

URBAN GREEN UP

New strategy for Renaturing Cities
through **Nature Based Solutions**

Good practices book



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Introduction

Dear Reader,

This kit will help you in using **Nature-Based Solutions** (NBS) to make your city more liveable and resilient to climate change. It offers a set of best practices and recommendations that cover all the stages of NBS implementation: how to select the right NBS, how to set one up and how to monitor it.

The advice in this kit draws on the insights from the European project **URBAN GreenUP**, that has developed and applied “Renaturing Urban Plans” in various cities across the world. **The goal is to use pioneering NBS to mitigate the effects of climate change, improve air quality and water management, and to make cities more sustainable.**

The project’s three frontrunner cities — Valladolid (Spain), Liverpool (UK) and Izmir (Turkey) — have demonstrated a diverse set of large scale and highly replicable NBS. Based on their experience, five follower cities — Mantova (Italy), Ludwigsburg (Germany), Medellin (Colombia), Binh Dinh-Quy Nhon (Vietnam) and Chengdu (China) — have set up their own Renaturing Urban Plans.

Learn more about our work for more sustainable and Nature-friendly cities by visiting our channels!



Select NBS that meet your city's needs and abilities

SUMMARY

NBS are many and wide-ranging. Cities must choose carefully for two reasons. Firstly, the benefits of these NBS vary considerably. Some NBS are great for heat while some are better for water treatment or biodiversity. By choosing well, you'll address your city's issues efficiently. The other reason is the varied skill requirements of NBS. Some require engineering skills, others require advanced horticultural advice or community engagement. Choose something you can do well (or can upskill to deliver effectively) to avoid problems.

OUR ADVICE

- » Choosing NBS is a team effort. Think about every part of the organisation that will be involved in delivering the NBS: involving them in the decision will help build support.
- » NBS doesn't need to be flashy or novel to deliver great benefit. If your city doesn't have street trees, getting good at them is a strong first step.
- » Use our NBS tool.

REAL CASE

In the Urban GreenUP project, we developed a tool to help cities choose NBS. It includes a set of questions to help you identify your city's strengths and weaknesses, and also a way of specifying what challenges you're trying to address, such as flooding and air pollution. The tool recommends the best NBS for your city's abilities and needs.

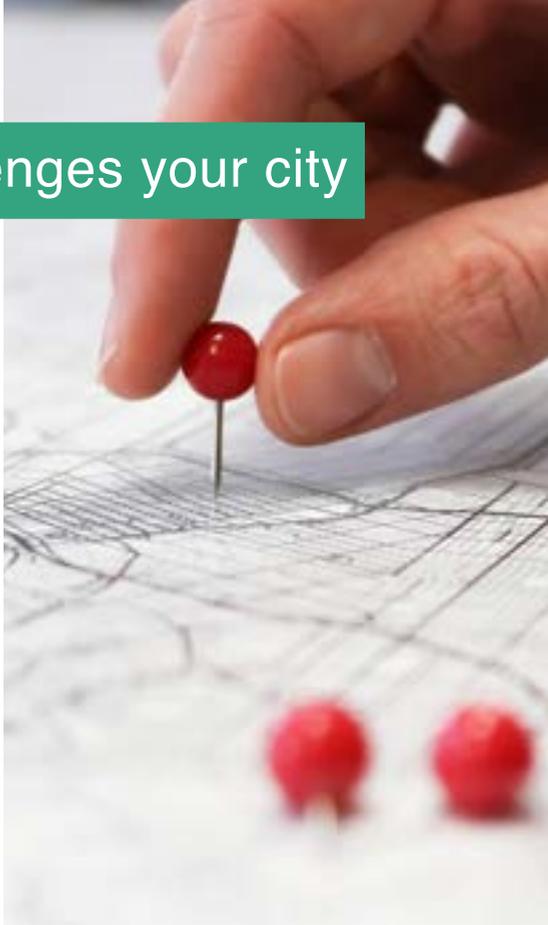
Map out the challenges your city faces

SUMMARY

Maps are a powerful way of communicating, and can be a valuable basis for a strong NBS plan. They can be used to show how different parts of your city face challenges like heat, flooding, noise and air pollution. This makes it easy to see which areas need targeted support with NBS that are good at addressing the identified local challenges. You can also do mapping as an engagement exercise. Print a large map and get people to identify locations where they experience the challenges you're dealing with — for example, ask the public to put down red stickers to map out local 'hot spots'.

REAL CASE

In the URBAN GreenUP Follow-up city of Mantova (Italy), the NBS planning team partnered with the University of Venice to produce high quality mapping of heat and flood risk. These were used for targeting heat and flood management NBS in the city's Renaturing Urban Plan.



OUR ADVICE

- » Mapping with remote sensing data is likely to give you the most precise results if you engage a skilled technical expert.
- » Community involvement in mapping is a great way of educating participants in your organisation or the public. It can build valuable support for your NBS plan if they see the plan addresses priorities they helped identify.
- » Don't hesitate to try both approaches.

Work in a multidisciplinary team

SUMMARY

NBS implementation is cross-cutting. Thus, the municipality should create a multidisciplinary team, mixing technical (design and implementation), legal (regulations) and administrative (procedures) capacities, using an integrated narrative. Stop working in silos!

OUR ADVICE

- » Define a multidisciplinary team for NBS implementation, with clear roles and responsibilities.
- » If possible, count on a multidisciplinary team within the same department, as working with staff from other departments might cause delays.
- » Seek different ways to achieve your goals. Persevere even after initial refusals.

REAL CASE

Over the course of URBAN GreenUP, the following departments of the Valladolid City Council have been involved: Innovation, Legal & Procurement, Urban Planning, Public Spaces department (including Roads), Environmental area, Water management, Parks and Gardens service, Real Estate and Public Participation.

Combine project design and delivery where possible

SUMMARY

Combining project design and delivery helps to provide contractor accountability by reducing risk and minimising administration. This also reduces the number of procurement processes, helps with overall contract management and makes delivery more efficient.

REAL CASE

The contractor for the floating islands in Liverpool designed them to an agreed specification and then manufactured, installed, planted and ensured establishment of the islands. This had the benefits of a single procurement process, one contractor taking responsibility and a single contract project manager.



OUR ADVICE

- » Combine design and delivery where possible to reduce risk, minimise administration, deliver faster and potentially reduce costs.

When too many items divide the tendering process

SUMMARY

Tendering processes can complicate NBS project management. It may be challenging to carry out applications that are independent of each other and implemented in different locations within the scope of a single tender. In addition, granting these applications to a single contractor could present difficulties in terms of both time and budget management. It may be advantageous to divide tenders by location and give them to separate contractors.

OUR ADVICE

- » Keep the procurement process easy and with simple technical specifications.
- » Divide tenders if different types of applications must be considered.

REAL CASE

The implementation of cycle lanes and footpaths in the Green Corridor in Izmir was very complex. For this reason, the tender process was split into three parts and different contractors were appointed.

Use consultants to help with procurement and works

SUMMARY

Delivering some NBS requires an understanding of many unfamiliar or 'new' disciplines from procurement to contract management. Consultants are familiar with the processes of procuring and delivering works. They can help to articulate your requests in the right technical language and guide you on selecting the right contractor. They can also support with risk registers, pre-contract information and on-site contract management, dealing with issues before they become a problem and reducing your administration time.

REAL CASE

External consultants supported the delivery of the floating islands in Liverpool. They helped to articulate the technical aspects required for procurement of the scheme and they provided expertise and onsite supervision (including authorising stages of contractor payment). This provided a level of reassurance for the delivery of a novel scheme.

OUR ADVICE

- » Consultants can help to articulate the technical aspects of a scheme for procurement and provide guidance on appointing a preferred supplier.
- » Consultants can provide expert advice and oversee on-site delivery, thereby minimising administration, reducing risk and ensuring professional delivery on time and within budget.



Incorporate contingency for budgets and delivery

SUMMARY

Include a 10% financial contingency sum within initial budgets to accommodate the unexpected, such as minor price increases or the need for additional materials. Include extra time for on-site delivery to allow for the fact that there may be unknown surveys and permissions required before full approval for delivery can commence. Also allow for possible delays due to bad weather and other issues.

OUR ADVICE

- » A 10% project contingency budget is usually sufficient to cover small amendments or changes. It avoids the need to seek further financial approvals along the way.
- » When delivering 'new' projects, it is not always possible to know and/or specify in advance all the surveys and approvals that may be required. Therefore you should allow for such issues in your schedule.

REAL CASE

During the installation of the Parr Street Green Wall in Liverpool, the building control regulations were updated to reclassify green walls as a type of external building cladding. Under the new regulations, green walls required fire safety calculations. This came at an unexpected cost and extended the on-site delivery timescale.

 Deliverable 3.8: Implementation and commissioning of NBS in Liverpool (section 5.3.1)

 The Parr Street Green Wall in Liverpool — Credits: ANS Group Global Limited

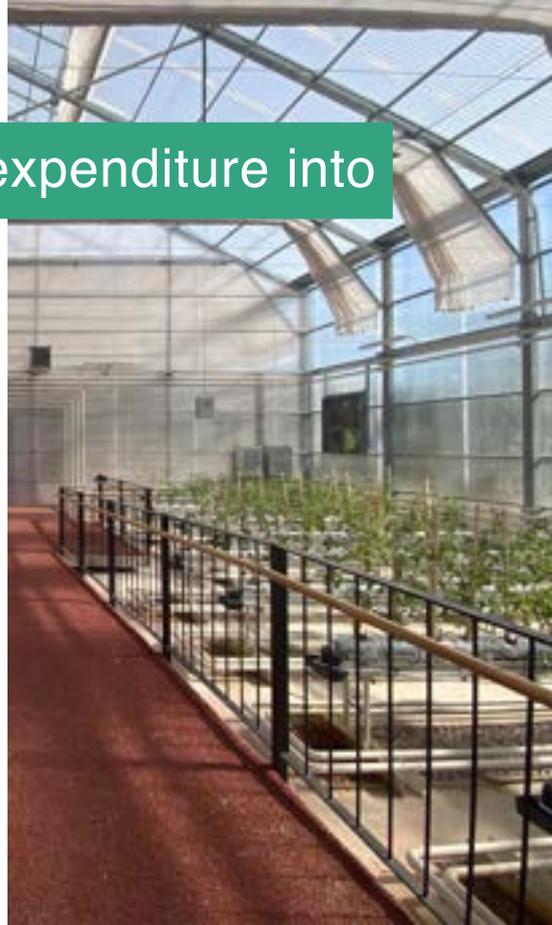
Take unforeseen expenditure into account

SUMMARY

It can be challenging to set up and manage NBS. This is especially true if you have to cover different disciplines and call on professionals from diverse backgrounds such as architects, landscape architects and engineers. In complex NBS projects, some aspects may be overlooked, which could have a major impact on NBS structure, timescale and budget.

REAL CASE

The implementation of the Climate Smart Greenhouse in Izmir was complex. It presented diverse problems with the heating system, electricity provision from photovoltaic panels, greenhouse structure design, soil management and mechanical systems of vertical gardens, which led to unforeseen expenditures.



OUR ADVICE

- » Put effort into the coordination of all project aspects, from design to implementation.
- » Tackle implementation problems rapidly.

Allocate resources for NBS maintenance

SUMMARY

NBS maintenance may be very diverse, ranging from landscaping to water engineering and civil infrastructure. It may be undertaken by the local entity, by stakeholders through agreements or outsourced. In any case, it should be considered in the NBS implementation financial plan, which covers the whole NBS life-cycle, from design to construction, monitoring and end of life, with funds made available in the annual municipal budget as well as for medium and long term plans.

OUR ADVICE

- » NBS designers and builders must inform you about the solution's maintenance needs.
- » Consider the whole NBS life-cycle in the financial plan, from construction to maintenance.
- » The maintenance programme should include preventive and corrective measures for the short and long term.

REAL CASE

In Valladolid, the maintenance of tree planting and green walls is carried out by the municipality. NBS requiring specialised knowledge, such as the sustainable drainage systems, they are subcontracted to private companies. A public-private partnership was signed with a department store for the maintenance of the locally installed green façade.

Take outdoor conditions into account

SUMMARY

NBS are affected by external conditions. Hence, during the design stage, it is crucial to think of robust, low maintenance materials. Project location and infrastructure should also be chosen in a way to facilitate maintenance. This will reduce costs and labour for municipalities.

REAL CASE

Different kinds of materials were used for the parklets and the ecological corridor implemented in Izmir. Severe weather conditions can cause colour fading and abrasion for example. This is why highly resistant construction materials were used.



OUR ADVICE

- » Evaluate weather conditions in the implementation area.
- » Use low maintenance materials.

Request legal authorizations from an early stage

SUMMARY

Knowing the legal requirements that apply to the installation of an NBS is one of the main challenges to be faced by public entities. They may apply to urban planning, water management, mobility, occupation of public space, among others, and include the payment of fees according to tax ordinances. Moreover, the requirements may correspond to the local or supra-municipal and state level, as in the case of river basins. Thus, cities need specialised legal advice in the implementation of multidisciplinary NBS.

OUR ADVICE

- » Analyse the legal requirements of NBS implementation in the early stages.
- » Have a specialised legal expert in the work team.
- » Request legal authorizations as soon as possible to avoid delays and unexpected situations.

REAL CASE

Sustainable water management measures in cities require coordination with river basin organizations. One example is the validation of sustainable drainage systems (SUD) in Valladolid (such as the rain garden, green parking pavement and detention pond) under the responsibility of the river Duero Basin organization.

Invest in citizen communication and engagement

SUMMARY

Citizen engagement goes beyond results dissemination and it is essential to a successful NBS implementation. Following co-creation and open innovation strategies, it maximises social participation and acceptance. An effective local communication strategy will foster citizens' awareness of environmental problems, thus turning these citizens into active players of their cities' re-naturing process.

REAL CASE

The “Sponsor a tree pit” initiative in Valladolid looks for sponsors for tree pits located near their homes or businesses. They can plant small gardens on public roads in exchange for a plaque providing visibility. It has been successfully implemented in Panaderos street, with 60 tree pits sponsored by students, residents and street businesses.



OUR ADVICE

- » Meet regularly with the residents of the streets where NBS will be set up (even before implementation): explain advantages, listen to proposals.
- » The installation of some NBS may require permission from local residents.
- » Uninformed neighbours will complain, to whom you will have to respond diligently.
- » Communicate through local media (newspaper, television, social media)

Performance indicators must serve a purpose

SUMMARY

When selecting an NBS performance indicator, you should take the “what for?” into account. The indicator must serve a purpose for your city. You need to be clear about what you want the NBS to do or change. Explore your city’s challenges and think about how the intervention will help tackle them.

OUR ADVICE

- » The selected indicators must measure the goals that need to be reached.
- » Focus on what you want to improve in your city.
- » As obvious as it may sound, you should select indicators carefully. Take your time!

REAL CASE

The URBAN GreenUP indicators were selected based on these challenges: climate mitigation and adaptation; water management; coastal resilience; green space management; air quality; urban regeneration; participatory planning and governance; social justice and cohesion; public health and well-being; potential for economic opportunities and green jobs.

Indicators should be understandable and attainable

SUMMARY

Each indicator should be clearly defined and unique. When selecting an indicator, ask yourself whether your goals are short, medium or long term. This will help you establish collection and control points. You should also select values for determining success or failure. Data collection frequencies should be considered along with the technologies and personnel needed and related costs. If data cannot be acquired, the indicator won't indicate anything!

REAL CASE

In URBAN GreenUP we established a baseline diagnosis for each city. This provided us with an “ex-ante” scenario against which we could compare our results after the NBS implementation. For many indicators we relied on sensors already installed in the cities, allowing us to set up procedures that can be easily followed after the project ends.



OUR ADVICE

- » To select your indicators, draw on proven methodologies and existing scientific literature.
- » Ask yourself how much data you need to collect with a given indicator and how frequently.



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URBANGREENUP.EU