

Capturing the Values and
Making the Business Case for NBS
WORKBOOK



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# Capturing the Values and Making the Business Case for NBS

**WORKBOOK** 

This Workbook is a complementary resource to the Capturing the Values and Making the Business Case for Nature-based Solutions Guide. It is not intended to replace the Guide, but rather serves as a dedicated tool for carrying out exercises, ticking off checkboxes when a task is completed, and approaching the nature-based solution(s) (NBS) valorization journey with more ease and clarity.

# STEP 1

# Describe the context and challenges

The main purpose of nature-based solutions (NBS) is to enhance the resilience and sustainability of urban areas. Therefore, it is crucial to identify the specific challenges in a given context, understand their causes, and recognize how nature can play a role in solving them. In this initial step, you should firstly understand the challenges to be addressed and the context in which an NBS could be implemented. Factors influencing this context include governance, policies, legislation, local community characteristics, as well as environmental factors and climate, among others.

#### Tasks checklist

Tick off the checkbox when a task is completed





## Identify key problems, challenges and possible solutions - the big picture

To obtain an overview of the context use the context problem mapping tool shown as a circle graph in Figure S1.1. To do so:

- Define a main **urban topic** (e.g. climate change and possible ways to address it) and consider the following guiding questions:
  - What **environmental challenges** are prominent in the project area?
  - How do social dynamics and community values exacerbate long-term trends or influence potential NBS?
  - What **economic activities** drive the local economy and how would they interact with NBS implementation?
  - What health considerations should be taken into account when proposing NBS initiatives?
- Fill in the canvas taking note of long-term trends, institutional structures and economic structures that influence your context.
- Identify practices and cultural norms/beliefs that contribute to these trends and structures.
- Spotlight emerging niche initiatives that are representative of your context.
- Stop the exercise when the group cannot add any more information.



#### **EMERGING NICHES INITIATIVES**

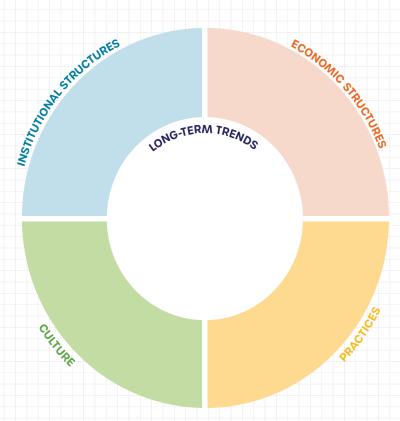


Figure S1.1 - Problem context mapping canvas (Hill, 2022)

## □ Describe your context in greater detail

Determine if the NBS will be implemented at a city-wide, neighbourhood/street, or individual site/building scale.





Gather context-specific information information about the NBS implementation area

#### **Environmental factors**

 Identify and describe relevant environmental factors, including climate conditions, biodiversity, and any environmental risks.

#### **Social factors**

 Describe the local community composition, including demographics and socioeconomic factors (e.g. employment and income levels).

#### **Economic factors**

 Provide insights into the economic conditions of the area, such as local industries and small businesses.

#### **Physical characteristics**

- Detail the current types of land cover, including vegetation types, built areas, and water bodies.
- Identify current land uses (residential, industrial, commercial) and any existing infrastructure (e.g., below-ground electricity cables, water pipes, etc.).
- Conduct an initial assessment of biodiversity, focusing on indicator species and any existing NBS that may need modification or replacement.
- Describe current land uses that may be lost due to the NBS implementation.

#### **Policy and legislation analysis**

- Outline relevant policies, legislation, and plans that could impact NBS implementation, noting their potential positive, negative, or neutral effects.
- Identify landowners and ownership within the implementation area and any associated implications for NBS implementation.
- Explore how different scales (city-wide, neighbourhood/street, individual site/building) interact and influence each other.

## Identify solutions

- Use a matrix to identify strengths, weaknesses, opportunities, and threats related to implementing an NBS in your implementation area
- Attribute strengths and weaknesses to **internal** factors (specific to the context), and assign opportunities and threats to **external** factors (including broader influences like policies and climate change)

# Strengths (internal)

# Weaknesses (Internal)

These are positive attributes within the context. They can include advantages such as existing capabilities, resources, expertise, or positive aspects of the current situation that can be leveraged to implement the NBS.

These are negative aspects or limitations within the context. They represent areas where there is room for improvement, such as lack of resources, skills, or internal issues that may hinder NBS implementation.

# Threats (external)

# Opportunities (external)

These are external factors that could potentially harm the NBS success. Threats may include factors like economic downturns, changing regulatory policies, environmental changes (like climate change impacts), or shifts in public opinion.

These are favorable external conditions or trends that the NBS project can exploit to its advantage. Opportunities may arise from external factors such as regulatory changes, technological advancements, or funding opportunities.

**Note:** Use insights from the SWOT analysis to guide the development of your NBS but plan to revisit and update it after diving into the NBS details (step 3)

#### ■ Map stakeholders

- Conduct an initial, broad stakeholder mapping exercise using tools like the Malekpour influence-interest framework or explore other tools such as the Miro stakeholder mapping tool
- Categorize stakeholders' according to their levels of influence and interest in the NBS implementation and outcomes

Recognize that stakeholder mapping will evolve as specific NBS options are considered in Step 3.

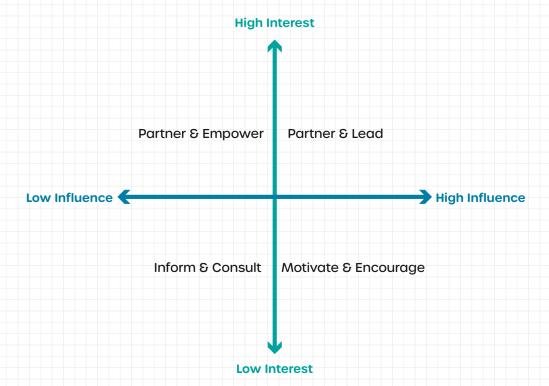


Figure S1.2.: Stakeholder mapping for NBS (Malekpour, S., Tawfik, S. & Chesterfield, C. 2021.)



# STEP 2 Develop a vision for your NBS

A well-articulated vision sets a clear direction and ambition for your NBS initiative. A vision guides stakeholders through the planning, decision-making and execution of the NBS. It ensures that every action taken aligns with the primary objectives of the NBS initiative, fostering stakeholder commitment and giving them a sense of purpose. It requires foresight and a understanding of the challenges and opportunities identified in Step 1. Another round of stakeholder mapping will be essential to determine whom to consider and involve in implementing the vision.

#### Tasks checklist

Tick off the checkbox when a task is completed



## ■ Apply the framework PERSIST

#### P - Purpose

- Define why the NBS is necessary.
- Understand its short- and long-term goals.

## E - Engagement

- Refine stakeholder mapping to identify specific beneficiaries those potentially negatively impacted by NBS implementation ("losers"), for example, individuals or groups facing potential displacement.
- Gain insights into community needs.

## R - Relating the NBS to specific challenges

- Understand how the NBS will relate to and address the specific challenges identified in Step 1.
- Determine how you will measure success against these challenges (e.g. by a set of specific indicators).

## S - Strategy

- Outline the general approach for implementing NBS.
- Provide an overview of the type of NBS you are envisioning (refer to Appendix 2-1).



#### I - Innovation

- Determine what makes the NBS unique.
- Understand how it improves over existing solutions.

#### S - Stakeholders

- From the stakeholder mapping activity (Step 1), identify key partners and collaborators needed to bring your vision to life.
- Broadly outline their role in the initiative.

#### T - Timeframe

Understand long-term objectives and expected results.

#### ☐ Create your core vision statement

"By...(Timeframe), we aim to...(Purpose).

This commitment arises from...(Relate) and is directed towards...(Engage).

Our approach encompasses...(Strategy).

This paves the way for...(Innovation).

Our initiative acknowledges and engages...(Stakeholders) to ensure the success of the initiative "

With a vision in place, the next step is to define the practical and technical details of your NBS initiative.



# STEP 3 Describe your NBS

Step 3 is about identifying and planning the specific NBS to be implemented. First, look at the baseline situation and context of your chosen project site or area. You should use the overview of challenges and solutions identified in Step 1, and build on the vision and objectives set in Step 2. Your chosen NBS should align with your vision and goals and meet the needs of the local community and environment. Due consideration is given to relevant details and technical aspects, and to the maintenance needs of the NBS.

#### Tasks checklist

Tick off the checkbox when a task is completed



#### □ Define your approach

- Define whether your approach involves protecting, enhancing and/or creating a completely new NBS.
- Identify synergies and trade-offs between NBS and grey solutions.

#### □ Describe NBS technical aspects

Refer to Appendix 2-1 of the Guide to define the broad family of NBS you want to implement: examples include urban forests, urban agriculture, green spaces, etc., and delve deep into the technicalities of your chosen NBS typologies.

## Resources: NBS catalogues and selection tools

- The World Bank's Catalogue of Nature-Based Solutions for Urban Resilience (World Bank, 2021)
- GREEN SURGE project deliverable 3.1 (Green Surge, 2015)
- Nature Based Solutions Technical Handbook of the Unalab project (UNalab, 2019a)
- The NBS Catalogue by the URBAN GreenUP project (URBAN GreenUP, 2018)
- URBAN GreenUP Nature-based solutions selection tool and NBS Selection Tool

The following checklist is meant to guide you through all the details that an NBS intervention description should include. Note that not all points apply to every project, and some projects might have unique requirements not captured in the checklist. The level of detail needed will also depend on the scale of the NBS intervention (e.g. overall green infrastructure plan for a city vs. a specific community garden).

#### **NBS Description Checklist**

Type of NBS and	NBS approach and	Identify and describe the NBS family and type.				
purpose	type	Defer hack to the main challenges the NDS aims to				
	Targeted challenges	Refer back to the main challenges the NBS aims to address.				
	Ecosystem services (ESS) and interaction with local ecosystems at different scales	List key ESS that the NBS will provide. Identifying these services will subsequently facilitate the NBS value proposition (Step 4).				
	SDGs contribution	Highlight how the NBS and ESS provided contribute to specific Sustainable Development Goals (SDGs). This can also make your NBS more appealing to international agencies, donors and investors.				
Design basics and location	Implementation scale	Define the scale at which the NBS will be implemented.				
		Macro-level (Landscape)  Meso-level (Urban level)  Micro-level (Small-scale projects)				
	Location	Specify the geographic location or area where the NBS will be implemented.				
	Site analysis	Describe important site characteristics such as current vegetation, wind patterns and solar radiation.				
	Dimensional details	Provide details regarding the size, shape and area requirements of the NBS.				
Conditions for Implementation	Land requirements	Outline the land needed for NBS implementation.				
iinpicinentation	Land ownership	Identify the ownership status of the land where the NBS will be implemented.				
	Urban land classification	Consider the classification of urban land in the project area and its implications for NBS implementation (e.g. private land, municipal, protected area, industrial site).				
	Current usage	Describe the current land use and activities taking place in the project area, noting any potential conflicts or synergies with the NBS.				
	Expert/partners consultation	Detail which stakeholders will inform NBS design and implementation decisions.				
	Soil and water conditions	Assess the soil and water conditions necessary for proper functioning of the NBS.				
	Local regulations	Address any regulatory requirements or constraints that may impact NBS implementation.				
Design details	Sketching or image of the current state of the site (to be compared to after implementation of the NBS)					
	Spatial arrangement	Plan the spatial layout and arrangement of NBS components within the project area.				



Materials and components	Components	List all the facilities, smaller components you want to implement (e.g. resting areas, playgrounds, biodiversity spots).				
	Material inventory	Create an inventory of required materials, including both tangible (plants, benches) and intangible items (e.g. permits, community approvals, expert consultations)				
	Selection criteria	Explain the rationale behind material and plant choices (e.g. certain plants might be chosen for their ability to absorb or buffer water, other for attracting pollinators or for aesthetic reasons).				
Infrastructure interaction	Urban integration	Describe how the NBS will interact with existing urban infrastructure and buildings.				
	Replicability	Consider the potential for replicating the NBS model in other locations or contexts.				
Growth and evolution	Life cycle assessment	Evaluate the long-term environmental impacts of the NBS, considering factors like maintenance needs and resource use.				
Maintenance	Task list	Develop a maintenance plan outlining regular tasks and responsibilities over time.  Specify the type of expertise and resources needed for NBS sustainability over time.				
Stakeholder involvement	Key stakeholders					
	Community engagement	Describe how you will engage with local communities throughout the NBS planning and implementation process.				



# STEP 4 Develop the NBS value proposition

In this step, we focus on defining the value that will be generated by implementing the selected NBS. This builds upon your earlier analyses, where specific NBS was chosen based on site assessments and defined objectives. A central part of this process involves the use of the NBS Business Canvas Model (Connecting Nature, 2019). You will need to complete the central "Value proposition" quadrant, considering four key value categories: Environmental, Social, Health, and Economic values your NBS will generate.

Key Activities	Key Resources	Value proposition	Key Partners  Governance	Key Benificiaries
Cost Structure	Co	st Reduction	Capturing	) Value

Figure. I-1. The Nature-Based Solutions Business Canvas Model. Source: Connecting Nature (2019).

#### Tasks checklist

Tick off the checkbox when a task is completed





## □ Value mapping activity

(see also Appendix 4-1)

For the value mapping exercise, ideally with key stakeholders, write down the different values you expect to be delivered by the NBS on post-it notes with distinct colours for the respective value category (Environmental, Social, Economic, Health). The questions in the table below can help moderating the discussion

Chosen NBS	
Environmental value proposition	How will the NBS help address key environmental challenges identified in Step 1?
Social value proposition	How will the NBS help address social challenges identified in Step 1?
Health value proposition	How will the NBS help address key health and wellbeing challenges identified in Step 1?
Economic value proposition	How will the NBS help address priority economic challenges identified in Step 1?
Possible value synergies to be enhanced	Identify synergies between value categories.
Possible value trade-offs to be managed/ minimized	Identify trade-offs between value categories.
Possible disvalues to be managed	Identify possible disvalues to be managed.
Potential values lost by implementing the NBS	Identify values potentially lost by implementing the NBS.

#### To expand further:

- Compare the value proposition scenario to the baseline situation how will values change over time?
- Address opportunity costs and alternatives, as well as solutions that do not involve NBS - how will the value proposition differs from non-NBS solutions?





# STEP 5 Value creation and delivery

Starting from the initial understanding of context, site and scale (Step 1), then formulating a vision and objectives (Step 2), and then diving into the technicalities of the NBS you want to implement (Step 3), we have laid the foundations for the process of NBS value creation and delivery. As explained in Step 4, the core of an NBS project lies in its value proposition, namely, the "promise" of delivering environmental, social, economic and health values and benefits. Step 5 delves into the activities, resources, partners and beneficiaries that contribute to creating and delivering the NBS value proposition, which is underpinned by a governance structure that supports the effective creation and delivery of NBS value. Fill in the relevant part of the NBS Business Model Canvas building upon the information collected in the previous steps.

Key Activities	Key Resources	Value proposition	Key Partners  Governance		Key Benificiaries
Cost Structure	Co	st Reduction	Ca	pturing	Value

## Tasks checklist

Tick off the checkbox when a task is completed



Revisit data, stakeholders and resources from previous steps and fill in the relevant part of the NBS Business Canvas Model

## ☐ Key activities

- List all activities necessary to bring NBS values to life.
- Link each activity to a specific value proposition (environmental, economic, health, socio-cultural).



#### ☐ Key resources

Identify resources needed to implement key activities (e.g. funding, information, technologies, human expertise, plants, materials). Consider that resources that you already have and those you need as well as the ways you could mobilize them.

#### □ Key beneficiaries

- Identify all stakeholders who will directly or indirectly benefit from NBS implementation (building upon previous stakeholder mapping exercises).
- Consider possible negative impacts on certain entities or stakeholders.
- Outline strategies to mitigate and minimize negative impacts.

#### Key partners

- Determine organizations and individuals crucial for delivering NBS values.
- Define the roles of each partner in realizing specific value propositions.

#### □ Governance

- Establish collaboration strategies between partners (stakeholder engagement plan).
- Define decision-making processes, roles and responsibilities (understand 'why', 'what', with 'whom', and 'how' to collaborate).

## Monitoring and evaluation

- Define how decision-making about the NBS will be taken and how the NBS will be managed over time.
- Define how you will assess and monitor the performance and tangible benefits of the NBS.

After defining how to create and deliver your proposed values, it is essential to understand how to capture the values associated with the NBS project. Proceed to Step 6.



"Capturing the value" of NBS means identifying and quantifying the benefits generated by their implementation so as to cover their costs and ensure that the benefits produced are equitably distributed to the community. This process includes both the monetary quantification of tangible benefits and the recognition of non-monetary benefits. The objective is to demonstrate the overall value of NBS, making clear the return on investment and thus supporting their implementation. To capture the values of your NBS project, you need to provide a clear and realistic overview of all of its financial aspects. Hence, you must be clear about the different costs of NBS planning, design, implementation and maintenance, as well as identifying ways of working in a cost-efficient manner. Costs can be expressed in financial terms, but you should also consider the costs that are not easily monetized (e.g. health impacts, biodiversiy loss). You must capture the different values and benefits of the NBS, in monetary as well as non-monetary terms. This will help in presenting a compelling business case for its adoption. Once again you'll have to fill specific sections of the NBS Business Model Canvas.

Key Activities	Key Resources	Value proposition	Key Partners	Key Benificiaries		
			Governance			
Cost Structure		ost Reduction	Capturing Value			

## Tasks checklist

Tick off the checkbox when a task is completed





#### Cost structure

- Identify planning and design costs: estimate costs associated with site analysis, public engagement, and business case development. Consider consultancy fees, permits and other non-material resources required.
- Identify capital investment costs: break down the costs for installing/ establishing NBS components. Include expenses for soil/building preparation,

- vegetation purchase, and/or infrastructure installation (e.g. soil preparation, tree planting, irrigation systems).
- Identify fixed and variable **operation costs**: identify ongoing maintenance costs such as vegetation management, infrastructure upkeep and community engagement activities (e.g. organization of markets, events). Differentiate between fixed (e.g. dedicated staff) and variable costs (e.g. seasonal maintenance).

#### Cost reduction

- Find efficient NBS implementation strategies with lower costs (techniques, materials, resources sharing among projects). Consider collaboration such as with volunteers, social service providers, and local stewards.
- Compare costs of NBS and other traditional alternatives (NBS and grey infrastructure).
- → Evaluate possible economies of scale by seeking synergies with other activities to utilize resources already at hand.
- Consider cost savings due to long-term benefits of NBS implementation.

#### □ Capturing value

- Identify likely **direct economic benefits** as well as more **indirect revenues** from planned activities, for example, hosting events, concessions, sales (e.g. timber, garden produce, biomass)
- Assess both market and non-market values associated with NBS. Consider indicators for environmental (e.g. air and water quality), social (e.g. neighbourhood satisfaction), health (e.g. reduced morbidity), and economic (e.g. property value increase) benefits.
- Identify partners whose interests align with the NBS intervention, and explore alternative funding strategies (from multiple sources) that would include internal budgets, user and resident contributions, and external sources such as those provided by specific programmes, corporate and environmental responsibility initiatives, donations, crowdfunding, climate funds, etc.

## Tools for assessing value categories

#### 1. Environmental values

- i-Tree suite of software (i-Tree, 2023)
- InVEST (Integrated Valuation of Ecosystem Services and Tradeoffs) (Natural Capital Project, 2023a)
- CIRIA Best Benefits Estimation Tool (CIRIA, 2023).

#### 2. Biodiversity values

- Biodiversity Metric developed by the UK Department for Environment, Food and Rural Affairs and Natural England (2021)
- Green Space Factor initially developed for the city of Malmo in Sweden (Kruuse, 2011)
- Simpson's Diversity Index (Statology, 2021)
- Bioblitzes communal citizen-science effort to record species (iNaturalist, 2024)



- European Urban Biodiversity Index developed by the European Environment Agency (Ruf et al., 2018)
- Singapore Index on Cities' Biodiversity (Chan et al., 2021).

#### 3. Socio-cultural values

- Foundation for Social Connection (F4SC): Inventory of social connection measurement tools
- InVEST for scenic value and recreation
- Measuring the impact of the NBS on tourism, as shown in the example of Central Park by Appleseed (2015). Tourism impacts can relate to, for example, number of hotel nights, money spent by tourists, etc.
- Capturing recreational values using, for example, travel cost methods and willingness to pay, and placing a value on the time spent in parks and other green spaces
- Crime rate reductions and the cost saved, for example, in terms of lower incarceration.
- Hedonic pricing to evaluate the impact of the NBS on property values and rents.

#### 4. Health values

- Health Impact Assessments (HIAs)
- CO-IMPACT tool developed by Connecting Nature (2022).

#### 5. Economic values (from box S4-1)

- Market assessment: estimates market value of goods produced by NBS, such as food or timber
- Hedonic pricing: estimates impact of NBS on property prices
- Cost avoidance assessment: evaluates costs avoided by using NBS rather than alternative technologies, for example, for air pollution reduction. This can be conducted through tools such as i-Tree and INVEST
- Cost-benefit analysis: compares the costs of implementing the NBS with the benefits it provides, which also helps to determine the project's feasibility
- Benefit transfer analysis: estimates the economic value of ecosystem services by transferring values from existing studies to similar contexts or locations (Wild et al., 2024)
- Contingent valuation: survey-based method used to estimate individuals' willingness to pay for non-market values produced by the NBS
- Travel costs estimate: estimates the economic value of recreational activities
  in green spaces by analysing the costs to travel to and use these spaces
- Land values assessment: assesses changes in property values resulting from the presence or improvement of green spaces
- Net present value financial metric: evaluates the profitability of an investment over time by comparing the present value of expected benefits to the present value of expected costs
- Cash-flow analysis: evaluates the financial performance of an investment by analysing the timing and magnitude of cash flows associated with the project.
- Life-cycle costs assessment: consider all costs associated with the NBS throughout its entire life cycle, including initial investment, operation, maintenance, etc.
- Production function estimate: estimates the economic value of ecosystem services by quantifying the relationship between inputs (e.g. natural capital) and outputs (e.g. benefits to society).



Compile the	following	table	based	on	the	inf	orm	ation
gathered so	far							

(refer to Table S6.2 in the Guide for an example of comiplation).

NBS value	
Value impact	
• • • • • • • • • • • • • • • • • • • •	
Value capturing in	
monetary and non- monetary terms	
monetary terms	
Assessment tools and	
methods	
Likelihood of impact/	
risk	
Who wins or loses?	
Synergies and trade-	
offs	
5	
Potential negative impacts and	
mitigation measures	

# Bringing together values and benefits, costs and resources needed

- Compile and visually present all expected values and benefits, as well as costs and resources needed.
- Use cost-benefit analysis and other methods to further prepare the values and business case.
- Adopt a life-cycle perspective:
  - when is replacement or renovation of the NBS needed?
  - how will this affect benefit and cost streams over time?
  - Provide a detailed overview of the entire lifespan of NBS project costs and values.

After you develop the value case, you can proceed to the final step where all the previous steps are consolidated to craft a comprehensive case for your NBS value.



# STEP 7 Making the case for NBS valorization

In this final step, all information from the previous steps is compiled. On this basis, a strong values and business case is prepared for decision-makers and potential funders. A business plan can help make the case for valorization, but the case also needs to be presented to the local communities that are impacted by the NBS. Making the right 'pitch' for different audiences is important and will require sound communication planning.

#### Tasks checklist

Tick off the checkbox when a task is completed  $ert \checkmark$ 



- Compile and organize all the information derived from the Guide and the Naturebased Solutions Business Model Canvas into a comprehensive report, using visual aids and including a brief summary.
- Tailor the business case for target audience (e.g. decision-makers, funders, local communities).

## □ Targeting funders

Compile information from the valorization process into a cohesive report incorporating the following components:

- The NBS business idea and value propositions: demonstrate how the NBS addresses specific challenges, incorporating value propositions.
- **Assessment of the NBS business environment**: highlight the surrounding business environment, legal framework and policy analysis.
- → Market outlook: compare the NBS to alternative solutions from a value
- > NBS needs: detail governance, resources, logistics, technologies, and expertise
- Financial analysis: determine short and long-term costs, benefits, value capture methods, cost structure, cost-benefit analysis, and funding needs.
- Risk analysis: present potential risks and mitigation strategies.

## □ Targeting decision-makers

Present a wider valorization case to decision-makers emphasizing environmental, social, health, economic and any other proposed values.

- Be transparent about positive impacts and potential drawbacks and present both shorter- and long-term impacts and maintenance costs.
- Compare NBS and non-NBS alternatives.
- Highlight expected impacts on local communities and their possible stewardship.
- Discuss how you will monitor NBS implementation, also in the longer term.

#### □ Targeting communities

- → Engage local communities throughout the process co-creating NBS together with the people who will be impacted.
- Arrange community meetings or workshops to empower community members to contribute to the NBS design and implementation.
- Communicate both the positive and negative impacts of NBS implementation.
- Encourage open dialogue and feedback to foster ownership of local residents.
- Provide examples and visuals of similar NBS projects.

#### □ Communication plan component

- Prepare a targeted communication strategy for the different groups, focusing on the key objectives and messages as well as the means to communicate them.
- Designate communicators, choose appropriate communication tools and platforms and allocate necessary resources.
- Key elements to be considered:
  - Who are you communicating with (who are they key audiences)?
  - What message do you want to convey to the different audiences? Why?
  - What communication tools and platforms will you use for the different audiences?
  - When will what be communicated?
  - Who will communicate?
  - What resources will be needed?

## Resources:

- Use guidance from C40 Cities and Forbes for business plan development.
- Explore the RISE4NBS framework for investment options and funding streams.
- Refer to specialized websites such as Creately and Community ToolBox for communication plan templates and guidance.





# Project Partners





















































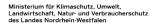






















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