversité : <https://www.afbiodiversite.fr/actualites/les-atlas-de-la-biodiversite-communale-soutenus-par-lagence-francaise-pour-la>, last accessed in January 2020
- ³⁰ McQuaid, The Nature-Based Solutions Business Model Canvas & Guidebook, 2019, Connecting Nature H2020 Project
- ³¹ Trinomics and IUCN, Approaches to financing nature-based solutions in cities. (2019) Working document prepared in the framework of the Horizon 2020 project GrowGreen
- ³² Bonturi et al, Government at a Glance 2019, 2019, OECD
- ³³ Köhler, Buying green! A handbook on green public procurement 3rd Edition, (2016) EU Commission
- ³⁴ Ibid 29
- ³⁵ Ibid 13
- ³⁶ Natural Capital Protocol Webpage on the Natural capital Coalition Website <https://naturalcapitalcoalition.org/natural-capital-protocol/> Last Accessed in January 2020
- ³⁷ Ibid, Finance supplement to the Natural Capital Protocol <https://naturalcapitalcoalition.org/finance/> , Last Accessed in January 2020
- ³⁸ McQuaid, Connecting Nature Webinar #6 on Nature Based Entrepreneurship, <https://www.youtube.com/watch?v=5g50mEXinKw&list=PLR0PkyQ540TXp5ZZcTQudWn5IEa8t-bx>, Last Accessed in January 2020
- ³⁹ Ibid 29

CITATION

This publication should be cited as:
ICLEI - Local Governments for Sustainability,
2020. Policy Activation Brief, Fostering Urban
Biodiversity through Local Actions

Authors: Thibault Renoux (ICLEI), Sunandan Tiwari (ICLEI)

Contributors: Olga Horn (ICLEI), Dana Vigram (ICLEI), Ingrid Coetzee (ICLEI CBC), Holger Robrecht (ICLEI Europe), Merlin Lao (ICLEI East Asia), Lennart Kümper-Schlake (BfN), Jutta Stadler (BfN), Florian Mayer (BfN), Udo Bendzko (City of Hamburg), Justus Quanz (City of Hamburg), Michael Gödde (City of Berlin), Susanne Nolden (City of Bonn), Robert Spreter (Kommunen für biologische Vielfalt)

COPYRIGHT

© 2020 ICLEI - Local Governments for Sustainability e.V. All rights reserved.
The ICLEI World Secretariat holds the copyright of this publication, including text, analyses, logos and layout designs. Requests to reproduce or to quote material in part or in full should be sent to global.projects@iclei.org. ICLEI encourages use and dissemination of this report, and permission to reproduce this material without modification will usually be permitted without charge for non-commercial use.

ICLEI – Local Governments for Sustainability is a global network of more than 1,750 local and regional governments committed to sustainable urban development. Active in 100+ countries, we influence sustainability policy and drive local action for low emission, nature-based, equitable, resilient and circular development.

ICLEI brings a strong urban component to national and global sustainability policies and translates these policies into action. We make sustainability an integral part of urban development and create systemic change in urban areas through practical, integrated solutions. We help cities, towns and regions anticipate and respond to complex challenges, from rapid urbanization and climate change to ecosystem degradation and inequity.

Our Members and team of experts work together through peer exchange, partnerships and capacity building to create systemic change for urban sustainability.

ICLEI creates connections among the local, regional, national and global governmental levels. We advocate for robust national and global sustainability policies that reflect the interests of local and regional governments and their communities.

Through our collective efforts to build a sustainable urban world, ICLEI is shifting the trajectory of global development.

ICLEI – Local Governments for Sustainability e.V.

World Secretariat
Kaiser-Friedrich Str. 7
53113 Bonn

www.iclei.org



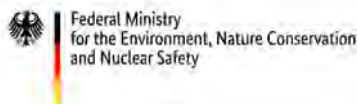
Prepared by



With support from



On behalf of



This Policy Brief is supported by the Federal Agency for Nature Conservation with funds from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety