



D7.9: Guidelines to foster international cooperation

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1 Executive summary

This deliverable **D7.9 Guidelines to foster international cooperation** will foster and make easier the international cooperation among NBS stakeholders, and is an output of Task 7.4 Global market opportunities and international cooperation and of Subtask 7.4.3 Analysis and involvement of public and private stakeholders to foster international cooperation activities. These guidelines will be further developed, finalized and integrated in D7.10 Report on lessons learnt for the large-scale deployment of NBS and guidelines on how to overcome them – URBAN GreenUP mini-handbook (M70).

To this end, this deliverable aims to provide a comprehensive framework to foster international cooperation activities on NBS to achieve the creation of NBS led global market opportunities by European and non-European entities.

This document is structured into 4 chapters:

- **Chapter 1** corresponds to the present Executive Summary.
- **Chapter 2** explains to what extent the document is framed in WP7 Exploitation and Market Deployment, in Task 7.4 Global market opportunities and international cooperation and respective Subtasks of 7.4.1-7.4.3. It also explains the main objectives and target groups, the main contribution of partners as well as the relation with other WPs and tasks.
- **Chapter 3** presents a brief literature review on international cooperation and the assessment of guidelines for the foster and facilitate international cooperation activities on NBS to achieve the creation of global market opportunities for NBS. Starting from the presentation of the methodology used, the main topic is addressed through a survey conducted to key players, distributed on the following points: current situation and perspectives, barriers and challenges, stakeholders' involvement, key factors and market opportunities.
- Finally, **Chapter 4** critically reflects the results from the survey, highlighting the main dimension to be taken into consideration as guidelines to foster international cooperation for NBS implementation: regulatory frameworks, Information-sharing, consultation, capacity building and training, knowledge gap, stakeholder involvement, result-based financing schemes, inter-sectoral and inter-institutional coordination.



2 Introduction

International cooperation on innovative nature-based solutions in cities is one of the keywords of SCC-02-2016-2017 “Demonstrating innovative nature-based solutions in cities”. In this context, international cooperation is encouraged through the participation of follower cities from EU and non-EU countries to enhance the potential for international replication and to the creation of a global market for nature-based solutions.

The URBAN GreenUP project aims to fostering the creation of a global market for NBS through Renaturing Urban Plans (RUPs) and EU international cooperation, where the front runner cities (Valladolid, Liverpool, Izmir) and follower cities (Ludwisburg and Mantova) will strength the replication potential of the results, while the three non-European cities (Medellin, Chengdu and Quy Nhon) will allow to identify the market opportunities for European companies out of Europe and fostering the European leadership in NBS implementation at global level.

Within this framework, WP7 Exploitation and Market Deployment aims to create a global and EU market for NBS through RUPs supported on international cooperation, firstly through the three non-European cities as first global replicators. This involvement will leverage the identification and involvement of additional international public and private stakeholders in the project to guarantee commitment from other cities to uptake NBS and RUPs in their own cities.

In this context, *Task 7.4 Global market opportunities and international cooperation* focuses on promoting the large-scale deployment of NBS and the creation of a global market for NBS through RUPs supported on international cooperation.

To this end, Task 7.4 have three main objectives:

- Assess NBS market opportunities (help to understand the potential and readiness level for replication and uptake by cities in the network).
- Demand-side analysis to understand the most pressing and essential needs of the target markets (European and non-European) for NBS.
- Conducting a strategic SWOT analysis for the cities² and providing a summary report on the key characteristics (focus on opportunities for NBS deployment, effectively and efficiently apply the project developed demonstrations and solutions).

As part of these activities, Subtask 7.4.3 aims to analyse and involve public and private stakeholders to foster international cooperation activities, aiming to understand the needs and raise awareness/interest of public and private stakeholders to be part of the international cooperation activities.

Built on results from Subtask 7.4.1 and Subtask 7.4.2, the involvement was deployed through customized survey questionnaires/interview within each of the cities. The target interviews are public and private key players, namely urban planning authorities, professionals and other

² This analysis is in progress and performed by RMIT and its results will be presented and discussed in D7.8 Report on market opportunities in European and non-European countries for NBS (RMIT; M72).



relevant stakeholders that are involved in the development and implementation of smart-cities strategies, environment and climate resilience mitigation actions, and the Urban Agenda for the EU.

Task 7.3 Exploitation strategy development focuses on designing a strategy to exploit the results obtained in the project development in order to create an NBS market open to European and non-European public and private actors.

As part of these activities, *Subtask 7.3.5 URBAN GreenUP lessons learnt* will gather lessons learnt and success stories of the project considering its contribution to the governance, economy, social, health/well-being and environmental aspects. This information will be reflected into a mini-handbook that will be included in the enlarged *D7.10 Report on lessons learnt for the large-scale deployment of NBS and guidelines on how to overcome them – URBAN GreenUP mini-handbook* (M70). D7.10 will provide the legacy of the project as added value on specific relevant topics, gathering knowledge on NBS planning, design, implementation and monitoring. Also, D7.10 will give insights on barriers regarding re-naturing processes in cities. The preliminary analysis developed in the present document D7.9 (chapters below) will be further finalized providing the identification of the opportunities as strategic guidelines about lessons learnt on international cooperation and include it in the mini-handbook of the URBAN GreenUP Legacy, giving practical insights on international cooperation for other cities that want to replicate the URBAN GreenUP approach on this topic. These guidelines will also serve the purpose of triggering new potential international cooperation schemes with these cities and other international organizations. Therefore, D7.10 will integrate the guidelines about how to take opportunities and overcome barriers for international cooperation for the large-scale deployment of NBS, paving the ground for new opportunities in the post-project.

Finally, fostering international cooperation is also one of the aims of WP6 Replication and City Clustering (through clustering activities) and WP8 Communication and Dissemination (via dissemination and knowledge sharing activities).

2.1 Objectives and target group

D7.9 Guidelines to foster international cooperation aims to provide an operational framework as starting point to foster international cooperation activities on NBS to achieve the creation of global market opportunities for NBS led by European and non-European entities. To do this, the main objective of D7.9 is the identification of those contexts and mechanisms that are needed from the URBAN GreenUP partner city to trigger international cooperation for NBS implementation, focusing in institutions, bodies, processes and initiatives. As mentioned in the Introduction of the present document, these dimensions will be further developed in D7.10. Therefore, D7.9 aims to foster international cooperation activities on NBS to achieve the creation of global market opportunities for NBS led by European and non-European entities. The preliminary assessment of the insights on international cooperation (see Chapter 3 and Conclusions of the present document) are the starting point for the fine-tuning, further development and finalization of the guidelines that will be integrated in *D7.10 Report on lessons*



learnt for the large-scale deployment of NBS and guidelines on how to overcome them – URBAN GreenUP mini-handbook.

The creation of global market opportunities for NBS through international cooperation among NBS stakeholders is essential to contribute to the large-scale deployment of NBS. With a deeper and stronger international cooperation, it will be possible for more cities to have the knowledge on how to overcome the difficulties inherent to the large-scale deployment process of the NBS (D7.10), where the guidelines on international cooperation will be framed into the five dimensions considered by D7.10 (governance; economy; social; health/well-being; environment).

To this end, as mentioned before, D7.10 will integrate the finalized guidelines for international cooperation through the deployment of a two-fold process, which will take advantage of the extension period of the project. On one side, new contributions will be collected from front-runners, follower cities and the external cities composing the Cluster of Network, through the development and distribution of specific template on demands of action for international cooperation. On the other side, this collection of information will be further complemented by the results of dedicated interactive virtual meetings that will be organized during the rest of 2022, where NBS stakeholders will be invited, including technical partners and the external cities of the Cluster of Network (WP6), if relevant.

Finally, the main key target groups of this D7.9 are identified as public and private stakeholders that might have interest in be part of international cooperation activities, in particular, urban planning authorities, professionals and other relevant stakeholders that are involved in the development and implementation of smart-cities strategies, environment and climate resilience mitigation actions and the Urban Agenda for the EU.

Table 1 summarizes the key target groups, together with the main benefits that each of these group can get from the project outcomes.

Table 1. Target groups and main benefits

Target Groups	Main benefits
International governmental organizations and supranational agencies (e.g United Nations related organizations such as UNEP; financial, trade and customs organizations such as OCDE; supranational environmental agencies such as IPCC, IUCN)	Get insights about the role of NBS in fostering international cooperation in NBS and related global market opportunities.
EU Level EU DG GROWTH; DG Climate Action; DG Environment; DG Research & Innovation; EIT Climate KIC; EIP Smart Cities; Covenant of Mayors	Promote the application of NBS principles and priorities; Contribute to policy coherence; Get involved in feedback mechanisms from the local level to the EU level and vice versa.
International Civil Society Organizations	Make sure NBS implemented are along community expectations and needs; develop



(e.g. For Profit and non-profit organizations, grassroots movements: associations, NGOs, Third Sector)	associated community-based/led initiatives; Foster awareness raising and the creation of critical mass around the NBS topic; lobby public authorities.
Cities / Municipalities (e.g. Policy and public decision makers of cities, municipalities and metropolitan areas and their respective relevant technical departments (Urban Planning, Environment, Sustainability, Socio-economic Development, Smart Cities, etc.)	Have an insight of what national/international cities are doing in terms of greening; Acquire knowledge about NBS, its implementation, benefits, needs and impacts in the urban context; Integrate greening as a key element of the urban development policies.
Companies and Financing Organizations (e.g. Business industries, Large companies, SMEs, technology providers financing organizations working in fields related to NBS)	Understand the type of NBS that cities are implementing; Acknowledge the technical features and the expertise needed to develop them; Increase market share / profitability by accompanying state of the art NBS development.
Academia and Research Institutions (e.g. Scientific community such as public and private universities and research institutions, including experts in NBS related fields (Biodiversity, Bioeconomy, Sustainable Urban Planning, Environmental Sustainability, Sustainable Urban Development Economy, Smart Cities, etc.)	Develop scientific analysis, concepts and approaches based on real use cases: how the benefits can be increased and limitations mitigated, how to improve the NBS performance; how to better integrate it in the urban layout; how to reduce maintenance costs, etc.; Improve the contribution to knowledge sharing and learning processes; Get involved in community-based/led initiatives.
Citizens (e.g. General public and society at a large with different background and ages, such as residents and visitors)	Know the benefits of NBS for their own well-being and quality of life; Raise awareness to play an increasing pro-active role in NBS design, implementation, and monitoring.

2.2 Contributions of partners

Table 2 below summarizes the main contributions of partners.

Table 2. Contributions of partners

Partner	Main contribution
RMIT	Review of the questionnaire and integration of the broader questionnaire that RMIT developed to fulfill the purpose of gathering information about the market opportunities of Nature-based Solutions (NBSs) in European and Non-European markets; inputs to the contents of D7.9
UBO; CARTIF	Inputs to the contents of D7.9



Front-runner, follower cities and respective technical partners, urban planning authorities, professionals and other relevant stakeholders that are involved in the development and implementation of smart-cities strategies, environment and climate resilience mitigation actions.	Filling of the questionnaire
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2.3 Relation with other WPs and tasks

The following table summarizes the main relations with D7.9 with activities developed under others tasks and WPs, including deliverables (Table 3), where the main one is D7.10.

Table 3. Relation with other tasks and deliverables

Task/Deliverable	Relation
Task 6.7 Cluster of Cities to foster transferability and dissemination	The cluster and “Network of Cities”, consisting in 9 project cities and 24 cities will strengthen the replication action and foster international cooperation activities starting from their current NBS and sustainable city related initiatives.
Task 6.8 Link with other SCC NBS projects	Increase international cooperation and interaction with cities of other SCC NBS projects through knowledge exchange and transfer activities
Subtask 7.3.5 URBAN GreenUP lessons learnt, D7.10 Report on lessons learnt for the large-scale deployment of NBS and guidelines on how to overcome them – URBAN GreenUP mini-handbook (M70) and Subtask 7.4.1.	Gather lessons learnt on international cooperation for the large-scale deployment of NBS and integrate them in the mini-handbook of the URBAN GreenUP Legacy
D7.5 Table of exploitable results and related business models to implement NBS for private sector and D7.6 Table of exploitable results and related business models to implement NBS for public sector	Give insights about international cooperation that are useful for exploitation strategies for public and private stakeholders
D7.8 Report on the market opportunities in European and non-European countries for NBS (M72) and Subtask 7.4.2.	Provide the comprehensive overview of the market opportunities by looking into current NBS and sustainable city related initiatives in European and non-European countries, providing the general framework for the analysis of international cooperation potentials.



3 Guidelines to foster international cooperation

3.1 Literature Review

Cooperation is part of an individual's daily life, being the reason why one relies on each other when it comes to simple acts such as having their food cooked, completing a transaction, or other kinds of interactions involving two or more persons (Andreoni & Samuelson, 2004). Even though a larger number of theories in the fields of economics and political science exacerbate the individuality and the pursue of the Human being for their narrow interests, profitability and utilities' maximization, recent research from many fields has proven a natural human predisposition to cooperate (Messner, Garin & Haud, 2013). Evidences account for facts such as the verification that children often cooperate from an early age, that cooperative behaviour is found on other species (particularly on primates), or the attestation that the predisposition to cooperate seems to be independent of culture.

Frequently cited on international vocabulary, the concept, however, has often been perceived as vague and used imprecisely, leaving space to misapplication of different terms. On a general term, cooperation is simply the *act of working together to one end* (Siitonen, 1990), that allows each party to *achieve mutually advantageous states of affair*, based not on common objectives, but on common principles of action (Gauthier, 1974). This, thus, requires a coordinated behaviour among independent (and possibly selfish) actors that leads to benefits to them all (Dai, Snidal & Sampson, 2017).

Nonetheless, not all kinds of collective actions are perceived as *cooperation*. Siitonen (1990) identifies four goal-oriented collective actions:

- Cooperation - where there is a common goal responsible for the interaction orientation, and which all actors share;
- Competition – where the common goal has stopped from being shared;
- Assistance – where there may exist common goals but the action itself of giving aid aims to help the other part on reaching their own goals;
- Rivalry - where the purpose is to block the other from achieving their goals.

At a first glance there seems to be an incompatibility between individual rationality and collective benefit (Sasidevan & Sinha, 2015), where all actors involved present conflicting goals. Nevertheless, it is that common interest shared by all parties that ultimately leads to strategic interaction and for cooperation, raising bargaining situations (Schelling, 1980; Dai, Snidal & Sampson, 2017). This *bargaining problem* constitutes, then, an agreed way of acting that safeguards an optimal outcome (or, at least, a fair optimal outcome) to each party involved, with the intrinsic idea of utility-maximization (Gauthier, 1974).

Among several well-studied strategic games in the literature of strategic choices in social sciences and evolutionary biology, the Prisoner's Dilemma comprises one of the most used social



dilemmas to delve into some elucidations on the subject of rational cooperation³. By not cooperating with each other (that is, by finking), the two (or more) prisoners will be constantly in confrontation and will be risking to have their sentences aggravated, reaching what is known as the Nash equilibrium (Sasidevan & Sinha, 2015). On the other hand, if they choose to cooperate, none will have their sentence's length increased, that is, the highest minimum relative advantage possible (Gauthier, 1974).

Cooperation games such as the Prisoners' Dilemma show that an indispensable property of cooperative bargaining is that players are explicitly prepared to make concessions to guarantee an optimal outcome to bargaining (McCannel, 2012). As advisable and intuitive as it is to start small when it comes to foster cooperation (Andreoni & Samuelson, 2004), the fact is that ongoing forms of interactions may evolve and build mutual trust, thus having their concessions adjusted accordingly. Furthermore, even if new circumstances may cause that one of the parties stops having benefits with the existing arrangements, a Full Cooperation among the involved parties will secure the disposition to renegotiate the agreement (McCannel, 2012).

Ideally, however, and particularly at an international environmental level, any sort of agreement should be renegotiation-proof, especially in the case of climate agreements, in order to attain stability. The idea of collective rationality (Barret, 1999) tells that a punishment that hurts *all* players will not be carried out if there is space to renegotiation. Otherwise, a transgressor will be able to get away a threatened punishment by leading the other players to renegotiate, stressing out the other players' gains if they skip the punishment (Helland & Hovi, 2004).

At this point, the natural question to ask is '*what dimensions must feature international cooperation*'? Messner, Garin & Haud (2013) have identified the following seven, that form the cooperation hexagon⁴:

- Reciprocity – As *the main evolutionary mechanism underlying cooperation*, it is the feature that warrants that 'if you cooperate with me, then I will cooperate with you in the future; but if you do not cooperate, then neither will I', which is linked with the tit-for-tat strategy pairing (Dai, Snidal & Sampson, 2017).
- Trust – Research from different fields suggests that establishing trust is a precondition for any kind of cooperation to be successful. This is one of the reasons why Andreoni & Samuelson (2004) refer to *start small* in order to build up mutual trust, and, intrinsically, (good) reputation.
- Communication – Cooperation can indeed blossom among quick and anonymous interactions but it is well established that communication improves the chances of more persistent cooperative results to a greater degree.

³ In a nutshell, the Prisoners' Dilemma accounts for a basic two person, bimatrix stage game consisted of *N* repetitions, on which each repetition the prisoner/player has the chance to either fink (and, thus, having his sentence reduced but increasing the other's sentence length) or cooperate with the other prisoner. For further reading, please see: Gauthier, D. (1974); Kreps et al. (1982); Andreoni & Samuelson (2004); Sasidevan & Sinha, 2015.

⁴ Even though there are seven features, the hexagon choice is due to the fact that reciprocity must be present in all the others, being schematically represented in the middle of the hexagon.



- Reputation – This can simply be translated into the information about the others' past performances. Based on those, we will try to guess how their future behaviour will be. This can also be related to the idea of Fearon's *shadow of the future* (Fearon, 1998).
- Fairness – In a sense that goes beyond altruistic motivation, field and laboratory experiments show that people want to be and be perceived as fair, as they also expect the others to be the same way.
- Enforcement – If trust and reputation are insufficient to trigger cooperation among actors, then a negative (punishment) or a positive (reward) incentive are crucial, especially if they put the principle of reciprocity in jeopardy.
- We-Identity – Human beings have a natural tendency to gather with others that are somehow *similar* to them – for instance, the cultural background in large and complex societies is the main source of similarity. Thus, we tend to cooperate better with those who believe in the same things we do, or who adhere to the same norms.

These matters are of crucial importance since international cooperation has been globally recognized as an essential dimension in addressing and tackling the challenges of climate change. As Rudall states (2021), *'the effect of climate change requires the efforts of every state'*. However, *'not all states have the resources to take the necessary measures to mitigate or adapt to the effects of climate change, while other states have the resources to do more in the fight against this common global challenge. Cooperation can help to bridge this gap'* (Rudall, 2021: 1).

A rising number of evidences have demonstrated that international cooperation has had positive and measurable results concerning the reduction of greenhouse gases (GHG) emissions (carbon dioxide (CO₂) and non-CO₂). Furthermore, it has also contributed to a national capacity for GHG accounting, the creation of GHG markets, and amplified low-carbon technologies investments, as well as a growing global self-awareness (Pat et al., 2022).

International agreements under the United Nations climate regime have been key to this process, even though one can notice significant changes from the Kyoto Protocol (1997) to the recent Paris Agreement (2015) (E.C., n.d.). In fact, whereas the former was more conceived to monitoring and enforcement mechanisms definition, the latter has been primarily procedural and developed to trigger domestic policies and measures, leading to more transparency, climate investments, and to growing ambitions globally (Patt et al., 2022). As a result, new forms of cooperation have emerged at different governance levels (national, regional, sub-national) and also within non-state actors, including several sectors. The frequently designated 'climate clubs'⁵ play, thus, a vital role at a sub-global and regional cooperation level, especially in accelerating mitigation.

This connection of different actors that include Governments, businesses and civil society members has been responsible for speeding the pace of climate action. Following the United Nations 2019 Climate Action Summit, a group of Initiatives for Action was conceived with the aim of limiting global temperature rise to no more than 1.5 degrees Celsius, and to promote a

⁵ 'Groups of countries and potentially non-state actors that can work together to achieve particular objectives' (Pat et al., 2022: 1455)



transition to a sustainable, low-carbon economy that benefits all people (U.N., n.d.). These cover actions on the fields of Energy, Industry and Transport, Business and Finance, Resilience and Adaptation, Urban Planning, and Nature Based Solutions (NBS).

NBS have, indeed, a vital role in climate action and biodiversity preservation, being a key-factor to the establishment of climate-resilient societies, as they value harmony between people and nature, as well as ecological development, being *effective, long-term, cost-efficient and globally scalable* (NBS Facilitation Team, 2019). As NBS are part of the solutions to combat climate change, international cooperation arrangements are needed, in order to coordinate efforts and tackle problems that go beyond national boundaries, that is, trans-boundary, cross-border or regional.

In this context, market-based commitments are necessary to ensure the sustainability of NBS, in particular beyond the intervention action timeframe (IUCN, 2020). This is the case, for instance, of blended finance which constitutes of a strategic mobilization of additional finance towards the achievement of sustainable development goals (OECD, 2018).

The chapters that follow aim to identify and assess the preliminary guidelines for the foster and facilitate international cooperation activities on NBS to achieve the creation of global market opportunities for NBS.

3.2 Methodology

Under Task 7.4, a survey composed of qualitative and quantitative answers was developed by RMIT in order to collect responses from partners and relevant stakeholders to assess NBS market opportunities in European and non-European countries (UK, Spain, Turkey, Germany, Italy, Colombia, Vietnam).

The survey asked participants to provide information about the process, material, direct services for NBS design, construction, and management/maintenance, and had three main goals:

- Consult and carry out the demand-side analysis.
- Analyze key characteristics of cities for NBS deployment.
- Effectively and efficiently apply the project developed demonstrations and solutions.

Starting from this survey, and in order to address the objectives of D7.9 (see Section 2.1 of this document), a *complementary survey* was developed by SPI and integrated to the Task 7.4 survey developed by RMIT. This complementary survey was composed by 11 questions (Annex 1) and was conducted among public, private and international organizations, namely collaboration organizations, institutions relevant to NBS planning, implementation, consultants, contractors, business developers, researchers, designers and others. The total number of participants was 23 out of 23, and the surveys were made in English, Italian, Spanish, Turkish and Vietnamese versions.

The survey was integrated, and linked to the overall survey developed by RMIT. Thus, D7.9 survey was designed with the following structure and topics:

- Q1. Identify the main challenges of international cooperation for NBS implementation;



- Q2. Existence of international cooperation programs/initiatives supporting NBS implementation;
- Q3. Identifying the barriers to foster international cooperation and maximize the impacts and spread of nature-based solutions;
- Q4. Assessing the knowledge-gaps that limits international cooperation for NBS implementation;
- Q5. Ranking the most important dimensions for the deployment of international cooperation for NBS implementation;
- Q6. Ranking the relevance of the stakeholder in supporting international cooperation for NBS implementation;
- Q7. Measuring the relevance of results-based financing scheme to foster international cooperation for NBS implementation;
- Q8. Validating international cooperation as a relevant operational framework to support the development of NBS commercially viable projects and businesses;
- Q9. Identifying the availability in holding international forums to exchange practical experience and connect various stakeholders;
- Q10. Assessing if inter-sectoral and inter-institutional coordination are important for international cooperation in NBS implementation;
- Q11. Listing international organization that could support project development and scaling up of NBS

The detail structure of the survey is reported in the Annex section.

3.3 Results from the survey on international cooperation for NBS implementation

The following sections analyse the results obtained from the online survey for the preliminary assessment of international cooperation guidelines.

3.3.1 Current situation and perspectives

As initial step, the survey looked to primarily assess to what extent the programs and initiatives supporting NBS implementation have been carried out within international cooperation frameworks by (or in the city of) the questionnaire participants. To understand this matter, the survey included the following question (Q2): 'Do you already have international cooperation programs/initiatives supporting NBS implementation?'. The results (Figure 1) show a balance among those who have said 'Yes' (47,8%) and 'No' (52,2%), although the latter was the most significant.



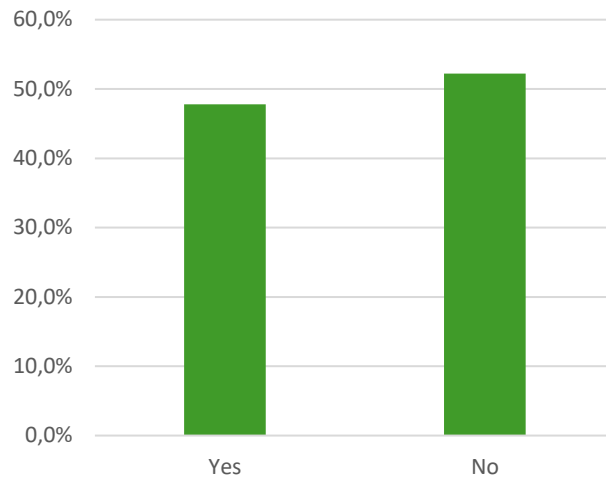


Figure 1. Results from Q2: ‘Do you already have international cooperation programs/initiatives supporting NBS implementation?’

Additional to this question, it was also asked to specify in all positive answers. From the collected responses, besides the current URBAN GreenUP project, the references summed up to Medellín’s Development Plan ‘Medellín Futuro’, a Renaturing Plan (not specified and currently on working) and also to the ‘Connecting Nature’ programme. The Table 4 summarises all the answers.

Table 4. Summary of positive answers specifications given in the survey to Q2

<i>“If Yes, please specify”</i>
<i>“In the Development Plan “Medellin Futuro” we have associated programs related to the Green Corridors, green walls, green façades, green noise barriers and cycle lanes implementation.”</i>
<i>“Renaturing Plan (on working)”</i>
<i>“URBAN GreenUP”</i>
<i>“Connecting Nature”</i>

On the other hand, Q5 aimed at finding the ‘most important dimensions for the deployment of international cooperation for NBS implementation’, based on a ranking scheme from 1 (low importance) to 8 (high importance). By analysing the results (Table 5), one can notice that the dimension ‘Development of new legal frameworks’ was the one that got the greatest number of answers as of *high importance* (7 responses), followed by ‘Information-sharing and consultation’ (4 responses). Nonetheless, the former dimension was also the one that achieved the greatest number of rank position 1 *low importance* (6 responses), followed by *Capacity building and training* (5 responses).



Table 5. Results from Q5: 'Please rank (1- low importance; 8 – high importance) the most important dimensions for the deployment of international cooperation for NBS implementation

<i>Nr. of responses per each ranking position (1 = low importance; 8 = high importance)</i>								
<i>Dimension</i>	<i>Rank</i>							
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
<i>Capacity building and training</i>	5	7	1	4	2	0	1	2
<i>Financial support & assistance</i>	4	3	5	2	1	2	2	3
<i>Technology transfer/shared responsibilities</i>	2	4	7	2	3	2	2	0
<i>Shared commitment</i>	3	0	1	6	5	4	1	2
<i>Flexibility of policy procedures</i>	1	5	3	0	4	5	3	1
<i>Information-sharing and consultation</i>	1	2	2	4	1	5	3	4
<i>Conduct joint activities (e.g. environmental impact assessment)</i>	0	1	1	3	3	4	7	3
<i>Development of new legal frameworks</i>	6	0	2	1	3	0	3	7

3.3.2 Barriers and challenges

This dimension focuses more on the barriers and challenges faced by participants when it comes to the NBS implementation and fostering international cooperation processes. Therefore, Q1 asked 'What are the main challenges of international cooperation for NBS implementation (multiple choice allowed)?'. The results (Figure 2) show that '*Mobilize adequate resources*' was almost unanimous among participants (21 responses, 91,3%), while '*Involve different public and private stakeholders to joint activities*' (15 responses, 65,2%) and '*Unlock institutional/regulatory barriers*' (14 responses, 60,9%) were also identified by the majority of the participants.



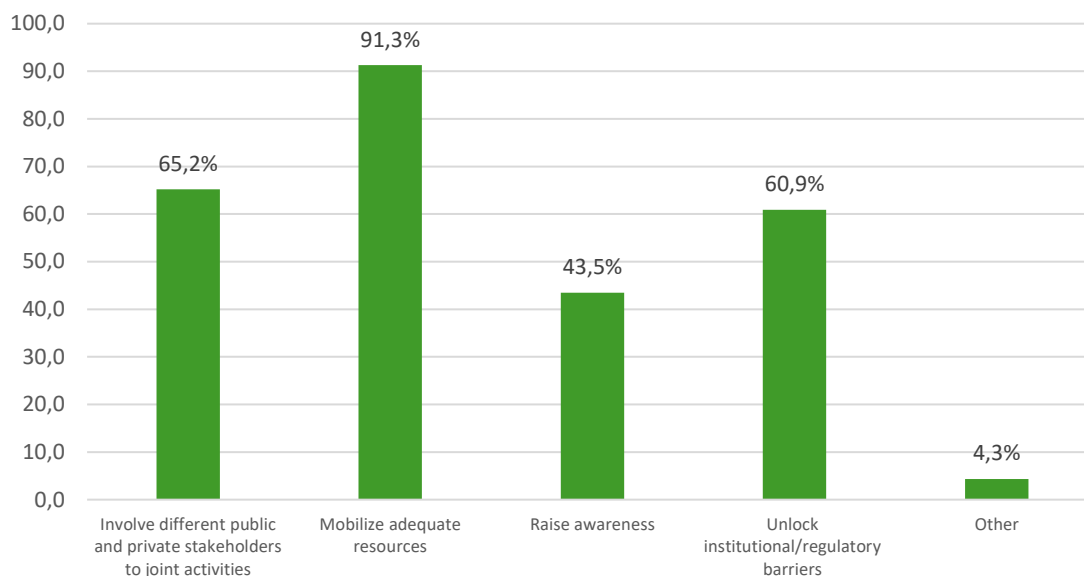


Figure 2. Results from Q1. ‘What are the main challenges of international cooperation for NBS implementation?’ (%)

Q3, on the other hand, asked ‘What are the barriers you identify to foster international cooperation and maximize the impacts and spread of nature-based solutions?’. By looking at Table 6 it is possible to identify that the *Institutional and Financial/Market barriers* are the ones with highest impacts, while the *Social/cultural and the Technological* ones had less perceived impact, even though they both had a significant number of Medium and High impact answers.

Table 6. Results from Q3. ‘What are the barriers you identify to foster international cooperation and maximize the impacts and spread of nature-based solutions?’

<i>Nr. of responses per each level of impact</i>					
<i>Barriers</i>	<i>Level of Impact</i>				
	<i>Low impact at all</i>	<i>Low impact</i>	<i>Medium impact</i>	<i>High impact</i>	<i>Extremely high impact</i>
<i>Institutional (regulatory; political, administrative; etc.)</i>	0	0	4	13	5
<i>Social/cultural</i>	0	6	6	8	3
<i>Financial/market</i>	0	4	5	11	3
<i>Technological</i>	0	5	8	7	3
<i>Other (please specify)</i>	0	0	0	0	0

On a similar matter Q4. asked 'In your opinion, which are the knowledge-gaps that in your opinion limits international cooperation for NBS implementation (multiple choice allowed)?'. Figure 3 shows that 'Data availability for comparison' was the one with more references amongst participants (11 responses, 47,8%), followed by Knowledge of financial resources (7 responses, 30,4%). Besides 'Others' (5 responses, 21,7%), were also mentioned 'Intergovernmental/transnational arrangements', 'Complementarity/tradeoffs between policies', and 'Understanding factors that can affect national decisions' (3 responses, 13,0% for each of them).

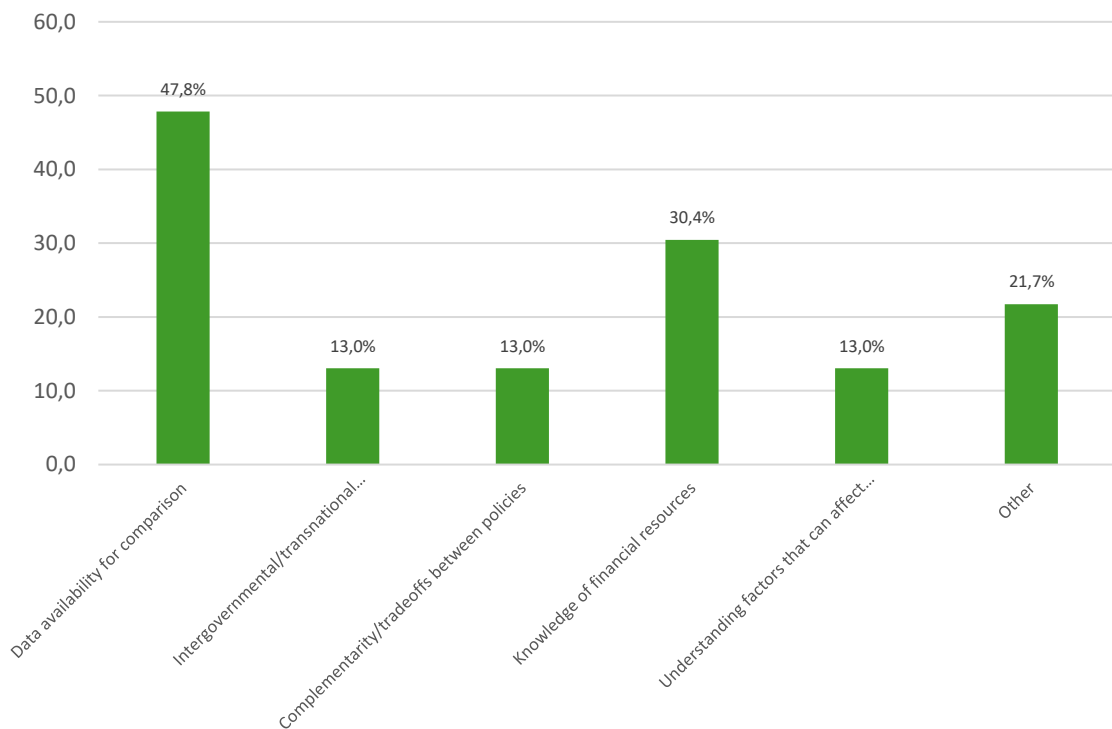


Figure 3. Results from Q4. 'In your opinion, which are the knowledge-gaps that in your opinion limits international cooperation for NBS implementation (multiple choice allowed)?' (%)

3.3.3 Stakeholders' Involvement

Another crucial dimension on the large-scale deployment of NBS and the creation of a global market through international cooperation is the stakeholders' involvement.

When asked if the participants' organization was available 'in holding international forums to exchange practical experience and connect various stakeholders?' (Q.9), the great majority answered 'Yes' (19 responses, 90,5%), with only two negative answers (Figure 4).

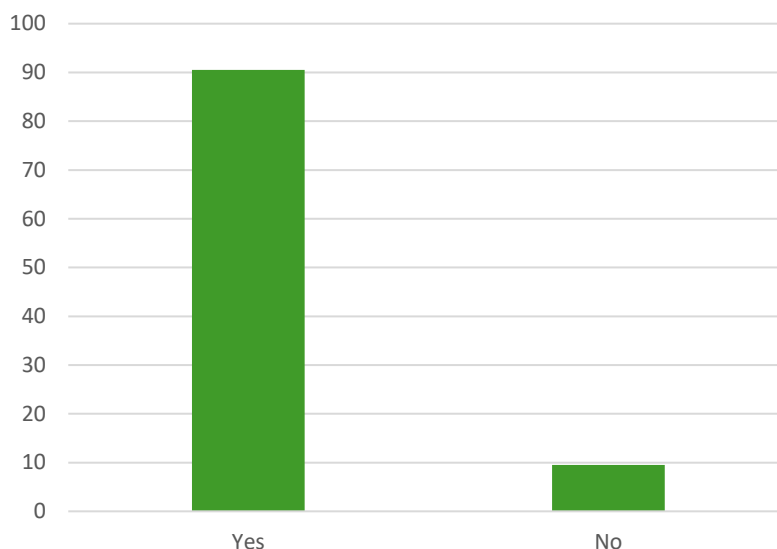


Figure 4. Results from Q9. 'Is your organization available in holding international forums to exchange practical experience and connect various stakeholders?' (%)

The conducted survey also included Q6. 'Please rank the relevance of the following stakeholder in supporting international cooperation for NBS implementation (1- low importance; 13 – high importance)'. Table 7 shows that *Administrative and technical city departments*'' was the stakeholder with the most *'high importance'* attributions (8 answers), followed by *'Development cooperation agencies'* and *'Philanthropies (including foundations and endowments)'* (each with 4 answers). On the opposite side, however, the latter also got the highest number of *'low importance'* answers (5), followed by the *'Administrative and technical city departments'* (4 answers), showing how different the participants' vision might be.

Table 7. Results from Q6. 'Please rank the relevance of the following stakeholder in supporting international cooperation for NBS implementation (1- low importance; 13 – high importance)'

<i>Nr. of responses per each ranking position (1 = low importance; 13 = high importance)</i>													
<i>Stakeholder</i>	<i>Rank</i>												
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>
<i>Administrative and technical city departments</i>	4	2	0	1	0	0	1	1	1	0	1	1	8
<i>International cooperation facilitators</i>	3	4	1	1	2	0	1	1	0	1	2	3	1
<i>Chamber of Commerce</i>	1	4	3	1	0	3	1	1	2	0	3	0	1
<i>Non-state actors</i>	0	2	5	3	4	2	1	0	3	0	0	0	0

<i>Nr. of responses per each ranking position (1 = low importance; 13 = high importance)</i>													
<i>Scientific associations</i>	2	1	4	4	2	2	1	2	0	1	0	1	0
<i>Businesses and SMEs</i>	0	0	0	4	6	2	3	0	2	2	0	1	0
<i>Development cooperation agencies</i>	3	1	2	1	1	2	1	3	0	1	0	1	4
<i>Multilateral development finance institutions</i>	1	0	0	1	2	3	2	3	3	4	0	1	0
<i>Multilateral organizations managing environmental/climate funds</i>	0	2	2	0	0	1	1	2	4	3	3	2	0
<i>Commercial financial institutions</i>	1	0	1	0	1	2	4	2	3	4	1	1	0
<i>Investors</i>	0	0	1	2	1	2	4	1	0	2	5	2	0
<i>Corporations</i>	0	2	1	1	0	1	0	4	1	1	3	4	2
<i>Philanthropies (including foundations and endowments)</i>	5	2	0	1	1	0	0	0	1	1	2	3	4

3.3.4 Key factors and market opportunities

Among the guidelines to foster international cooperation, there are some key factors and specific opportunities one ought to take into account. Thus, the questionnaire asked on Q8. if international cooperation was a relevant operational framework to support the development of NBS commercially viable projects and businesses, to which the participants were almost unanimous on agreeing (85,7%), having only 3 negative answers (Figure 5).

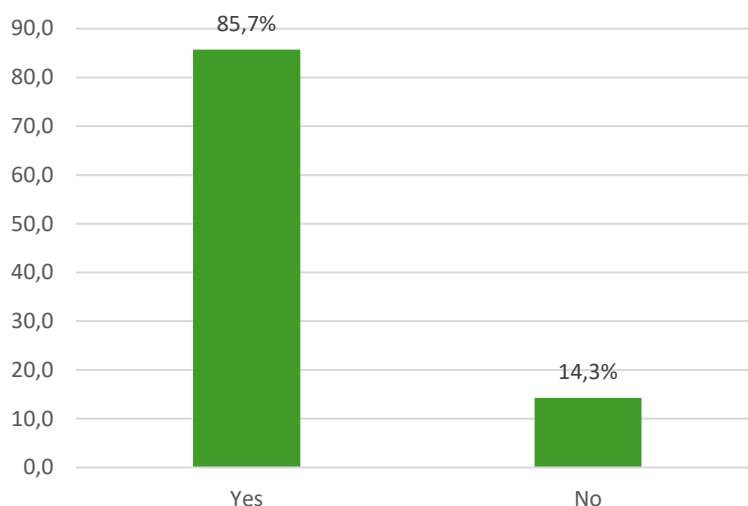


Figure 5. Results from Q8. ‘Is international cooperation a relevant operational framework to support the development of NBS commercially viable projects and businesses?’

Still on this level, Q7. asked to rate the relevance of a results-based financing scheme to foster international cooperation for NBS implementation. According to Table 8, it is possible to see that ‘Green/conservation/resilience bonds’ was the one with the highest ranking, reaching *high importance* for 10 times, followed by ‘Credit facilities’ (9 times). On the other hand, ‘Credit guarantees’ was the one with the overall lowest levels of importance.

Table 8. Results from Q7. ‘Please rate the relevance of the following results-based financing scheme to foster international cooperation for NBS implementation (1- low importance; 5 – high importance)’

<i>Nr. of responses per each level of importance (1 = low importance; 5 = high importance)</i>					
<i>Results-based financing scheme</i>	<i>Level of Importance</i>				
	1	2	3	4	5
<i>Green/conservation/resilience bonds</i>	0	1	2	8	10
<i>Credit facilities (e.g for habitat restoration, water quality improvement, etc.)</i>	0	0	7	4	9
<i>Blended finance mechanisms</i>	0	1	5	9	6
<i>Credit guarantees</i>	0	2	7	6	6
<i>Others (please specify)</i>	0	0	0	0	0

To assess international cooperation in NBS implementation, Q10. asked which inter-sectoral and inter-institutional coordination listed options were important. The results (Figure 6) show that, aside from the 'Other' option, 'Find new technological solutions' was the most picked answered (14 responses, 66,7%), followed by 'Increase commitment of partners' (9 responses, 42,9%). 'Open new windows of opportunity to new financial schemes (e.g multi-funding)' and 'Mobilize new types of stakeholders' were also mentioned, both with 9,5% each (2 responses).

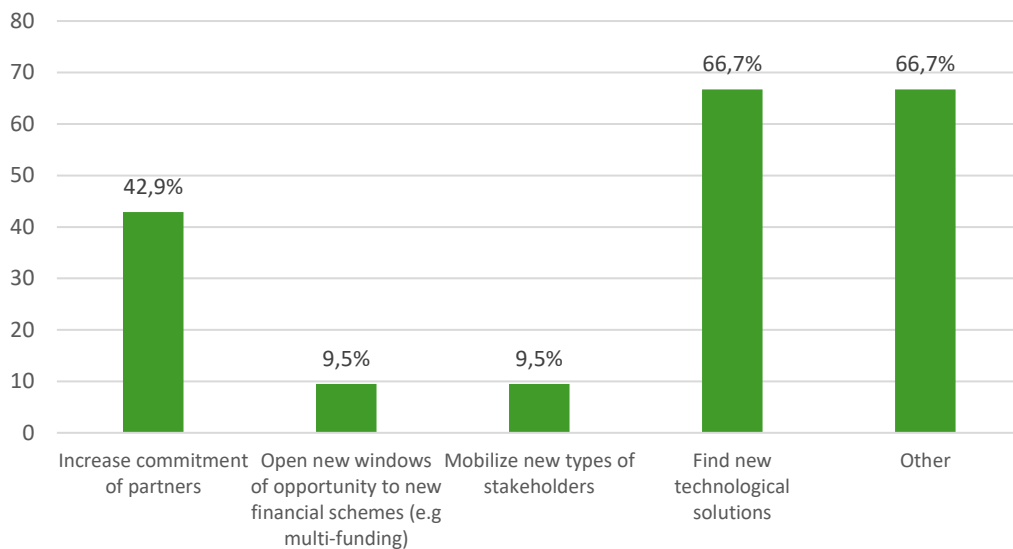


Figure 6. Results from Q10. 'Which inter-sectoral and inter-institutional coordination listed below are important for international cooperation in NBS implementation (Multiple choice allowed)?' (%)

Finally, Q11. asked on how international organization could support project development and scaling up of NBS. The results (Figure 7) show that 'Improve financing opportunities' was the most selected answer (19 responses, 86,4%), followed by 'Other' (13 responses, 59,1%) and 'Fostering awareness' (9 responses, 40,9%). Besides these, 'Create new networks' and 'Exchange technical knowledge' were also chosen by the participants, with 13,6% (3 responses) and 9,1% (2 responses), respectively.

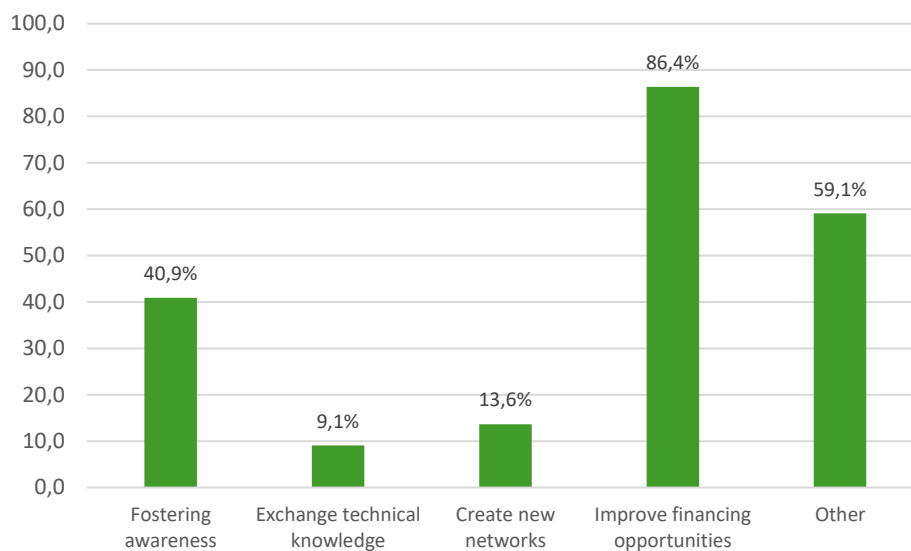


Figure 7. Results from Q11. 'How international organization could support project development and scaling up of NBS (multiple choice allowed)?'



4 Conclusions

Literature on rational cooperation shows that cooperating is a vital part of the Human being, even though not all kinds of collective actions are perceived as cooperation (Siitonen, 1990). Albeit the apparent incompatibility between individual rationality and collective benefit (Sasidevan & Sinha, 2015), shared conflicting goals among all parties are what ultimately leads to strategic interaction and for cooperation, raising bargaining situations (Schelling, 1980; Dai, Snidal & Sampson, 2017).

Forging an agreement is intrinsically connected to international cooperation in order to warrant stability and reciprocity. This is especially crucial in addressing and tackling the challenges of the climate change, since it is a general concern that goes beyond national boundaries, hence the creation of international agreements under the United Nations climate regime (E.C., n.d.; Patt et al., 2022).

NBS are part of the solutions to combat climate change for its effectiveness, longevity, cost-efficiency and replicability (NBS Facilitation Team, 2019). In this context, market-based commitments are required to ensure the sustainability of this solutions.

Assessing the results of the survey conducted for the purpose of this deliverable, one can identify the following guidelines dimensions in order to foster international cooperation activities on NBS to achieve the creation of global market opportunities for NBS:

- 1. Regulatory frameworks.** The transboundary nature of international cooperation calls for *ad hoc* new legal frameworks that should be able to accommodate different institutional contexts and unlock regulatory barriers.
- 2. Information-sharing, consultation, capacity building and training.** International organization should support project development and scaling up of NBS. They can also act by improving financing opportunities, fostering awareness, and creating new networks by involving cities.
- 3. Knowledge gap:** Data availability and knowledge of financial resources should be developed for comparison and to bridge knowledge gaps. In this context, Intergovernmental and transnational arrangements, complementarity and trade-offs between policies can play a key role in creating the conditions for international cooperation and understanding factors that can affect national decisions.
- 4. Stakeholder involvement.** Involve different public and private stakeholders to joint activities is quintessential. Holding international forums to exchange practical experience and connect various stakeholders: Most important stakeholders to be involved are administrative and technical city departments, development cooperation agencies, and also Philanthropies (including foundations and endowments).
- 5. Results-based financing scheme.** These schemes should be designed to foster international cooperation for NBS implementation (such as green, conservation, and resilience bonds) and to tackle financial and market barriers. In this context, international cooperation is a relevant operational framework to support the development of NBS commercially viable projects and businesses.



- 6. Inter-sectoral and inter-institutional coordination.** Inter-organizational mechanisms should be activated, making use of new technological solutions, Increasing the commitment of partners, and by opening new windows of opportunity to new financial schemes (e.g. multi-funding).

These six dimensions represent the starting point for the finalization of the guidelines that will be included in D7.10, paving the ground for new potential international cooperation schemes with these cities and other international organizations.



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Annexes

Survey on international cooperation for NBS implementation

Q1. What are the main challenges of international cooperation for NBS implementation (multiple choice allowed)?

- Involve different public and private stakeholders (public authorities, corporation and businesses, citizens, NGOs, etc.) to joint activities
- Mobilize adequate resources
- Raise awareness
- Unlock institutional/regulatory barriers
- Other. Please specify: _____

Q2. Do you already have international cooperation programs/initiatives supporting NBS implementation?

- Yes. If yes, please specify: _____
- No

Q3. What are the barriers you identify to foster international cooperation and maximize the impacts and spread of nature-based solutions?

	Barriers to international cooperation	No impact at all	Low impact	High impact	Medium impact	High impact
1	Institutional (regulatory; political, administrative; etc.)					
2	Social/cultural					
3	Financial/market					
4	Technological					
6	Other (please specify)					

Q4. In your opinion, which are the knowledge-gaps that in your opinion limits international cooperation for NBS implementation (multiple choice allowed)?

- Data availability for comparison (e.g country level)
- Intergovernmental/transnational arrangements
- Complementarity/tradeoffs between policies
- Knowledge of financial resources
- Understanding factors that can affect national decisions



- Other. Please specify: _____

Q5. Please **rank** (1- low importance; 8 – high importance) the most important dimensions for the deployment of international cooperation for NBS implementation:

1	Capacity building and training
2	Financial support & assistance
3	Technology transfer/shared responsibilities
4	Shared commitment
5	Flexibility of policy procedures
6	Information-sharing and consultation
7	Conduct joint activities (e.g. environmental impact assessment)
8	Development of new legal frameworks

Q6. Please rate **rank** the relevance of the following stakeholder in supporting international cooperation for NBS implementation (1- low importance; 13 – high importance):

1	Administrative and technical city departments
2	International cooperation facilitators
3	Chamber of Commerce
4	Non-state actors
5	Scientific associations
6	Businesses and SMEs
7	Development cooperation agencies
8	Multilateral development finance institutions
9	Multilateral organizations managing environmental/climate funds
10	Commercial financial institutions
11	Investors
12	Corporations



13	Philanthropies (including foundations and endowments)
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Q7. Please rate the relevance of the following results-based financing scheme to foster international cooperation for NBS implementation (1- low importance; 5 – high importance):

	1	2	3	4	5
Green/conservation/resilience bonds					
Credit facilities (e.g for habitat restoration, water quality improvement, etc.),					
Blended finance mechanisms					
Credit guarantees					
Others (please specify)					

Q8. Is international cooperation a relevant operational framework to support the development of NBS commercially viable projects and businesses?

- Yes. Please specify why: _____
- No

Q9. Is your organization available in holding international forums to exchange practical experience and connect various stakeholders?

- Yes
- No

Q10. Which inter-sectoral and inter-institutional coordination listed below are important for international cooperation in NBS implementation (Multiple choice allowed)?

- Increase commitment of partners
- Open new windows of opportunity to new financial schemes (e.g multi-funding)
- Mobilize new types of stakeholders
- Find new technological solutions



- Other. Please specify: _____

Q11. How international organization could support project development and scaling up of NBS (multiple choice allowed)?

- Fostering awareness
- Exchange technical knowledge
- Create new networks
- Improve financing opportunities

Other. Please specify: _____

