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Final report on learning mechanism activities

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Summary

This report provides a comprehensive overview of the learning architecture mechanism within the CLEARING HOUSE project, a groundbreaking initiative designed to facilitate collaborative learning and knowledge exchange among local municipalities with a shared focus on urban forests as nature-based solutions (UF-NBS). The report delves into the specifics of the project's city exchanges, the city tandem highlighting the key outcomes and insights derived, as well as the task force mechanism that offered the opportunity to a selected local authority to receive scientific support regarding UF-NBS challenges from the CLEARING HOUSE experts partners. The inaugural City Tandem featured participation from Mexico City (Mexico), and Belo Horizonte, (Brazil), with a primary focus on inner-city afforestation and green infrastructure. This exchange addressed common challenges experienced within their respective urban environments. Belo Horizonte presented initiatives, notably the "Mini Forests" programme, aimed at establishing biodiversity-rich areas in under-vegetated zones through collaborative efforts spanning various sectors. In contrast, Mexico City highlighted the "Bosque San Juan de Aragón" project, emphasizing the importance of drawing upon previous research and policy frameworks to inform robust urban forestry initiatives. For the inaugural task force session, Bogotá in Colombia, served as the host city to receive guidance from the CLEARING HOUSE project. The focus of this exchange centred on a comprehensive review of Bogotá's newly formulated Urban Forestry Policy and Implementation Plan. Representatives from Bogotá's Environment Department actively participated in discussions with CLEARING HOUSE experts, delving into successful implementations of Urban Forestry and Nature-Based Solutions (UF-NBS) policies, alongside administrative best practices. Notably, there was a particular emphasis on strategies to effectively engage the local population in the implementation process. The second task force component, hosted in Braga, Portugal, intricately examined the maintenance and governance aspects of urban trees. Through this exchange, participants engaged in a thorough exploration of best practices, challenges, and innovative approaches related to the preservation and effective management of urban greenery. The report outlines the methodologies employed, the exchange of expertise, and the strategic insights gathered from this intensive collaboration. Finally,...

Approval

Date	By
2024-08-05 13:58:28	Dr. Rik DE VREESE (EFI)
2024-08-05 14:07:42	Dr. Rik DE VREESE (EFI)

Final Report on the Knowledge Exchange Mechanism activities (Deliverable 3.5)

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EXECUTIVE SUMMARY

This report provides a comprehensive overview of the learning architecture mechanism within the CLEARING HOUSE project, a groundbreaking initiative designed to facilitate collaborative learning and knowledge exchange among local municipalities with a shared focus on urban forests as nature-based solutions (UF-NBS). The report delves into the specifics of the project's city exchanges, the city tandem highlighting the key outcomes and insights derived, as well as the task force mechanism that offered the opportunity to a selected local authority to receive scientific support regarding UF-NBS challenges from the CLEARING HOUSE experts partners

The inaugural City Tandem featured participation from Mexico City (Mexico), and Belo Horizonte, (Brazil), with a primary focus on inner-city afforestation and green infrastructure. This exchange addressed common challenges experienced within their respective urban environments. Belo Horizonte presented initiatives, notably the "Mini Forests" programme, aimed at establishing biodiversity-rich areas in under-vegetated zones through collaborative efforts spanning various sectors. In contrast, Mexico City highlighted the "Bosque San Juan de Aragón" project, emphasizing the importance of drawing upon previous research and policy frameworks to inform robust urban forestry initiatives.

For the inaugural task force session, Bogotá in Colombia, served as the host city to receive guidance from the CLEARING HOUSE project. The focus of this exchange centred on a comprehensive review of Bogotá's newly formulated Urban Forestry Policy and Implementation Plan. Representatives from Bogotá's Environment Department actively participated in discussions with CLEARING HOUSE experts, delving into successful implementations of Urban Forestry and Nature-Based Solutions (UF-NBS) policies, alongside administrative best practices. Notably, there was a particular emphasis on strategies to effectively engage the local population in the implementation process.

The second task force component, hosted in Braga, Portugal, intricately examined the maintenance and governance aspects of urban trees. Through this exchange, participants engaged in a thorough exploration of best practices, challenges, and innovative approaches related to the preservation and effective management of urban greenery. The report outlines the methodologies employed, the exchange of expertise, and the strategic insights gathered from this intensive collaboration.

Finally, the second city tandem was carried out in 2023, despite the different complications that arose in its building up. The steps towards confirming a Chinese local administration have been complicated due to the COVID-19 restrictions that lasted longer in China, as well as the complexity of internal organization governance in Chinese administration. Despite this, the second city tandem which was held between the city of Istanbul (Turkey), and the city of Haikou (China) and focused on green infrastructures projects for recreational use.

KEYWORDS

Sustainable urban development, urban trees, urban forests, urban regeneration, green infrastructure, knowledge exchange, biodiversity, green infrastructures, capacity building

ABBREVIATIONS

NBS: Nature-based solutions
UF-NBS: Urban forests as nature-based solutions

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SIAC: Spatial Impact Assessment and Classification

KEY DEFINITIONS

Urban forests: tree-based urban ecosystems that address societal challenges, simultaneously providing ecosystem services for human well-being and biodiversity benefits. Urban forests include peri-urban and urban forests, forested parks, small woods in urban areas, and trees in public and private spaces.

Urban forestry: the practice of planning and management of urban forests to ensure their health, longevity and ability to provide ecosystem services now and in the future.

Nature-based Solutions (NBS): Nature-based Solutions (NBS) are defined as *"actions to protect, sustainably manage, and restore natural or modified ecosystems, which address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits"*. (IUCN, 2018)

Urban forests as nature-based solutions: UF-NBS are a subset of nature-based solutions, which build on tree-based urban ecosystems to address societal challenges, simultaneously providing ecosystem services for human well-being and biodiversity benefits. UF-NBS include peri-urban and urban forests, forested parks, small woods in urban areas, and trees in public and private spaces. UF-NBS comprise every measure a city can take to address urban development challenges by deploying tree-based ecosystems. (European Forest Institute, 2018)

Urban tree(s): usually long living woody organism including woody shrubs, usually single stemmed, with the potential to grow at a site in an urban or peri-urban area. This includes roadside trees, trees in squares, parking areas, or in parks and private gardens. Urban trees appear as individual trees, or as groups of trees.

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1 Introduction

In response to unprecedented challenges stemming from climate change, rapid urbanization, and environmental degradation, cities and metropolitan areas globally are increasingly turning to innovative approaches to enhance their resilience and liveability. Among these approaches, Nature-Based Solutions (NBS) have emerged as transformative strategies, offering avenues to create urban environments that are both sustainable and adaptable. The management of trees and woodlands within urban areas holds significant implications for their capacity to provide essential ecosystem services. Indeed, conceptualizing the 'urban forest' as a form of NBS enables us to reframe our understanding of trees and associated habitats, viewing them not merely as aesthetically pleasing features but as dynamic living organisms that continuously confer diverse benefits.

The **City Tandem** initiative had the primary global objective of facilitating capacity development and knowledge exchange on urban forests as nature-based solutions (UF-NBS), relying on peer-to-peer interchanges. The City Tandem also aimed to strengthen international connections at the local level, enabling local leaders to gain fresh insights into UF-NBS practices and approaches. Local authorities, including cities, metropolises, and/or metropolitan areas, that sought to collaborate with another local administration facing similar challenges in planning and managing urban forests were encouraged to apply to participate in a CLEARING HOUSE-supported City Tandem.

Conversely, the **Task Forces** had a global objective of offering selected local authorities the opportunity to receive scientific support from the experts partnered with CLEARING HOUSE, especially concerning challenges related to UF-NBS. This support included a comprehensive review of the identified challenges, in-depth research to gain insights specific to the local authority's territory, and the formulation of an action plan for implementing suggested solutions. The local authorities chosen to participate in the Task Forces were required to actively contribute to the creation of a concise and informative report on the outcomes. Additionally, they were involved in providing a series of recommendations aimed at assisting other local authorities interested in undertaking projects related to the exchange's thematic focus.

Regarding the task force, the selected local authority commits to participate in the redaction of a short and concise report on the results of the Task Force and to the series of recommendations addressed to any local authorities interested in implementing projects related to the thematic of the exchange.

2 First open call on knowledge exchange mechanism activities

The initial plan for the first call, scheduled from April 2020 (M3.5) to June 2020 (M3.7), was impacted by the outbreak of COVID-19, leading to several postponements. The IUCN World Conference, initially slated as a key avenue for dissemination, was affected as well. Amid the pandemic's uncertainty, organizing the call became increasingly challenging, with daily changes in the situation making forecasting exceedingly difficult. Consequently, delays and logistical difficulties plagued the organization of the learning exchange mechanism. Compounded by strict travel restrictions spanning a two-year period, all trips were rendered practically impossible, further complicating the execution of exchange activities. Despite the readiness of call documents, the launch awaited a feasible opportunity as determined by the CLEARING HOUSE Steering Committee. Alternatively, during the second part of the CLEARING HOUSE project, considerations of merging the first and second calls were made, with

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the possibility of transitioning originally planned in-person workshops to online events to adapt to the circumstances. This was later discarded to facilitate geographical focus of the different calls.

The call was originally open until April 11th, 2022, but it was extended for one month more, until May 11th, 2022 to allow the cities interested to prepare the application and have the opportunity to receive more proposals.

The call for the aforementioned activities focused on one or several of the following themes:

- inner-city afforestation
- air quality improvement
- heat-wave mitigation
- outdoor recreation
- restoring former mining sites
- urban regeneration
- socio-cultural integration
- green infrastructure

Further information on the published call on the below links. This information is also attached to this report as part of its Annexes:

- https://www.metropolis.org/agenda/1st-call-knowledge-exchange-mechanism-clearing-house
- https://clearinghouseproject.eu/2022/03/01/clearing-house-first-calls-for-the-knowledge-exchange-mechanisms-are-open/

Figure 1. First Call for Knowledge Exchange Mechanism, CLEARING HOUSE 2022

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Following the requirements for the call, they received a total of seven (7) applications from the following cities to participate in the selection process, covering the geographical regions of Europe (2), Western Asia (1) and Latin America and the Caribbean (4).

1. Belo Horizonte, Brazil
2. Bogotá, Colombia
3. Braga, Portugal
4. Mexico City, Mexico
5. Karsikaya, Turkey
6. Leeds. UK
7. São Paulo, Brazil

The detailed information regarding the call, were published both on the CLEARING HOUSE website as well as the Metropolis website. The information is attached to this report as part of the Annexes

- https://www.metropolis.org/agenda/1st-call-knowledge-exchange-mechanism-clearing-house
- https://clearinghouseproject.eu/2022/03/01/clearing-house-first-calls-for-the-knowledge-exchange-mechanisms-are-open/

Out of the seven (7) applications received, four (4) applied solely for participation in the City Tandem activity, only one indicated interest solely in the Task Force exchange activity, and finally, two (2) expressed their interest in participating in both knowledge exchange activities.

Table 1. Candidate Cities for First Call

Candidate city	Geographical scope	Application for the City Tandem or to the Task Force or to both
1. Belo Horizonte, Brazil	Latin America and the Caribbean	City Tandem
2. Bogotá, Colombia	Latina America and the Caribbean	Both
3. Braga, Portugal	Europe	Task Force
4. Mexico City, Mexico	Latin America and the Caribbean	City Tandem
5. Karsikaya, Turkey	Western Asia	City Tandem
6. Leeds. UK	Europe	Both
7. São Paulo, Brazil	Latin America and the Caribbean	City Tandem

3 Second open call on knowledge exchange mechanism activities

The second call geographically focused in Europe and East Asia. The deadline for the second call, originally scheduled to conclude on March 17, 2023, was prolonged by one month, extending until April 17, 2023. This extension aimed to provide interested cities with sufficient time to prepare their applications and to facilitate the submission of more proposals.

The call pertaining to the aforementioned activities aimed to target specific themes as the primary focus of the project. These themes encompassed inner-city afforestation, air quality, and green infrastructure. The thematic scope was streamlined from the first call to facilitate the pairing of cities, a task that proved challenging during the initial selection process, as elaborated in the subsequent section.

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- https://www.metropolis.org/agenda/second-call-knowledge-exchange-mechanism
- https://clearinghouseproject.eu/2023/01/24/launch-second-call-the-projects-knowledge-exchange-mechanism/

Figure 2. Second Call For Knowledge Exchange Mechanism, CLEARING HOUSE 2023

The second call resulted in a total of five (5) applications from different cities that wished to participate in either of the two paths available in the project, namely the City Tandem and the Task Force. The applicants covered the geographical regions of Europe (3) and China (2).

1. Braga, Portugal
2. Bradford, UK
3. Dongguan, China
4. Haikou, China
5. Ampelokipi, Greece

Out of the five (5) applications received, two (2) applied exclusively to participate in the City Tandem activities, while two (2) of the cities declared an interest in participating in the Task Force exchange activities. Furthermore, among the applicants there was one (1) city which showed interest in both activities.

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Table 2. Participants cities Second call

Candidate city	Geographical scope	Application for the City Tandem or to the Task Force or to both
1. Braga, Portugal	Europe	Task Force
2. Bradford, UK	Europe	Both
3. Ampelokipi, Greece	Europe	Task Force
4. Dongguan	Southeast Asia	City Tandem
5. Haikou	Southeast Asia	City Tandem

4 Evaluation process for first and second call

4.1 Methodology

An ad-hoc Selection Committee comprising representatives of the European Forest Institute (EFI), the International Union for the Conservation of Nature (IUCN) and the World Association of Major Metropolises (Metropolis) meticulously evaluated the proposals from various regions, including Europe, Latin America, and Asia.

The selection criteria applied during the evaluation process encompassed several key aspects:

- Level of commitment, degree of implementation of UF-NBS programmes/projects – proved by any documents relating to the implementation in the local authority represented (Action Plan, Budget…)
- UF-NBS policies implemented by the local authority
- Experience with UF-NBS projects (past, present or future)
- Strength of compliance of the UF-NBS to the Global Standard for NBS
- Involvement of the local authority in another H2020/EU project tackling UF-NBS or other nature-based solutions.
- Contribution of submitted UF-NBS project/s to the accomplishment of goals established by the global agendas (2030 Agenda for Sustainable Development, the New Urban Agenda, the Paris Agreement on Climate Change, Sendai Framework for Disaster Risk Reduction, Aichi targets…)
- City administration whose mayor/highest political representative will be in office between March 2023 through December 2023, period of implementation of the City Tandem (for the 2nd Call only, after identification during the first call that there is a need for political stability to ensure the implementation of the call)
- Accordance to the UF-NBS to the IUCN Global Standard on NBS or willingness to participate in the IUCN Urban Nature Index programme
- Geographical balance in the final selection
- Topic submitted matches to the one of a potential city partner (only for the City Tandem applications)

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Throughout the selection process, the cities showcased some of their policies, programmes, and projects aimed at enhancing UF-NBS ecosystem implementation and fostering collaboration with diverse stakeholders. They further provided insights into their existing three-based green infrastructure and elaborated on their primary social and climate challenges addressed through the implementation of UF-NBS.

According to the criteria established, the following grade scale was created to allow a transparent and fair evaluation of the applications (Table 3).

Table 3. Evaluation criteria for the calls

Nº	Specific criteria	
1	Level of political commitment to UF-NBS	0 to 5 pts
2	UF-NBS policies implemented by the local authority	0 to 5 pts
3	Experience with UF-NBS projects (past, present or future)	0 to 5 pts
4	Involvement of the local authority in another H2020/EU project tackling UF-NBS or other nature-based solutions	0 to 3 pts
5	Strength of compliance of the UF-NBS to the Global Standard for NBS	0 to 3 pts
6	Topic submitted matches to the one of a potential city partner	0 to 2 pts
7	Contribution of submitted UF-NBS project/s to the accomplishment of goals established by the global agendas	0 to 2 pts
	Total maximum points	**25**

4.2 Evaluation results for the first call

The Selection Committee reviewed the applications against the set criteria (Table 3), for the city tandem candidates (Table 4) and the task force host city candidates (Table 5).

Table 4. Evaluation results for the city tandem of the first call (average of the jury's grade)

City	Sp. criterion 1	Sp. criterion 2	Sp. criterion 3	Sp. criterion 4	Sp. criterion 5	Sp. criterion 6	Sp. criterion 7	Final score
Belo Horizonte	4,3	4,1	3,6	1,7	2,8	2,6	2,6	**21,7**
Bogotá	4,1	4,3	3,1	0	2,3	2,4	2,1	**16,55**
Braga	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mexico City	4,8	4,6	4,6	0	3,3	2,5	2,3	**22,1**
Karsikaya	2,2	2,5	2,8	0,8	2,2	2,4	1,3	**14,2**
Leeds	4,1	4,3	3,8	0	1,9	2	2,1	**18,2**
Sao Paulo	4,4	4,3	3,8	0	2	2,2	2,5	**19,2**

In the first call, Mexico City and Belo Horizonte emerged as the most interesting cities to participate in the City Tandem. Both cities had demonstrated strong political support for Urban Forests as Nature-Based Solutions (UF-NBS), as evidenced by their policies or ongoing programmes endorsed by local administrations. For example, Belo Horizonte uses data to strategize, monitor, and evaluate the city's climate actions through an GHG emissions inventory as a key policy instrument to enable self-assessment of emissions, impacts and trends. Mexico City has also been a frontrunner in UF-NBS, integrating it to policies such as its Environmental and Climate Change Programme (PACC) 2019-2024, the Special Green Infrastructure Programme for Mexico City (PEIV), the Local Climate Action Strategy (ELAC) 2021-2050, the Climate Action Programme (PACCM) 2021-2030, or the Strategy for the

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Conservation and Sustainable Use of Biodiversity in Mexico City (ECUSBE-CDMX) and its 2030 Action Plan. Moreover, these cities had presented clear and readily accessible information concerning their UF-NBS projects and policies, enhancing transparency and public engagement.

Table 5. Evaluation results for the task force of the first call (average of the jury's grade)

City	Sp. criterion 1	Sp. criterion 2	Sp. criterion 3	Sp. criterion 4	Sp. criterion 5	Sp. criterion 6	Sp. criterion 7	Final score
Belo Horizonte	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bogotá	4,3	4,2	4,3	0	2,2	2,7	2,7	**20,3**
Braga	2,8	3,7	3,2	1,3	2,1	2,2	2,2	**19,8**
Mexico City	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Karsikaya	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Leeds	3,2	3,9	4,1	0	2,1	2	2,7	**18**
Sao Paulo	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

The selection process for the Task Force had identified Bogotá, Colombia, as the suitable candidate fulfilling the necessary criteria. Despite Bogotá's limited experience in the UF-NBS domain when applying, the fact that Bogotá intended to integrate UF-NBS as an active component of its Climate Action Plan 2020-2050 (PAC). The Bogotá Climate Action Plan, aims at the use of Nature-based Solutions (SbN) to effectuate an energy transition. Central to this approach is the application of measures designed to reinforce the role of ecosystems in both mitigating and sequestering greenhouse gas emissions while advocating for the sustainable management of forests, which includes measures to uphold soil conservation practices, promote the sustainable utilization of indigenous forests, and enhance urban tree planting endeavours in conjunction with the restoration and preservation of wetlands. The evaluation panel had viewed this as a great opportunity for the CLEARING HOUSE project to increase its impact of scientific support to policy making in the matter.

4.3 Evaluation results for the second call

The selection process for the second city tandem presented unforeseen challenges compared to its predecessor. It is noteworthy that both calls were deferred in the same year due to the COVID-19 pandemic, thereby necessitating intricate management and coordination. The compression of a majority of the phases of the Learning Exchange mechanism into a single year, including call preparation, selection, curation, alignment with cities, and execution of exchange activities, posed a significant challenge. Moreover, the short interval between the first and second calls may have induced a degree of fatigue among potential applicants for CLEARING HOUSE opportunities.

In 2023, China had just begun to reopen to international exchanges following the pandemic, introducing numerous uncertainties regarding the feasibility of exchange activities. These uncertainties notably affected the outcome of the second call, resulting in a notably low turnout. Beyond the complexities associated with international travel, which posed considerable administrative burdens for Chinese local government representatives, many Chinese cities, particularly those outside major urban centres, encountered difficulties in participating in exchange activities. These challenges included language barriers and comprehension difficulties related to the peer-to-peer exchange mechanism, which emphasized active knowledge, solution, and challenge exchanges rather than passive case study presentations.

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Additionally, Dongguan withdrew its application, leaving Haikou as the sole Chinese participant. While Haikou demonstrated motivation to participate, its focus on coastal tree management and biodiversity protection diverged somewhat from Bradford's interests, the sole European city to apply for the City Tandem mechanism. Efforts to identify common ground for Urban Forests as Nature-Based Solutions (UF-NBS) exchanges between Haikou and Bradford were hindered by significant disparities in city size, governance mechanisms, and climate, which Haikou's administration perceived as potential impediments to participation in the city tandem.

Subsequently, consideration was given to replacing Bradford with another European coastal city to prioritize Chinese participation in alignment with the CLEARING HOUSE project's Sino-European focus and contractual obligations. Given the challenges in attracting Chinese cities for such activities, practical considerations favoured securing Haikou's participation rather than initiating lengthy outreach efforts to other Chinese administrations.

Metropolis explored potential participant cities located on coasts, irrespective of their resemblance to Haikou, and the Istanbul Metropolitan Government expressed interest in participation. A question arose regarding whether a Turkish city could be considered European from the perspective of the CLEARING HOUSE project, prompting discussions with the European Commission project coordinator in charge of the follow up of CLEARING HOUSE. Despite these challenges, discussions ensued, and the Istanbul municipality's Parks and Recreation Department expressed interest in participating in the city tandem. Their projects exhibited better alignment with Haikou's interests, except for the focus on mangroves. Consequently, a tandem between Haikou and Istanbul, emphasizing green infrastructures for recreational use, was conceptualized and initiated.

The decision regarding the Task Force mechanism involved a choice between the cities of Braga and Ampelokipi, Greece. Given Braga's participation in the initial call for the Task Force, during which it secured second place in the selection process, Braga was accorded priority and selected to participate in the Task Force exchange mechanism. The support provided by the Task Force was envisaged to entail a comprehensive review of Braga's Urban Forests as Nature-Based Solutions (UF-NBS) challenges, extensive research to gain deeper insights into these challenges, and the development of an action plan for implementing the proposed solutions.

Braga's candidacy was bolstered by its noteworthy history of ecological resilience, notably dating back to 2014. Initiatives such as the "Florestar Braga" programme have seen the municipality establish native woodlands throughout the region, fostering community engagement and environmental stewardship. Similarly, the "Oxigenar Braga" project exemplifies this commitment to ecological values. Moreover, in response to the forest fires of 2017, Braga embarked on a robust reforestation endeavour, reinstating native ecosystems with support from the Ministry of the Environment. This targeted restoration effort focused on areas susceptible to erosion and watercourses, extending even to private lands, underscoring Braga's dedication to ecological equilibrium. These elements played a pivotal role in the selection committee's decision to designate Braga as the recipient of support from the second Task Force.

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5 Main results from the Knowledge Exchange Mechanisms

5.1 1st Call City Tandem: Mexico City and Belo Horizonte

Mexico City and Belo Horizonte have engaged in an exchange of experiences aimed at promoting biodiversity conservation, climate change mitigation and adaptation, focusing on enhancing green infrastructure, nature-based solutions, and protecting natural ecosystems in urban settings.

The 1st city tandem exchanged counted on the group of the following representatives from Mexico City, Belo Horizonte and CLEARING HOUSE consortium: Mr Valder Pliego (Advisor, Secretariat of the Environment (SEDEMA of Mexico City Government), Ms Yenitzia Chávez(Director of the San Juan de Aragón Forest Director, Mexico City Government), Mr Bernardo Ribeiro (International Relations Director, Belo Horizonte City Council), Mr Dany Silvio Amaral (Director of Environmental Management, Belo Horizonte City Council), Dr. Rik De Vreese CLEARING HOUSE project coordinator, and Mr. Guillaume Berret, Head of Programmes at Metropolis.

Have also participated in the meeting organized in Mexico City or Belo Horizonte:

In Mexico: Ms Maritza Hernández (Director of Green Infrastructure, General Directorate of Protected Natural Areas and Areas of Environmental Value, Secretariat of the Environment, Mexico City Government), Ms Diana Hernández Lugo (Advisor, Directorate of Green Infrastructure, Mexico City Government), Ms Michelle Montijo (Coordinator of Biodiversity Strategies, General Directorate of Coordination of Environmental Policies and Culture, Mexico City Government)

In Belo Horizonte: Ms Chyara Sales (Under Secretary of Economic Development, Belo Horizonte City Council), Mr Guilherme Pimenta (Under Secretary of Environmental Policies, Belo Horizonte City Council), Ms Sônia Knauer (Manager of hydric resources at Belo Horizonte City Council)

5.1.1 Mexico City

The visit to Mexico City occurred from Wednesday, March 22nd to Friday, March 24th 2023 with a primary focus on addressing challenges related to climate change and biodiversity preservation. Alongside representatives from Belo Horizonte, including Bernardo Silva de Oliveira, Head of International Relations of the city administration, and Dany Silvio Souza Leite, Director of the Belo Horizonte Municipal Environment Secretariat (SMMA), who participated in the CLEARING HOUSE activity, Metropolis facilitated collaboration with one of its internal initiatives, the pilot project "Metropolitan Green Infrastructures." Metropolis sponsored the participation of representatives from cities involved in this project to enhance the discussions. Thus, the exchange activities also incorporated perspectives from the Metropolitan Area of Barcelona (AMB), featuring Patricia García Rodríguez, a Biologist and GIS technician at the AMB, and Laura Cid Espinach, Head of the Environmental Management Office of the Green Infrastructure. Additionally, representatives from the Metropolitan Area of the Aburrá Valley, including Violeta Ramírez from the International Affairs office, contributed to the discussions. Furthermore, Tony Nello from the International Union for Conservation of Nature (IUCN), Rik De Vreese from the European Forest Institute (EFI), and Guillaume Berret, Head of Programmes at Metropolis, represented the consortium partners of the CLEARING HOUSE project.

The Government of Mexico City (CDMX) participated in a coordinated manner through the teams of the General Coordination of Advisors and International Affairs (CGAAI - Pamela Reducindo) and the Secretariat of the Environment (SEDEMA) through its Advisory Area represented by Valder Pliego, the General Directorate of Coordination of Environmental Policies and Culture (DGCPCA - Michelle

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Montijo), the General Directorate of the System of Protected Natural Areas and Areas of Environmental Value (DGSANPAVA) through the Green Infrastructure Directorate (DIV - Maritza Hernández), and the San Juan de Aragón Forest Director (BSJA - Yenitzia Chávez).

Visits to various projects implemented by the government of Mexico City complemented the exchange and included the San Juan de Aragón Forest, the Cuitláhuac Ecological Park, the National Canal and Ecological Park of Xochimilco.

Figure 3. Metropolis, EFI, Metropolitan Area of Aburra Valley, Mexico City, Belo Horizonte and Metropolitan Area of Barcelona attending to the knowledge and experience exchange

Following a first welcoming exchange session during the morning of the first day, a visit was made to the **San Juan de Aragón Forest** located in the northwest of Mexico City to learn about the environmental issues affecting its soils, phytosanitary problems of the trees, and a tour of its water bodies, such as the lake, wetlands, and bird beach.

The San Juan de Aragón Forest is situated within the confines of the Gustavo A. Madero Borough in Mexico City and holds historical significance as it occupies the former location of the Texcoco Lake. Inaugurated as an urban park on November 20th, 1964, with an extensive area of 160.18 hectares, it has since been designated as an Area of Environmental Value (AVA) on December 12th, 2008. This urban oasis boasts a rich diversity of avian fauna, with over 170 bird species recorded, including migratory species such as the osprey and the great blue heron, contributing to its ecological importance. A notable feature of the park is the Birds Beach, designed to mimic the natural habitat of shorebirds, serving as a crucial space for nesting and migration activities.

The park has undertaken significant initiatives to enhance its ecological and recreational offerings. Among these achievements are the establishment of artificial wetlands, which act as water phytodepurators, enhancing water quality and providing a serene environment for park visitors. Noteworthy accomplishments implemented by the Secretariat of the Environment (SEDEMA) also include the creation of a second artificial wetland, covering an area of 3,100 m2, and the rehabilitation of the Productive Module, featuring greenhouses, an urban garden, and a vermicomposting area.

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Additionally, the park has expanded its recreational amenities, including the construction of a dog park and the rehabilitation of running tracks, augmenting its appeal as a destination for outdoor activities.

During the visit, the problems of saline and compacted soils, main pests and diseases in the forest vegetation, tree falls, noise pollution, and vandalism issues in its infrastructure were explained. The day concluded with a workshop for exchanging experiences focusing on nature-based solutions, highlighting that the Aragón Forest is one of the 16 parks rehabilitated in this administration through the "Sembrando Parques" ("Sowing Parks") initiative, an innovative programme aimed at repurposing urban spaces for ecological and recreational purposes. Mention was made of restoration and soil improvement projects, internal production, and subsequent reforestation with native tree species using hydroponic techniques, the creation of biodiversity refuges, the development of pollinator gardens, and the improvement of water quality within the fan and double spiral wetlands, as well as environmental education programmes such as the establishment of an urban garden, the design of pollinator gardens, and recreational activities focused on bird diversity.

Despite these achievements, it was highlighted that the San Juan de Aragón Forest still faces several challenges moving forward. Efforts are underway to position the park as a sustainable forest through comprehensive soil restoration projects and the development of a biodiversity refuge system connected by interpretive trails. Moreover, measures to increase security and reduce vandalism are imperative to ensure the park's long-term sustainability. Short-term expectations include the creation of biodiversity refuges, improvements in recreational infrastructure, and the establishment of an Advisory Council to garner resources and support for park initiatives. Through these endeavours, the San Juan de Aragón Forest will preserve its ecological integrity while providing a valuable recreational resource for the community.

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Figure 4. Green and blue infrastructure in the San Juan de Aragon forest, Mexico City

The second day, focus of the exchanges were made on the **Cuitláhuac Park** project, situated in the eastern region of Mexico City, that stands as a testament to the "Sembrando Parques". This park, covering 145 hectares, has been ingeniously constructed using 85% recycled materials sourced from a former landfill, symbolizing a remarkable shift towards sustainable urban development. Its overarching objective is to mitigate the adverse impacts of climate change, counteract biodiversity loss, bolster urban resilience, and uphold the fundamental human right to a healthy environment, water, and public space.

The park's multifaceted design incorporates green and blue infrastructure solutions, including wetlands and pollinator gardens, strategically engineered to enhance biodiversity, regulate water management, and promote air quality improvement. By harnessing rainwater for urban sustainability, the park has successfully rejuvenated its ecosystem, fostering the proliferation of native flora and fauna while mitigating flood risks in the region.

The transformation of Cuitláhuac Park from a former landfill into a vibrant recreational hub underscores the city government's commitment to environmental stewardship and social equity. Its phased recovery and restoration efforts have set a precedent for circular economy practices within the city, with nearly 90% of construction materials sourced from recycled waste streams such as PET and other plastics. Additionally, the park's diverse amenities, ranging from wetlands and lakes to sports facilities and educational spaces, cater to the varied needs of the community, fostering inclusivity and social cohesion.

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Discussions then focused on the park's array of challenges it still faces despite the recent improvements. Those include soil contamination, ongoing maintenance requirements, socioeconomic disparities, water scarcity, and security concerns. Addressing these challenges necessitates sustained investment, community engagement, and the adoption of innovative green infrastructure techniques to ensure the park's long-term sustainability.

Through its transformative initiatives and tangible impacts on soil restoration, biodiversity conservation, and community empowerment, Cuitláhuac Park serves as a beacon of urban resilience and environmental sustainability, embodying the transformative potential of green infrastructure in addressing complex urban challenges.

Lastly, the group visited the **National Canal (Canal Nacional),** a prominent body of water in the eastern part of the city along with the Xochimilco Ecological Park (PEX).

The National Canal covers an area of 32.32 hectares and is located in the boroughs of Coyoacán and Iztapalapa, with 25.82 hectares in Coyoacán and 6.50 hectares in Iztapalapa. It is of environmental significance as a gallery forest and lacustrine zone, as well as for the environmental services it provides as a buffer zone, biological corridor, biodiversity reservoir, and refuge for both migratory and resident birds. It supplies treated wastewater and generates a high relative humidity ecosystem. It has been designated as an Environmental Value Area of Mexico City with the category of Urban Forest, making land uses and destinations for housing, industry, and agriculture prohibited.

Discussions evolved around conservation of ecosystems, ecological restoration, maintenance of green areas, as well as open spaces and equipment such as reforestation, afforestation, maintenance of plantations, rainwater harvesting works, soil retention, among other activities for the conservation and integral management of the area, are permitted on site.

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- ***Main takeaways from the Mexico City visit***

The main recommendations made by the CLEARING HOUSE consortium partners and the representatives of the peer City Tandem, Belo Horizonte were as follows:

- Dredging all park's waters to use the sediments as enriched substrate and adding compost as soil improvers. This practice has been carried out in the Ecological Park of Xochimilco and in Cuitláhuac Park showed very good results.
- Apply the use of green manure as soil improvers to all the city's parks and green areas. It has been a practice performed in Bosque de Aragón as well as in Cuitláhuac Park and the Ecological Park of Xochimilco which should be upscaled to all parks.
- Collection of seeds from native species adapted to the forest soil to improve survival rates.
- Continuing Environmental Education activities to sensitize users to improve their participation through the different volunteer programmes, as well as to manage infrastructure and registered flora and fauna species more appropriately. Rik De Vreese from EFI mentioned that working on environmental education processes with visitors and neighbours will make maintenance activities more sustainable and recommended reviewing the educational package produced by the CLEARING HOUSE project.
- Upscale environmental education area such as the one implemented in the Bosque de Aragón, where a Drawing Contest of native flora and fauna within the Park was launched and street artists were invited. This could foster greater appropriation of the green areas by some part of the population.
- Designing and building landscape landmarks with decorative fallen logs, which serve as natural shelters for insects and pollinators, as well as insect hotels around biodiversity refuges and pollinator gardens.
- Implement a visitor data counting system by purchasing a device for visitor counting to have more reliable data on visitor entry.
- Improve cross-departmental collaboration for the maintenance of water bodies. Representatives from SEDEMA mentioned that a proposal is being developed to create a Network of wetland maintenance technicians, where experiences will be exchanged with representatives from Canal Nacional, Cuitláhuac Park, the Xochimilco Ecological Park, and all those spaces with natural and artificial wetlands. This network will bring great benefits, including timely attention to water body cleaning (phytodepuration), which improves water quality, as well as having wetlands as reservoirs and refuge for flora and fauna, a model of sustainable circular economy, fish farming, ornamental flora production, and sustainable ecotourism, as well as spaces for environmental education activities.

Representatives of Belo Horizonte outlined some specific elements learned during the San Juan de Aragón Forest visit making a connection with the challenges that exist in Belo Horizonte, especially for the recovery of green areas and preservation of existing tree vegetation, and raise the following points:

- Information on financing and executive projects of the wetlands: this data can help Belo Horizonte in the elaboration of projects and fundraising for the implementation of structures in city parks.

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- Knowledge of the methodology for the implementation of pollinator gardens. In Belo Horizonte, they expect to expand the project for the preservation of native bees (without sting). For this purpose, it is intended to build boxes for the distribution of hives and the implementation of gardens with plants attractive to bees.
- The revegetation of degraded areas, in Belo Horizonte they have met problems for the establishment of seedlings. These areas, in most cases, have poorly structured soils, with low fertility and the presence of construction waste. To try to reverse a similar reality, the team at the San Juan de Aragón Forest employed a methodology for recovering soils and planting shrubs, green manure and other herbaceous plants around the seedlings. On this particular matter, they demonstrated interest to know more details of the process and the results and further exchanges outside the scope of the CLEARING HOUSE project have been initiated so as to replicate in plantations in Belo Horizonte.

Additionally, for the Cuitláhuac Ecological Park exchanges, representatives of Belo Horizonte have outlined the following points to be topic a further discussion:

- Belo Horizonte has a landfill area that is no longer in use (CTR 040). In this place, the Superintendence of Urban Cleaning, an entity responsible for the maintenance and management of waste in the municipality, has a preliminary project for the creation of a park at the landfill. Diving further into the experience of Mexico City at the preparation of the projects, financing, and the process of execution and monitoring of the works, has been deemed as a topic of future discussion.
- The importance of further understanding the process of development of a local green infrastructure policy in development in Mexico City to understand how could building complex and transversal legal frameworks that go beyond the projects of public administrations and implement it effectively, could help framework Belo Horizonte's own policy design to foster the identification of the potential of green infrastructure for each region of the city and help in creating an urban zoning that proposes NBSs according to the needs or deficiencies of each location.

Figure 5. Fan wetland and spiral wetland in Bosque de Aragón, Mexico City

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5.1.2 Belo Horizonte

With the support of the Municipal Secretariat for Environment, the Municipal Secretary for Economic Development and the Office of International Relations from the city of Belo Horizonte, the second part of this City Tandem visit was organized from Monday, March 27 to Wednesday, March 29, 2023 in Belo Horizonte.

Figure 6. Panoramic view of Belo Horizonte city, Brazil

The initial day in Belo Horizonte, participants had the opportunity to explore the "*Agrofloresta*" (Urban Agroforestry) project, an urban community garden initiative.

The Urban Agroforestry project seeks to enhance ecosystem services by implementing agroforestry systems in socially significant, degraded, or environmentally preserved areas. This initiative aims to restore the ecological attributes of these spaces through the planting of native trees while ensuring food security for local communities through food production.

Belo Horizonte City Hall has initiated a selective procedure to provide support for agroforests, which is part of a broader programme aiding 157 production units, including community, institutional, and school units. Through the provision of technical assistance, infrastructure, seedlings, and resources, the project facilitates the sustainable utilization of formerly degraded or underused spaces. Despite the municipality's significant number of green areas, many suffer from sparse tree coverage, low biodiversity, and dominance by weed-like plant species. This project plays a crucial environmental role by replacing such species with those more beneficial for managing green areas and Permanent Preservation Areas (APP).

The project objectives include increasing plant biodiversity, promoting water resource protection and reoccupation of riparian forests, improving soil quality, providing food security, generating employment, and reviving genetic diversity. Implementation occurs through three phases: accreditation and selection, implementation, and registration and maintenance. Units are established

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based on project requirements, with prioritization criteria applied if demand exceeds capacity. Each agroforestry project is unique and tailored to meet community needs and environmental challenges.

The project's financial aspects involve the cost of seedlings, which is approximately USD 40.00 each. Plantings across the city have been conducted annually, with increasing numbers over the years, going from 5.800 in 2017 to 16,310 in 2021.

Notable results include support for nine community production units, benefiting approximately 200 people, and contributing to combating hunger and socioeconomic challenges, particularly during the pandemic. Training, technical assistance, infrastructure initiatives, and community engagement efforts have also been implemented to ensure project continuity and expansion.

General objectives and results encompass tree replacement, creation of shading areas, community engagement, research contribution, beautification of the city, and transformation of urban voids. Despite progress, challenges such as programme institutionalization, limited technical equipment, community mobilization, support structures for production units, and monitoring persist. However, the project has achieved noticeable improvements in soil quality, increased water production, and preservation of genetic diversity, highlighting its positive impact on environmental sustainability.

Figure 7. Visit to the Agrofloresta in Belo Horizonte

On the second day of the visit to Belo Horizonte, the delegates explored several notable locations, including the Botanical Garden, Francisco Lins do Rego Ecological Park, and the PROPAM project.

Among the exchanges of the following days, a visit to the Biofactory project was organized. This project aims to regulate undesired organism populations within urban vegetable gardens and trees by employing biological control mechanisms through predatory insects, contributing to UF-NBS management at a lower cost and also allowing to offer sensibilisation opportunities to the population. It introduces ladybugs and lacewings, insects that thrive in urban landscapes when provided with sufficient prey and alternative food sources. Dedicated to promoting specific urban pest management programmes, the project encourages the release of these beneficial insects to conserve biodiversity and enhance human health by establishing balanced, sustainable ecosystems.

Comprising three main strategies, the project implements the distribution of larvae, including those of ladybugs and Chrysopidae, to suitable environments such as vegetable gardens and green spaces.

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These larvae are also provided to residents with backyards or small spaces abundant with plants, as they are more efficient at pest control than mature insects. The second strategy involves distributing seed kits for plants that naturally attract predators like fennel, coriander, and sunflower, thereby preserving local wildlife. Lastly, the project includes an environmental education component aimed at providing knowledge and training on pest identification and management to urban farmers, students, and interested citizens.

The establishment of the Biofactory was driven by the need to regulate the population of whiteflies, specifically Singhiella simplex, which infest Ficus macrocarpa trees lining the streets of Belo Horizonte. Additionally, the Biofactory addresses the need for insect management in urban agricultural initiatives, including community gardens and backyard food cultivation. By controlling undesired insect populations, the Biofactory enhances the variety of biological control agents, thereby improving overall pest control effectiveness.

Implemented within a 40 m² climate-controlled laboratory, the Biofactory features breeding pots, distribution containers, and necessary equipment for insect reproduction and maintenance. Ladybugs are collected from green areas, bred under controlled conditions, and provided with food and optimal mating conditions until they reach adulthood. The project commenced releasing natural predators in April 2019, with distribution ongoing as of early 2022, aiming to distribute 50,000 insects annually. Environmental education programmes accompany insect release, engaging approximately 3,000 participants to date.

Challenges related to infrastructure and ladybug production include water seepage into the Biofactory facilities, limited space for educational activities, maintaining breeding stock amidst high demand, sourcing food for ladybugs, and managing the insects' life cycle. These challenges require ongoing attention and mitigation to ensure the project's success in enhancing urban pest management and promoting environmental sustainability.

- ***Main takeaways from the Belo Horizonte visit***

The exchange sessions yielded valuable insights from which the following can be outlined:

- Foster initiatives involving organized groups, visitors, and local residents of urban gardens and forest nurseries to align sensibilization through collaborative methodology to allow for greater outreach while upscale implementation of potential activities.
- Discussions emphasized soil improvement, sustainable production, and food sovereignty, alongside the criticality of seed conservation for native and endangered species.
- Environmental management strategies at the basin level, including wastewater treatment and community-based environmental education, emerged as key themes.
- Participants highlighted the significance of caring for native flora and fauna and stressed the importance of knowledge exchange to leverage diverse capacities and foster commitment to ongoing cooperation among cities with shared characteristics.
- The implementation of green infrastructure laws was recognized as pivotal for both cities
- Future exchanges are foreseen on specific challenges such as consolidating carbon markets and promoting environmental education.

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5.2 1st Call Task Force: Bogotá, Columbia

This initiative aimed to assist Bogotá in formulating policies and urban projects pertaining to UF-NBS, facilitating sustainable urban planning aligned with UN-NBS principles. Bogotá's strong political commitment to UF-NBS policies had underpinned the potential success of this collaboration. The focus of the discussions centred around the evaluation of their newly proposed Urban Forestry Policy and its accompanying Implementation Plan. This new policy is designed to provide guidelines for the introduction and management of Urban Forests within the Capital District of Bogotá.

Important note: The following description of the activities and results developed in Bogotá was made by Rik De Vreese (EFI) and Natalia Burgo (Berlin Ecologic Institute), and it was included as part of this final report for the D3.5.

Representatives from Bogotá's Environment Department engaged in productive pre-visit meetings with the CLEARING HOUSE task force experts, including Rik De Vreese (EFI), Jerylee Wilkes (HAFL), Clive Davies (EFI), Dorsa Sheikholeslami (IUCN), Natalia Burgo (Berlin Ecologic Institute), Andrea Armstrong (Vrije Universiteit Brussels), and Dennis Roitsch (EFI). The discussions revolved around sharing local administrative experiences and presenting case studies that illustrate successful implementations of Urban Forest and Nature-Based Solutions (UF-NBS) policies at the local level. These examples were intended to provide valuable insights to Bogotá as it embarks on the implementation of its new Urban Forestry policy, an effort that also aims to involve active participation from the local population. A visit to Bogotá took place on 30 and 31 March 2023.

5.2.1 Situating Bogotá

Bog Bogotá ota (population around 8 million; 307 km²) is the capital city of Colombia, and situated in the southeastern part of the Bogotá Savanna, a plateau in the Andes mountains highland. The climate is Subtropical Highland Climate, with maximum temperatures around 20 degrees, and minimum temperatures around 7 degrees. The annual rainfall is about 1000 mm (mainly in April – May and October - November). The tree cover is actually around 10%, but the Climate Action Plan 2020 – 2050 (Plan de Accion Climatica) aims to increase the forest cover by planting new urban forests on about 390 ha, and by maintaining another 590 ha land (under development threat) as urban forest.

Bogotá participates in the Tree City of the World programme, run by the FAO and the Arbor Day Foundation.

5.2.2 Report of the visit

A StoryMap has been produced on the visit, including maps, locations, pictures, videos and descriptions - https://arcg.is/0Xy9Kf. Experts visiting Bogotá were Rik De Vreese (European Forest Institute, CLEARING HOUSE project) and Natalia Burgos (Ecologic Institute, INTERLACE project).

The visit started with a session in the meeting hall of the District Secretariat for the Environment, where the local governance framework, the ongoing and planned urban forestry-activities and plans, and the CLEARING HOUSE and INTERLACE project were presented, both financed by European Commission grants.

5.2.3 Urban Forestry activities in Bogotá

Arboriculture has been done in Bogotá since the late 19th Century. The Land Management Plan 2022–2035 **(POT, *Plan de Ordenamiento Territoral*,** POT) is Bogotá's primary urban planning guide. It

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outlines territorial development, sets urban construction rules, and prioritizes actions to realize the city's territorial vision. This plan is established by Decree 555 of 2021 and its main objective is to improve the quality of life in Bogotá through developing social services, environmental sustainability, preserving natural heritage, reducing risks from natural hazards, and rational land use. Future public projects shall implement an urban forest-based approach, whereby urban forests are defined as "tree coverage – in mass or linear – with different vegetation compositions and integrating native species and with a height greater than 5 meters" (POT). Within the POT, a focus area for urban forests is renaturalising and greening pedestrian public spaces, through increasing inner-city plant coverage, and improving the delivery of ecosystem services and biodiversity.

Another important milestone in Bogotá´s decision making processes is the **Declaration of the Climate Emergency in Bogotá** (Agreement 790 of 2020) aims to restore the main ecological structure for the recovery of ecosystem services, protected areas of the Capital District, and strengthening of territorial advantages in the face of climate change". To implement this mandate, three strategic actions are proposed:

1. Formulating a Framework Plan for the Management of the District system of Protected Areas and the Main Ecological Structure in Bogotá, including a strategy for ecological restoration and massive reforestation.
2. Recovering the ecological connectivity to guarantee environmental services, urban biodiversity and ecological flow.
3. Promoting the Regional Plan for Water Protection and Adaptation to Climate Change, including through the development of Nature-based solutions (e.g. urban forests).

The **Climate Action Plan (PAC)** outlines adaptation actions for climate resilience, including implementing urban forests as nature-based solutions (UF-NBS) in areas with low vegetation cover. Key actions regarding urban forests include

- Implementing UF-NBS for adaptation to climate change in prioritized area according to the Climate Risk Index (for example urban forests, ecological gardening, green walls, green roofs, pollination corridors etc.).
- Implementing actions for the preventative occupation of protected land through urban forests, contemplation areas, urban gardens etc., that promote citizen appropriation of accessible, equipped and safe public spaces.

With the plan, the following items are relevant for urban forestry:

- Restoring 390 ha of urban green space, and maintaining 590 ha already existing urban greenspace, contributing to the Main Ecological Structure and strengthening the ecological connectivity.
- Signing conservation agreements with stakeholders (includes biodiversity monitoring, installing green walls and green roofs or pollinator gardens, installing hedgerows
- Consolidating Ecosystemic Connectors in the transversal connectivity strategy at regional, district and local scale.
- Engaging *Mujeres que Reverdecen* – involving 3000 women in vulnerable conditions in conserving, protecting and recovering urban ecosystems (learning by doing).

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The **Urban Forest Initiative** seeks to have a system of forest areas throughout the city, favouring ecological connectivity between diverse ecosystems, complementing the Main Ecological Structure. The main objective is for urban forests to be managed and consolidated inside existing green areas in public and private spaces, within the framework of environmental justice guidelines, equitable distribution of environmental burdens and benefits among all people in society. To do so, it is crucial to take into account the area´s inhabitants' specificities, to strengthen the social fabric, to expand deliberative and participatory spaces that benefit social cohesion and contribute to the generation of social capital, contributing to the following purposes:

- Improve and increase the supply of ecosystem services and ecological connectivity.
- Contribute to urban natural heritage and green spaces.
- To contribute to the improvement of air quality.
- Promote a sense of ownership, environmental governance, and citizen participation.
- Consolidate and generate new green spaces, microhabitats, and biodiversity.
- Contribute to the improvement of Environmental Health in the Capital District.
- Contribute to the mitigation and adaptation strategy to the effects of climate change
- The aims of the new urban forests are
- To recover abandoned areas
- To provide shelter for fauna and flora
- To provide places for contact with nature

As part of the Land Management Plan Implementation, an **Urban Forestry Action Plan** has to be drawn by the Botanical Garden of Bogotá, together with the District Secretariat of the Environment. According to the Land Management Plan, the Action Plan must include at least the following steps:

1. Identification, complementation, and spatialization of potential areas to consolidate or create urban forests, prioritizing the city's sectors with the most significant deficits of coverage and environmental quality.
2. Characterization of the area and identification of management instruments for each area.
3. Definition of urban forest typology sheets that include the criteria, guidelines, and designs in terms of spatialization, stratification, the composition of the vegetation cover and density of the forest mass to be established, as well as the management and monitoring for each specific area identified within the implementation plan.
4. Incorporation in the Information System for Urban Tree Management - SIGAU of the attributes and ecosystemic and socio-environmental contributions of Urban Forests, as outlined above.

The **Resolution 5531/2022** **"Guidelines for the Implementation of Urban Forests in the Capital District"** details the requirements regarding the **Urban Forestry Action Plan**, and includes the Action Plan.

The **Information System for Urban Tree Management - SIGAU** is already implemented (see https://jbb.maps.arcgis.com/apps/MapSeries/index.html?appid=ae3ab3570dcb4a8ab2b2acfbb9607e00), but only includes basic indicators at the moment. Further indicators that measure ecosystem services and connectivity need to be added to inform policy and practice. The **Arbol App Bogotá** is further advanced and includes 43 parameters per tree (including for example carbon sequestration). It maps all the planted, replanted or managed trees in the city. More information on the app is available at https://jbb.gov.co/arbolapp-los-arboles-de-Bogotá-en-la-palma-de-la-mano/ (in Spanish).

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5.2.4 Challenges related to urban forestry in Bogotá

5.2.4.1 Urban development and land availability

Bogotá is a developing metropolis, the pressure for developing land is high. Trees and green spaces that are not defined as environmental protected areas are replaced by new roads or new buildings, and in some areas of the city there are still constructions some buildings are constructed without the necessary permits.

- ***Main challenges***
- High pressure on unbuilt land
- Irregular constructions
- Mobility problems (traffic jams) lead to a desire for more roads and other grey infrastructure
- ***Actions***

The Climate Action Plan (PAC) includes actions for "preventive occupation", meaning that underused plots are naturally regenerated and the urban nature is restored through urban forests and other green approaches. This not only leads to a better environment, but also supports a social appropriation of the area, building a support base for safeguarding the space from development.

The Urban Forest Initiative under the Land Management Plan has resulted in 139 potential hectares being identified, in order to establish at least 19 urban forests. The project also contemplates the creation of 5 ecosystem corridors that will connect the city's green areas. The first technical guidelines for the urban forestry strategy implementation are under development.

- ***Suggestions***

The Urban Forestry Initiative is a good socio-ecological approach, combining environmental with social goals. Overall, there is a need for more enforcement of the building code, and for complying with the land use plans and the Land Development Plan.

5.2.4.2 Lack of awareness, social appropriation and social ill behaviour

- ***Main challenges***

Not all citizens and policy-makers are fully aware of the multiple benefits that urban forests and urban trees provide. Therefore, nature and green spaces are seen as reserve space that can be used for further developments, or green space is used for garbage dumping etc.

- ***Actions***

The Botanical Garden has developed a "concept store" how an urban forest can look like in Bogotá. It is situated in the Botanical Garden, and is under a "no management" regime, where it is shown for instance that leaves are not trash and could be left in the urban forest. The Bogotá urban forest concept also includes human health and wellbeing through stressing increasing the nature connectedness through bringing nature closer to people.

The Urban Forestry Action Plan and Resolution requires co-production as a technique to include citizen's perspective in the management and delineation of Bogotá's urban forests. This helps to increase the social appropriation of the urban forest, and – by giving a meaning to the space – reduces socially ill behaviour.

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- ***Suggestions***

To increase the awareness on urban forests, urban trees and other urban green spaces, the efforts in environmental education should be continued and extended. The CLEARING HOUSE Educational Package "City of Trees" can be of help; this package is aimed at children 10 to 14 years old, and is built upon "learning with trees" (instead of the more "learning about trees" approach). The package is available in Spanish.

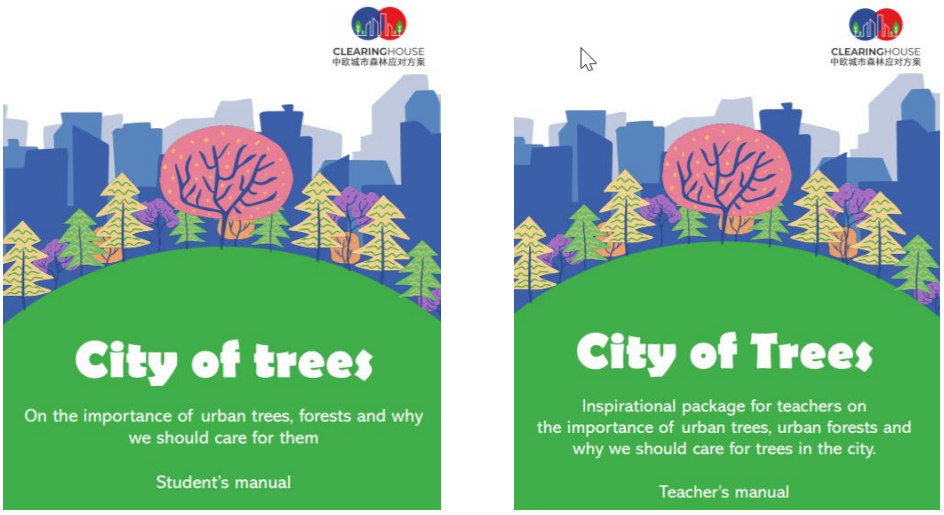

Figure 8. Cover of the City of Trees Student's Manual (left) and Teacher's Manual (right)

Additionally, CLEARING HOUSE provides a set of posters that can be used by any city to increase the awareness on urban forests and urban trees: https://www.zenodo.org/record/7248152 (see Figure 9).

To show the importance of urban green space, it can help to show monetary values of trees, forests and urban green space. iTree is a popular tool for this. The data available in the SIGAU is a good basis for calculating the monetary values of trees in Bogotá without too much additional workload, and the ArbolApp can be updated to show these values. Monetary values for trees can be calculated at the level of individual trees (e.g. to provide labels with the contribution of a specific tree, see example in Figure 10), or at the level of a park of the whole city. These figures can support the development of innovative business models for sponsoring urban forests and urban trees (e.g. as part of carbon offsetting schemes, or for corporate social responsibility initiatives).

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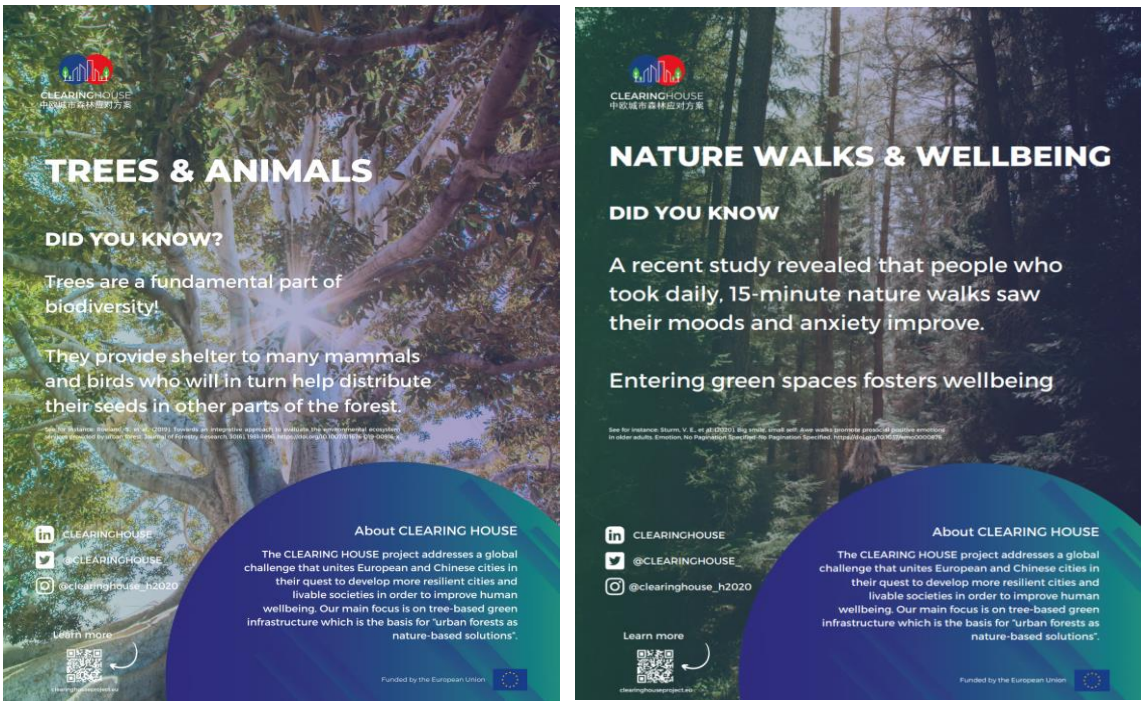

Figure 9. Two examples of awareness raising posters on urban forests and urban trees produced by CLEARING HOUSE

It is important to build trust, within the administrations, and between the administrations and the citizens. Pilot projects and co-production facilitate the trust-building. Further it is important to have a long-term political commitment to urban forestry, to avoid changing protection and management of the urban forests following political changes. Sufficient budget and human resources should be made available for working with the local communities: ideally, every urban forest has one specific contact person and bridge figure with the SDA (Secretaria Distrital de Ambiente).

Figure 10. Price tag in a tree (taken from https://marksurbanforest.blogspot.com/2017/05/top-10-benefits-of-trees-mestes76.html, author and copyright unknown)

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5.2.4.3 Conclusion of the Task Force visit to Bogotá

In conclusion, Bogotá benefits from a range of policy instruments that establish a favourable legal framework for urban forestry management. However, urban tensions, including uncontrolled urban growth, rising land prices, and conflicts between community needs and institutional perspectives, pose challenges to policy implementation. The Urban Forest Decree is a significant step in integrating urban forestry into city legislation, providing a platform for coordinated action among local institutions and the community. Notably, grassroots efforts are already underway, with local residents engaging in activities like urban gardens and research, presenting a promising avenue for greater institutional involvement. The ongoing development of urban forest action plans offers a unique opportunity for collaboration between responsible local authorities and organized communities. This joint effort holds potential for effective and sustainable urban forest management by actively involving residents in ecosystem ownership and long-term preservation.

5.3 2nd Call Task Force: Braga, Portugal

Braga was selected for the second task force. Several preparatory online meetings took place to prepare the visit, with Rik De Vreese (EFI) and Rita Sousa-Silva (Freiburg University) visiting Braa on the 26th to the 28th of June 2023.

Important note: The following description of the activities and results developed in Braga was made by Rik De Vreese (EFI) and Rita Sousa-Silva (Freiburg University), and it was included as part of this final report for the D3.5.

5.3.1 Situating Braga

Braga, with a population of 193,333 inhabitants and covering an area of 183.40 km², is located in the northwest region of Portugal. As the 7th largest municipality in Portugal in terms of population, it forms an integral part of the country's third most populous urban area, following Lisbon and Porto Metropolitan Areas. The city's topography offers a dynamic interplay between rolling hills and valleys, primarily shaped by the Cávado and the Este rivers, along with their tributaries.

Braga's climate is characterised by its moderate and temperate nature, greatly influenced by its proximity to the Atlantic Ocean and the prevailing maritime air masses. Braga experiences a Mediterranean climate, featuring hot summers due to its inland location nestled between mountains, while winters remain mild with occasional rainfall. The annual rainfall averages around 1400 mm, with the majority occurring during the fall, winter, and spring seasons.

The municipality is divided into 37 administrative units, also known as parishes, which handle specific local matters, community services, and governance within their respective areas. Regarding environmental management, parks, and green spaces, the primary responsibility lies at the municipal level. The mayor and the city council take on a central role in overseeing environmental policies, urban planning, and the development and maintenance of parks and green areas. Some of the more distant parishes may receive funding for their greenspace projects but manage them with local staff.

According to the EEA's Urban Tree Cover Dashboard (eea.europa.eu, 2021), the tree cover in Braga is 78.00 km² (42.63 % of the area), while the tree cover in the Braga Functional Urban Area is 226.80 km² (45.93 % of the area). For a detailed agenda of the visit please check the Annexes.

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5.3.2 Story map of the visit

Here you can find a StoryMap on the visit, including maps, locations, pictures, videos and descriptions. https://uploads.knightlab.com/storymapjs/e28390ef16e4896d13075d3c908795ab/braga/index.html

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Figure 11. Story Map of the Second Task Force Exchange

5.3.3 Urban Forestry Activities in Braga

Urban forestry activities in Braga are primarily focused on parks and green spaces, as the municipality does not own any forests. Two annual planting campaigns are organised in collaboration with schools, associations, and civil society organisations. These campaigns involve planting trees around schools and in parks to enhance the urban environment.

- Florestar Braga, 23 November (Autochthonous Forest Day) - https://www.cm-braga.pt/pt/0101/participar/voluntariado/florestar-braga: Trees planted around schools and in parks etc.
- Oxigenar Braga, 21/22 March (World Forest Day, World Water Day) - https://www.cm-braga.pt/pt/0201/home/destaques/item/item-1-11898: Planting fruit trees (to be watered by the schools)

Water shortages restrict planting activities, particularly in spring and summer, but the municipal nursery provides saplings and plants for internal use and distribution to schools and volunteers. Some planting material is procured externally, and schools also cultivate their own planting material. Furthermore, these challenges faced by the municipality, makes it challenging to set any future goals for canopy increase in the areas.

Recent efforts have been made to create new green spaces, such as:

- **Parque das Camélias**, designed as a living laboratory for climate change and a key component of the Municipal Strategy for Adaptation to Climate Change. This is a new park, which was constructed on former farmland and an illegal dumping site.
- **Microforests** are also being established on public lawns, with the aim of replacing grass with year-round vegetation, improving air quality and reducing noise pollution.
- **Parque do Picoto**, a 22-hectare urban park,which is dedicated to restoring autochthonous forests by removing invasive species like Acacias and Eucalyptus and planting native species such as oaks, cork oaks, pedunculate oaks, Pyrenean oaks, Holm oaks, and chestnut trees.

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- **Sete Fontes park** (land being acquired at the moment of the visit)
- **Ponds**, the municipality is further creating new ponds with an aim to buffer water
- **Natural restoration**, which is mainly being undertaken in various sections of the Este River

The city's relatively small size ensures that most citizens are within a 15-minute reach of public transport to green spaces. However, specific figures on the usage of urban green spaces in Braga are not available.

Citizens and civil society groups actively participate in the city's environmental activities. For instance, they adopt 500 m-long stretches of the Este River and partake in a Biodiversity Photography contest. The municipality places significant emphasis on environmental education through initiatives like the Pedagogical Farm, Blue Flag, and Green Schools campaigns. Furthermore, the establishment of Forests Schools is currently underway. To disseminate information, informative panels (Biospots) are installed in the newly created green spaces (parks) and along the restored sections of the Este River.

Investments are also being made in new walking and cycling routes, including those along the restored Este River and Cavado Ecovia, connecting National Park Peneda-Gerês, North Coast Natural Park, and the centre of Braga, thus promoting sustainable mobility and increased access to natural areas.

5.3.4 Challenges related to urban forestry in Braga

5.3.4.1 Forest fires

Forest fires pose a significant challenge to urban forestry in Braga, Portugal. Forest owners are legally required to remove dead biomass from their plots, typically before the 30th of April (in 2023, this deadline was extended to the 15th of May). During the peak fire season, which usually occurs between July and September, burn clearing for pasture renewal or vegetation clearing is prohibited. Traditionally, the collected biomass is burned on-site, creating a potential risk of forest fires.

A notable incident occurred on October 15, 2017, when massive forest fires engulfed an area predominantly forested with Eucalyptus, mixed with oak and cork oak, resulting in the burning of 1007 hectares of land. This large wildfire in Braga was just one of a series of wildfires that ravaged northern and central Portugal on October 15-17, which not only devastated the vegetation but also claimed the lives of 45 individuals. Furthermore, the fires triggered erosion during the months that followed. These incidents highlight the urgency and importance of mitigating forest fires risks and implementing effective measures for forest management and biomass disposal to protect urban forestry in Braga.

- ***Main challenges***

Forest fires in Braga stem from a combination of factors that contribute to their heightened risk of fire incidents. One significant contributing factor is land abandonment, which has become increasingly prevalent in rural inland areas of northern Portugal, leading to the abandonment of former agricultural areas. Over time, these areas have become planted with (or invaded by) highly flammable Eucalyptus and Pine. The lack of proper forest management exacerbates the situation, especially considering that forest ownership in Portugal is predominantly private, leading to fragmented and small-sized properties, often less than 1 hectare, with many property owners being unknown due to the absence of a comprehensive land registry.

Furthermore, Portugal holds the largest land area planted with Eucalyptus in Europe and, in relative terms, in the world, increasing the overall fire risk. The condition is compounded by forest owners' lack

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of awareness, living at far distances from their properties, or displaying limited interest in property management, resulting in neglected and uncleared lands. Eucalyptus and Pine, the dominant species, are highly flammable, contributing to the susceptibility of forest areas to fires. Moreover, the presence of dead wood caused by the Pine moth further fuels the fire risk.

Addressing these challenges requires a transition towards converting forests into oak-based mixtures, which are less prone to fire, have reduced fire spreading potential, and better preserve soil moisture. However, the capacity of the Forest Agency in Portugal, particularly in the northern region, is constrained, impacting effective management and mitigation efforts.

To effectively tackle forest fire occurrences in Braga, it is crucial to develop comprehensive strategies that address land abandonment, promote responsible forest management, encourage the adoption of less flammable species, and engage with forest owners to ensure proper land cleaning and maintenance. Additionally, improving the land registry system will be essential to gain a better understanding of property ownership and facilitate more informed management decisions. Through these measures, Braga can work towards reducing the threat of forest fires and safeguarding its urban forestry and natural landscapes.

- ***Actions***

Efforts to replace Eucalyptus with autochthonous species, such as oaks and chestnut trees, are underway in Braga, as demonstrated in Picoto Park. However, despite such endeavours, large patches of Eucalyptus trees still dominate areas that suffered from forest fires five years ago, with these areas primarily occupying private land.

In response to the need for further restoration and conservation, the Municipality of Braga has taken significant steps towards revitalising 37 hectares of riparian galleries. This restoration initiative involves planting 33,000 trees with the assistance of volunteers and implementing other natural engineering activities. The primary objective is to mitigate erosion and reduce silting water, thereby enhancing the resilience of these vital ecosystems. Furthermore, to address the pressing issue of forest fire prevention and assist forest owners in adhering to the law, Braga has invested in a shredder available for free booking under the initiative "Cuidar Braga". By facilitating landowners in complying with regulations and promoting responsible land management, this initiative contributes to minimising the risk of forest fires.

From a legal standpoint, the process of granting planting permissions primarily falls under the purview of the Portuguese Institute for Nature Conservation and Forests (ICNF), although municipalities have some influence in certain situations. Notably, large-scale Eucalyptus plantations are no longer allowed.

With the aim of improving the knowledge on forest ownership, a simplified land cadastral information ("Sistema de Informação Cadastral Simplificado") started in 2017 in some of the municipalities affected by the fires of that year, and has since been extended to other municipalities in 2019.

With all these actions the Municipality of Braga is taking significant strides towards safeguarding its natural landscapes and urban forestry.

- ***Suggestions***

Limited interest in managing small forest plots in Braga can be attributed to the constrained return on investment for forest owners. However, there are potential solutions to incentivise increased forest management and foster a culture of active forest stewardship. One approach involves utilising various

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methods, such as subsidies, grants, private funding, and payment-for-ecosystem-services schemes, to motivate private forest owners to invest in forest management. Additionally, financial stewardship and sponsorship offered by businesses for forest conversion or restoration can further encourage participation. However, from previous experiences with companies in Braga, there is a general feeling that these potential paths of stewardship are no silver bullet as, most often, companies are more interested in one-off activities.

Developing demonstration plots, showcasing forest conversion and alternatives to uncontrolled biomass burning, can be a powerful tool to persuade forest owners to engage in effective forest management and encourage them to commit time and resources to effective forest management. By witnessing firsthand how adapted forest management practices work, forest owners are more likely to be motivated to adopt sustainable practices. To facilitate the implementation of these demonstration plots, a viable option is to utilise land owned by the Catholic Church or Municipality. However, one of the challenges faced in Braga is the lack of known forest owners due to unclear ownership records, which further contributes to no forest owners visiting these demonstration plots. Once forest ownership is better known, forest associations could play a crucial role in managing small forest plots more effectively.

Learning from experience of forest associations in regions like Flanders in Northern Belgium, it is evident that relieving forest owners of management and administrative tasks can significantly improve forest quality, enhance biodiversity, and increase income from the forest. For Mediterranean forests, this can also have a positive impact on reducing the risk of forest fires. In order to encourage forest owners to become part of forest associations, several incentives can be created, including ensuring compliance with laws, reducing the risk of forest fires, fostering more biodiverse forests with fire-resistant native trees. Funded by public money from sources like Europe, national, or regional funds, forest associations can engage professional forest managers who can organise forest management operations on a larger scale, leading to lower unit costs and potentially higher returns from wood harvests. These managers can also handle paperwork, develop joint forest management plans, and provide valuable expertise to forest owners.

Despite these challenges, there is a positive example from Ferraria de São João that could serve as inspiration for Braga. In 2017, the village faced major forest fires, but a 200-year-old stand of cork oaks acted as a natural barrier, stopping the flames from reaching the houses without any human intervention. Following this incident, the community came together and established a 'village protection zone' (VPZ), a 100-metre strip around the village collectively managed. In the VPZ, Eucalyptus trees were replaced with more fire-resistant native trees, enhancing the village's resilience against future fire threats (Smartrural21, 2022).

Considering this positive example, Braga could explore the feasibility of similar community-driven initiatives and the adoption of fire-resistant native trees to improve forest management and fire prevention strategies. By combining financial incentives, demonstration plots, and community engagement, Braga can foster a sustainable framework for enhancing forest quality and resilience while mitigating the risk of forest fires in the region.

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5.3.4.2 Lack of awareness and social ill behaviour

- ***Main challenges***

In the region, there has been notable resistance against tree planting, especially non-fruit trees, leading to instances where newly planted trees have been removed, stolen, or mowed down. In the urban context, citizens have voiced complaints regarding tree foliage clogging gutters, creating slippery sidewalks, and causing dirt on cars. The presence of trees also poses risks from falling branches, which can endanger people and property. Furthermore, some individuals exhibit a preference for invasive species, driven by their aesthetic appeal, such as *Cercis siliquastrum* and *Ailanthus altissima*, leading to their introduction in public spaces. Unfortunately, the lack of awareness about these species' ability to reproduce from cuttings has contributed to their proliferation.

In addition to tree-related challenges, there have been incidents of waste dumping, theft, and vandalism, including damaging information panels or trees. Efforts to involve people from surrounding neighbourhoods have somewhat decreased such behaviour, but challenges remain. The overall lack of social appropriation of the new urban green spaces by the Braga population, except for the Este River margins with their active cycling and pedestrian paths, indicates a need for further engagement and connection with nature.

The municipality has been actively engaging with schools and volunteers to address both cost considerations and increase awareness and connectivity to nature. However, the high time expenditure of municipal staff and high drop-out rate among volunteers have presented challenges. The pandemic further complicated planting with schools outside their grounds, initially due to social distancing restrictions and later due to high fuel prices for transport to planting sites. Nonetheless, these efforts have persisted to some extent.

Remarkably, the media and social media channels managed by the Municipality of Braga, including Facebook and their website, show limited attention to green spaces. Addressing these communication gaps could be vital to increasing public awareness and appreciation for green species fostering a stronger sense of community involvement and ownership in urban forestry initiatives. By addressing these challenges and engaging the public more effectively, Braga can cultivate a greener and more resilient urban landscape that benefits both citizens and the environment.

- ***Actions***

In Parque do Picoto, a stewardship scheme has been implemented wherein companies take over the management of specific park sections. These companies commit to tasks like removing invasive species and planting trees. While initial activities are usually successful, a lack of long-term commitment is observed with most companies. To raise awareness, a successful photo contest on nature in the city and numerous activities with schools have been organised. Similar initiatives involving companies and schools have also been carried out along different sections of the Este River, focusing on cleaning up the river and planting trees.

A challenge arises from diverging views and traditions among city gardeners, which sometimes clash with new tree-based initiatives, like the microforests. The city gardeners were not involved in the planning of the microforests, and their preference for easier tasks, such as mowing grass, conflicts with the more labour-intensive work required for planting and caring for trees. While it may not be necessary for them to participate in the initial planting stage, it is essential to engage and inform them to garner their support and ensure proper care for the newly planted trees. Similar efforts should be

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made to involve nearby residents, especially since some micro forests are close to people's houses. Engaging residents through activities like inviting them to participate in tree planting or "sponsor" a tree could be facilitated through social media or distributing leaflets in their mailboxes.

In response to the need for collaboration, the municipality has invited local gardeners to take part in school tree planting initiatives, resulting in their regular involvement in tree planting. This engagement aims to prevent any negative impact of daily management on newly planted trees, such as mowing saplings or damaging tree stems during mowing activities. By fostering cooperation between stakeholders, including companies, schools, city gardeners, and residents, Braga can enhance its urban forestry initiatives and ensure the long-term success of green spaces and tree-based projects.

- ***Suggestions***

Strengthening internal communication and awareness within the Municipality of Braga is essential, encompassing engagement with politicians, gardeners, and specialised staff in the field. Moreover, increasing the number of personnel dedicated to urban green spaces is imperative for successful greening initiatives, including the preservation of existing trees.

To enhance the awareness of urban forests, trees, and green spaces, continued and expanded efforts in environmental education are necessary. The CLEARING HOUSE Educational Package "City of Trees" can be of help; this package was designed for children ages 10 to 14, and adopts a unique "learning with trees" approach to foster deeper connections with urban nature.

Furthermore, support for the ''No Mow'' movement, while not directly focused on urban forests, can significantly benefit urban green spaces. A robust campaign is required to encourage more individuals to participate actively. The installation of identification plates – explaining that the municipality stopped cutting the grass to help bee populations – as seen in the Pedagogical Farm, can be extended to roundabouts and municipal parks and shared through social media to promote the growth of bee-friendly plants in residents' yards.

To gauge the use and impact of urban green spaces in Braga, it is suggested to install visitor counters at park entrances or conduct a representative survey, which could prove to be very beneficial. Understanding why people choose to visit or not visit green spaces can help tailor strategies to better serve the community.

Highlighting the monetary value of trees and urban green spaces can underscore their importance. Utilising tools like iTree, which will benefit from the upcoming tree inventory for Braga, can calculate individual tree values or values for entire parks or the city. These figures can support innovative business models, such as urban tree sponsorship for carbon offsetting or corporate social responsibility initiatives.

Concrete citizen engagement in tree stewardship can be fostered by asking them to water trees on the public domain near their homes. An example, like the "Gieskannenhelden" (*Watering Can Heroes*, see https://giesskannenheldinnen.de/ and Figure 12) campaign in the German cities of Essen, Düsseldorf and Gelsenkirchen, leverages the BaumApp (Tree App) to encourage citizens to water designated trees using rainwater stored in 1m³ water storage tanks, while providing necessary materials.

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Figure 12. Children at a rainwater storage tank, filling their watering cans to water surrounding trees during dry summer days (Copyright: Ehrenamtsagentur Gelsenkirchen)

Another effective approach to raise awareness is through personalised tree descriptions, showcasing their longevity and significant economic contributions over time. For instance, in Montreal, trees are equipped with descriptions highlighting their cost-saving impact. Even saplings have their own personalised reference: “This tree will clear the air for your grandchildren”. One tree alone has saved 13,13.05 dollars, and so the city plans to install 300 on mature trees and 1,600 on new trees, for a total of 100 per borough, according to Ms. Linda Boutin, the publicist at the City of Montreal (Cyr, 2020). Such initiatives can further engage citizens and create a stronger sense of appreciation and stewardship for urban trees and green spaces in Braga.

Figure 13. Montreal: Saving Money with Trees, trees equipped with descriptions to inform on their longevity. (Copyright: Guillaume Cyr June 29, 2020)

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5.3.4.3 Invasive species management

- ***Main challenges***

Braga's green spaces face significant challenges due to the abundance of invasive species. The surrounding woodlands are primarily dominated by Acacia and Eucalyptus trees, requiring substantial resources for their management and removal, particularly for Acacia species. However, the efforts to control these invasive trees are met with difficulty. Apart from Acacia and Eucalyptus, other invasive species like *Cortaderia selloana* and *Ailanthus altissima* also demand special attention in the region's green spaces. Addressing the issue of invasive species is crucial to ensure the health and resilience of Braga's urban ecosystems and protect native biodiversity.

- ***Actions***

The Municipality of Braga has implemented various planned and ongoing initiatives to tackle the issue of invasive species. With regards to Acacias, the municipality employs methods such as cutting, ringing, peeling the bark, and weeding the saplings to control and remove these invasive plants. Citizen involvement is encouraged to support these actions; however, the process remains time and budget-consuming. Despite the collaborative efforts, managing invasive species poses a persistent challenge for the municipality, calling for continued dedication and innovative strategies to effectively address the issue and preserve the ecological balance of Braga's green spaces.

For both *Gleditsia triacanthos* and *Ailanthus altissima,* hand-pulling young seedlings is an effective strategy when the soil is moist and the entire root system is removed. For mature trees, clear-cutting combined with herbicide application to the stumps is the most effective method to prevent regrowth; otherwise, after some time it will vigorously resprout. Regarding *Robinia pseudoacacia,* cutting and stump grinding is effective for young trees. For established trees, a combination of cutting followed by herbicide application to the stump can prevent regrowth. The city has not yet implemented control measures for these species.

- ***Suggestions***

In parallel with analogous situations in various regions, Braga is presently confronted with notable challenges stemming from the proliferation of invasive vegetation. To effectively address the issue, a valuable resource in the form of the “Invasoras” project (https://invasoras.pt/en/project) is at our disposal. This initiative serves as an invaluable repository, offering extensive insights into species deemed invasive within the context of Portugal, along with guidance on optimal strategies for their management and eradication. Furthermore, the project extends its utility through the provision of educational materials aimed at enhancing environmental awareness. These resources play a pivotal role in engendering a broader understanding of the perils posed by biological incursions and fostering active citizen engagement in the identification and reporting of instances involving invasive species.

In light of the foregoing, a prudent course of action involves a heightened commitment to amplifying such endeavours. A strategic approach would encompass endeavours such as fostering collaborations with educational institutions, particularly schools, to integrate invasive species awareness within curricula. Additionally, orchestrating communal gatherings geared towards the voluntary removal of invasive vegetation from public domains serves as a promising avenue for galvanising public participation. In this vein, capitalising on the potential of both conventional media outlets and digital platforms, including social media, to disseminate information concerning invasive flora and to inspire public involvement emerges as a salient tactic.

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An additional proposition of considerable import lies in the cultivation of partnerships with local universities and research establishments. Such affiliations provide an indispensable conduit for remaining apprised of cutting-edge practices and insights germane to invasive species management. Given the complexity surrounding the issue of Eucalyptus trees, the approach necessitates a more nuanced strategy beyond the realm of simple control and eradication measures. This complexity is particularly underscored by the aftermath of the tragic wildfires that have afflicted Portugal. These events have catalysed a collective sentiment that advocates for a paradigm shift away from Eucalyptus plantations and towards the restoration of indigenous forests. To this end, it is paramount to embark upon sustained initiatives targeting the removal of Eucalyptus trees within specific locales, concurrently replacing them with native vegetation. This holistic endeavour not only adroitly addresses the challenge of invasive species but also aligns with the imperative of mitigating wildfire risk.

In summation, the multifaceted challenge of invasive plants in Braga necessitates a comprehensive and multifarious approach. Leveraging the resources and expertise offered by the "Invasoras" project, cultivating broader citizen involvement through various educational, community-based, and informational campaigns, and strategically collaborating with academic and research entities collectively constitute an effective framework to mitigate this pressing concern. Moreover, the intricate issue of Eucalyptus trees underscores the need for a nuanced approach informed by the broader context of wildfire prevention and ecological restoration.

5.3.5 Conclusion of the Task Force visit to Braga

In conclusion, Braga faces a range of challenges and opportunities in its urban forestry and green space management. Projects undertaken by the Braga Municipality, such as the “Florestar Braga” and “Oxigenar Braga”, demonstrate a collaborative approach that involves schools, association, and civil society organisations. These initiatives underscore the city’s commitment to involving the community in enhancing the urban environment.

Nonetheless, several challenges necessitate focused attention. Forest fires pose a significant threat, demanding comprehensive strategies that encompass forest management, responsible practices, and engaging with forest owners. Overcoming these challenges requires fostering awareness, engagement, and understanding among citizens, companies, and forest associations. Demonstrating the value of trees, prompting responsible forest management, and encouraging sustainable practices are pivotal.

The pervasive presence of species in green spaces is another key challenge. The “Invasoras” project provides valuable resources to address this issue, offering insights, guidance, and educational materials. Collaborative efforts involving educational institutions, community gatherings, media dissemination, and academic partnerships are crucial to mitigate the spread and the overall management of invasive plants.

Braga’s journey towards effective urban forestry is intricate, requiring synergy among various stakeholders. The municipality’s commitment to creating and conserving green spaces, along with its dedication to sustainable practices, offers a beacon of hope. Through continued engagement, Braga can navigate these challenges, enhance its urban environment, and nurture a harmonious relationship between its citizens and nature.

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5.4 2nd City Tandem: Haikou and Istanbul

Haikou and Istanbul have eventually been selected for the 2nd city tandem, with the visits taking place between December 6th and December 13th 2023.

The 2nd city tandem exchanged counted on a group of 8 representatives: 3 delegates from Haikou (Mr. GUO Qingling, Haikou Municipal Forestry Bureau; Mr. LU Gang, Head of the Haikou Duotan Wetland Research Institute; Ms. ZHIQIN Zhou, Haikou Duotan Wetland Research Institute), 3 delegates from the Istanbul Metropolitan Municipality (Dr. Ahmet Cemil TEPE, Deputy Director of the Department of Parks, Gardens and Green Areas; Mr. Emre Remzi GÜRŞEN, Chief of Department of Parks, Gardens and Green Areas; Mrs. Ülkü GÜL GÜNEŞ, Project Manager at the Department of Parks, Gardens and Green Areas), Mrs. Yiyun SUN (International Union for the Conservation of Nature IUCN), Dr. Rik DE VREESE CLEARING HOUSE project coordinator, and Mr. Guillaume BERRET, Head of Programmes at Metropolis. The two cities have clear difference in size, governance structure and capacities, vision of UF-NBS implementation and integration within public policies, which did not facilitated exercises of comparability as it was the case for the first City Tandem, in addition of the difficulties posed by the language barrier (Turkish <>English<>Chinese). However, the participants representatives of the two local administration were able to exchange on projects of green infrastructures for fostering recreational use as well as citizen appropriation.

5.4.1 Haikou

Haikou, the capital and most populous city of Hainan Province in China,. is located on the northern coast of the Hainan Island, adjacent to the mouth of the Nandu River. Geographically, the city is positioned primarily on Haidian Island, which is separated from the main urban area of Haikou by the Haidian River, a tributary of the Nandu. Administratively, Haikou is designated as a prefecture-level city, encompassing four districts and spanning an area of 2,280 square kilometres. The urban population of Haikou is around 2 million, within the confines of the city's four urban districts.

Figure 14. Rik De Vreese, project Coordinator, presenting the CLEARING HOUSE project to Haikou Municipal People's Government representatives (Copyright: Guillaume Berret, December 5th 2023)

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The urban landscape of Haikou presents multifaceted challenges, as elucidated by representatives of the city government over the course of the meetings. These challenges underscore the complex interplay between urban development and environmental sustainability, necessitating a nuanced approach to governance and planning. Across the 3 days visit, the CLEARING HOUSE City tandem delegates were able to exchange and get to know interesting projects initiated by the city. In 2018, Haikou City earned international recognition from the Ramsar Convention as an official wetland city, boasting a diverse array of coastal, riverine, and artificial wetland ecosystems within its boundaries.

Meishe River Greenway

Haikou has experienced rapid population growth over the past four decades, resulting in significant urban development. The Meishe River, colloquially known as the "beautiful mother river," had become heavily polluted over the years, serving as a sewage dumping ground. In response to these challenges, the Haikou government spearheaded the implementation of nature-based solutions aimed at transforming the concrete rivers into resilient green infrastructure. The 13-kilometer-long Meishe River and the 80-hectare Fengxiang Park forming a major part of the planned green infrastructure for Haikou has been one of the most successful examples of those policies.

Firstly, an ecological infrastructure centred around stormwater drainage, known as the "green sponge," was planned to integrate the river, tributaries, wetlands, and green spaces. Secondly, efforts were made to transform concrete structures into green spaces wherever possible, reconnect blocked waterways to the ocean, and reconstruct wetlands and shallow shores to facilitate mangrove rehabilitation. Finally, terraced constructed wetlands were introduced along the riverbanks to purify polluted water runoff and sewage from urban villages. These wetlands serve as water cleansing facilities and also provide cultural and social services, including interpretive environmental systems and resting areas for visitors.

NBS interventions around the Meishe River not only remediate water quality and mitigate floods but also create public spaces that offer cultural and social benefits. The Meishe River grey to green project has improved the water quality of the river, now suitable for swimming and recreational activities. Additionally, five hectares (0.05 km2) of mangroves have been successfully reintroduced, attracting wildlife such as fish and birds back to the area. Furthermore, the revitalized wetland now has the capacity to cleanse 6,000 tons of urban runoff and 3,500 tons of domestic sewage from the local urban villages on a daily basis.

The Meishe River Greenway restoration project has been one of the highlighted projects that led Haikou to be recognized as one of the International Wetland Cities by the Ramsar Convention.

Haikou Volcanic Cluster Geopark

Situated 15km south of Haikou, it comprises of volcanic heritage sites, that facilitates economic and educational activities within its boundaries, while also serving as a refuge habitat for diverse flora and fauna. The Geopark (118 km²) is located in, and representative for, the Hainan Volcanic Field, spanning 4100 km² in the provinces of Hainan and Guangdong.

Both provinces of Haikou and Guangdong collaborate financially and strategically to development and preservation, as an strategy of Chinese regional partnerships in conservation and heritage preservation, while it also receives funding from the private sector.

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The Geopark is integrated within the Haikou city government ambitions to promote environmental awareness, citizen science while also fostering cultural tourism objectives.

Donghsai Mangrove Reserve

The reserve covers an extensive area of 2,500 hectares with a coastline exceeding 50 kilometres. Located in China's southernmost Hainan Province, Dongzhai Port Nature Reserve is the first wetland-type national nature reserve for the mangrove ecosystem in China.

The Donghsai Mangrove Reserve stands as a testament to Haikou's commitment to wetland conservation and restoration. Efforts to regulate agricultural pollution and centralize public feedback demonstrate the city's proactive stance towards environmental stewardship and accountability, underscoring its commitment to sustainable development and habitat preservation.

The mangrove forest within the Dongzhai Port Nature Reserve boasts a diverse array of flora, comprising 12 families and 19 species. Bruguiera stands as the sole indigenous tree species in the reserve, reaching heights of up to 14.5 meters with a breast-high diameter of 60 centimetres. The mangrove habitat serves as a vital ecosystem for a plethora of wildlife, including birds, amphibians, reptiles, fishes, and crustaceans. Established in 1980 by the Provincial Government of Guangdong, the Dongzhai Port Nature Reserve attained state-level recognition from the State Council in July 1986, becoming China's first mangrove forest nature reserve. The reserve is staffed by 20+ personnel for its management and conservation.

The peripheral region encompasses 72 villages accommodating an estimated population of around 20,000 residents, predominantly involved in agricultural and fishing activities. A policy framework emphasizing responsibility and collaborative engagement has been instituted within the reserve, aimed at educating residents on the significance of mangrove preservation and compliance with reserve mandates. Collaborative endeavours involving joint protection and surveillance groups, established in conjunction with neighbouring townships and villages, serve to enhance conservation endeavours. Furthermore, public awareness campaigns and educational initiatives assume a pivotal role in nurturing community participation and advocacy for mangrove conservation.

The Dongzhai Port Nature reserve is integrated within the creation of the urban development plan for the Jiangdong new area of east Haikou. This new area aims to revitalize the coastal water network while safeguarding the integrity of China's largest mangrove forest. It is designated to serve as an innovation hub through development of more adaptable policy frameworks and regulatory models to foster the growth of tourism, modern service industries, and high-tech sectors, while also serving as a model zone for the National Ecological Civilization Experimental Zone. The national and provincial governments aim at prioritizing principles of environmental sustainability and conservation systems for land use and natural ecological spaces, and promoting urban renewal and transformation. The Jiangdong new area of east Haikou will pioneer innovative approaches to rural planning and integrated urban-rural development, aiming at setting a precedent for future urban development trends.

- ***Main takeaways from the Haikou visit***

The urban landscape of Haikou presents multifaceted challenges, as elucidated by representatives of the city government over the course of the meetings. These challenges underscore the complex interplay between urban development and environmental sustainability, necessitating a nuanced approach to governance and planning.

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Haikou's approach to urban governance emphasizes a concerted effort towards ecological preservation and sustainable development. The city's designation as a "*garden city*" by the Haikou Garden Bureau underscores its commitment to green infrastructure and environmental stewardship. This commitment is exemplified by the city's substantial green area coverage, amounting to 40.33% of its total area, and its periodic reassessment of this designation every five years. Furthermore, Haikou's recognition as a "*National Park City*" underscores its proactive stance towards green development planning as a fundamental pillar of economic and international growth.

Urban green land planning in Haikou is characterized by meticulous attention to detail and comprehensive integration of ecological considerations. The city's extensive park coverage, spanning 12 km², is emblematic of its commitment to providing accessible green spaces for its residents. Moreover, Haikou's holistic approach to urban planning extends beyond parks to encompass the management of seas, rivers, and wetlands, reflecting a nuanced understanding of ecosystem dynamics and interdependencies. The integration of ecological building planning further underscores the city's proactive efforts to mitigate the adverse impacts of urbanization on natural habitats.

Efforts to manage and preserve green spaces in Haikou are underpinned by robust legal frameworks and institutional mechanisms. These mechanisms, supported by funding from both national and provincial governments, facilitate the sustainable development and maintenance of green areas within the city. Crucially, community consultation and engagement are prioritized in the decision-making process, fostering a sense of ownership and stewardship among residents.

Haikou's commitment to environmental conservation extends to its wetlands and national parks, which serve as vital ecological reserves and biodiversity hotspots. Anticipated expansions of wetlands with 61.5% by 2025 underscore the city's proactive stance towards habitat restoration and preservation. Initiatives such as wetland schools and volunteer services further enhance public participation in conservation efforts, while flexible designs for national parks prioritize resilience and adaptive management in the face of environmental change.

The participation of Haikou in the City Tandem initiative must be contextualized within a broader national framework. China demonstrates a clear intention to showcase its efforts in climate change mitigation on the global stage. This aspiration aligns with the overarching concept of ecological civilization, which forms the cornerstone of China's environmental philosophy. Initially manifested in the concept of the "garden city," China's approach to environmental governance has evolved over time, encompassing the ideals of the "city of forests" and subsequently the "city of wetlands." This evolution reflects a dynamic trajectory marked by ongoing efforts to integrate environmental sustainability into urban planning and development.

From the perspective of ecological civilization, urban forestry occupies a pivotal position within China's environmental discourse. While urban forestry, as understood in Europe, primarily focuses on sustainable development within urban areas, China's interpretation extends beyond city boundaries. The Chinese ethos emphasizes the harmonious coexistence of urban environments with the natural world, encapsulated in the principle of "keeping the wild 'wild' while ensuring liveable cities." Thus, while urban forestry plays a crucial role in promoting sustainability at the city level, ecological civilization advocates for a more comprehensive approach that encompasses both urban and non-urban landscapes.

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Crucially, the realization of ecological civilization requires coordinated action and guidance at the national level. While local initiatives, such as urban forestry, contribute significantly to environmental sustainability, a cohesive and integrated approach is essential to address broader ecological challenges. By aligning policies and priorities with the principles of ecological civilization, China can enhance its international visibility and leadership in climate change mitigation efforts.

5.4.2 Istanbul

Istanbul, situated at the confluence of Europe and Asia along the Bosporus Strait, stands as Turkey's most populous city with a resident population exceeding 15 million individuals, Istanbul accounts for approximately 19% of Turkey's total population.

The Istanbul Metropolitan Municipality (IMM) is subdivided into 39 district municipalities, constituting the second-tier local governance entities within the province. Each district municipality is governed by its own mayor and council, who are elected by the local electorate. IMM holds a pivotal role in the local administrative framework of Istanbul. Its jurisdiction extends across the entire provincial territory, covering a total area of 5.343 km². The IMM oversees 25 municipal enterprises, along with 2 subsidiary public utility corporations—the Transport Authority and Water & Sanitation Authority—and employs a workforce totalling 43.500 individuals. Its responsibilities span a diverse array of sectors, including but not limited to environment management, natural-gas distribution, energy provision, infrastructure development, urban planning, information technology (IT), transportation services, community welfare programs, vocational education initiatives, healthcare provision, catering services, cultural promotion, and tourism development.

The Parks and Recreation Department of the IMM, is divided in 5 departments (Green Areas and Facilities, European Parks, Anatolian Parks, Energy Management, Urban Ecosystems) and covers 2.436.560 square meters of forest land, 114.560.034 square meters of active green areas and 93.225.049 square meters of passive green areas (not enjoyable for leisure, mainly corridors between roads).

“Yesil Istanbul” (*Green Istanbul*)

In the context of Istanbul, a sprawling metropolis with a population of 16 million, ensuring the presence of sufficiently sized and well-maintained green areas is imperative to cater to the diverse needs of its inhabitants and visitors alike. The realization of a high-quality urban living experience in Istanbul hinges upon the effective integration of green spaces alongside its urban infrastructure.

Positioned as one of the foundational pillars underpinning the overarching vision of a Green, Fair, and Creative City Istanbul, the concept of *Green Istanbul,* created as a brand within the General Municipal Branding Strategy (2019), constitutes a central tenet within the mandate of the Department of Parks, Gardens, and Green Areas. This principle encompasses a spectrum of initiatives ranging from large-scale endeavours such as the establishment of Urban Forests, Valleys of Life, İSKİ Drinking Water Basins, and the Transformation of Mining Areas Projects, to medium-scale undertakings including the Identification and Evaluation of Potential Green Areas Project. Additionally, small-scale initiatives like the Green Street Movement projects are also undertaken. Furthermore, efforts directed towards the rehabilitation of existing green areas are underscored through projects aimed at the restoration of Existing Parks and the Detection and Rehabilitation of Diseased and Decayed Trees.

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Figure 15. The *Green Istanbul* branding in front of a Istanbul Metropolitan Municipality building (Copyright: Guillaume Berret, December 11th 2023)

Büyükdere Horticulture School: Gardener Training Programme

The "*Green Istanbul*" fosters gardeners training for the revitalization of urban green spaces. This project, based on an original idea of Atatürk, first president of the Republic of Turkey in 1923, has served as the catalyst for gardener training programmes implemented across various locations on both the European and Anatolian sides of Istanbul. Gardener training sessions, initiated in November 2021, are ongoing at the Haliç and Idealtepe training centers until the Büyükdere Nursery, designed to reflect its historical purpose, is fully operational.

The objective of the project is to promote the adoption of more sustainable practices in the maintenance and restoration of green spaces through gardener training programmes. Building upon the vision of Büyükdere Horticulture School for "practical gardening training," the project aims to reinitiate production activities and utilize plants cultivated in practical training areas within green spaces under the jurisdiction of the Istanbul Metropolitan Municipality (IMM). Additionally, the project endeavours to generate employment opportunities and raise public awareness regarding the importance of green spaces and environmental stewardship.

Atatürk Urban Forest

The Atatürk Urban Forest, located in the Çamlıtepe neighbourhood of Sarıyer district on the European side of Istanbul province, has a total area of 1.077.767,62 m² (110 hectares) and is owned and maintained by the Istanbul Metropolitan Municipality. Its central location, proximity to surrounding connections, and diverse and convenient transportation options make it easily accessible.

The “Atatürk Urban Forest” in Istanbul is a landscape project that balances nature preservation with meeting the city's recreational needs. It offers activities like sports, walking trails, and nature

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exploration without harming the environment. The project promotes eco-friendly practices, wildlife conservation, and community engagement. It protects nesting areas for birds and features stunning viewpoints and natural ponds. The forest covers 12 kilometres of walking paths and conservation zones for endemic species, providing ecological value and recreational opportunities. The management plan focuses on data mapping, sustainable methods, and community involvement. It addresses aspects like safety, cleanliness, environmental impact, biodiversity, and heritage conservation. This forest, originally dominated by deciduous trees, now has a significant portion of conifers due to afforestation efforts. It supports diverse flora and fauna, making it ecologically significant. Recognized in 2020 as one of the world's top 5 parks by World Urban Parks, it uses smart lighting to minimize light pollution and enhance the quality of life for both daytime and nighttime forest residents. Atatürk Urban Forest offers activities for all age groups, including recreational areas and awareness exhibitions about the environment and wildlife. Unlike other parks, picnicking is not allowed here to prevent waste generation and preserve the ecosystem. Children enjoy playgrounds, festivals, and "HOP (Pop-up playground)" events, while adults can take peaceful walks along the trails, around the pond, and on the observation terrace. There are also opportunities for sports and cultural activities in the festival area organized by the IMM.

Implementation

The ownership of the park falls under the responsibility of Istanbul Metropolitan Municipality (IMM), and maintenance, repair, and sustainability are coordinated by the Department of Parks and Recreations. Notably, the sustainability and continuity of the park's operations are managed by the "Urban Ecological Systems Directorate" which was established for the first time in Turkey in 2021. IMM subsidiary companies, namely ISTON Inc., Bogazici Management, and Agac Inc., collaborate with IMM in the maintenance, repair, and management of the park. Bogazici Management is responsible for management and operation matters, ISTON Inc. handles urban amenities, and Agac Inc. provides support for landscape maintenance. In addition, Istanbul Metropolitan Municipality, Bernard van Leer Foundation, URBAN95 project team, TESEV, Superpool, Play Istanbul Team, graphic designers, the Urban Ecosystems Directorate, and experts in the field of academics collaborate to design and execute educational and recreational programs for children and youth in the forest.

Figure 16. Educational kit for kids for the Atatürk Urban Forest (Copyright: Guillaume Berret, December 11th 2023)

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Financing and resources

The project is a collaborative effort involving various stakeholders and sources of financing and resources:

- Istanbul Metropolitan Municipality (IBB): IBB is the primary financial contributor, providing the main budget for the project.
- European Union (EU) Projects: the project benefits from funding and support from EU initiatives, which aim to enhance sustainability and urban development.
- Private Sector Sponsorships: various businesses and industries from the private sector have contributed financially to the project in exchange for branding opportunities and corporate social responsibility.
- Ministry of Environment and Urbanization: the Ministry plays a regulatory and oversight role in ensuring compliance with environmental and urban development standards.
- Tender Proceeds: funds generated from project tenders and contracts are reinvested into the development and maintenance of the area.
- Academic Institutions: local academic institutions provide expertise and research assistance in areas such as ecological conservation, environmental sustainability, and urban planning.
- Community and Non-Governmental Organizations (NGOs): local community groups and NGOs actively participate in the project, offering valuable input, organizing awareness campaigns, and contributing resources to support sustainable practices. The diverse set of stakeholders and financial resources involved highlights the collaborative nature of the project and its commitment to achieving long-term sustainability and environmental preservation.

Cost-effective urban ecosystem restoration, ecological rehabilitation and new planning approaches and methods

Cost-effective urban ecosystem restoration, ecological rehabilitation, and new planning approaches and methods at Atatürk Urban Forest include:

- **No chemicals used:** the forest ecosystem is maintained without the use of chemical pesticides. Chemicals are sparingly used in urgent cases when biological and mechanical control methods are ineffective.
- **No peat used:** the forest's natural soil structure eliminates the need for peat use, promoting the use of natural soils.
- **Adaptation Strategies for Climate Change:** the forest has a dense tree canopy, including species like pine, oak, and beech, which store a significant amount of carbon. Additionally, drought-resistant plants are planted to mitigate the effects of climate change. The forest's unique structure, with a high tree cover, contributes to cooling effects, especially during the summer. The presence of three reservoirs helps with water retention, and the forest's internal lighting design minimizes carbon footprint while avoiding disturbance to the ecosystem
- **Biodiversity, Landscape, and Heritage:** the forest manages natural features, wildlife, and flora collections. While the dominant trees were originally deciduous, reforestation efforts have introduced needle-leaved trees. The forest is home to a diverse range of tree species, both natural and planted. The area represents a transition zone between moist forests to the north of Istanbul and the shrublands on the hillsides of the Bosphorus. It hosts a rich flora, including rare and endemic plant species. The forest supports various animal species, including birds, insects, amphibians, reptiles, and mammals. Systematic studies are ongoing to identify and protect their habitats.

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- ***Main takeaways from the Istanbul visit***

Change management and institutional reform for the better management of UF-NBS.

- Comparison studies are conducted annually, both domestically and internationally, to identify institutions with successful practices for inclusion in the Comparison Report. These studies serve as a means for capacity development, technical visits, report generation, and field inspections. For instance, in 2022, IMM visited New York Central Park, resulting in the preparation of a comprehensive 'comparison report'. The primary objective of these studies is to strengthen areas requiring improvement within IMM, foster a culture of change management through innovative practices, implement process and performance enhancements, and ultimately, cultivate a culture of continuous learning within the organization. IMM's participation in the CLEARING HOUSE city tandem is a reflect of this strategy.
- The Green Flag program, an esteemed international initiative, recognizes and awards the world's best parks, with a focus on enhancing access to quality green spaces for all and promoting exemplary management practices. In 2021, IMM received the prestigious award for "Yıldız Grove" and "Göztepe 60th Year Park", both managed by the Istanbul Metropolitan Municipality's Parks and Green Recreation Areas Department.

Planning, policy and delivery

- The Parks and Green Recreation Areas Department has formulated a comprehensive 5-year "Strategic Plan" booklet, outlining various initiatives and projects. One of the key focus areas within this plan, categorized under "Large-Scale Projects," pertains to the development of "Urban Forests." Specifically, the strategic plan encompasses detailed project summaries, objectives, actions, and stakeholder engagement strategies. Field implementations and operational activities are formulated and executed in alignment with the overarching goals outlined in this strategic plan.
- The city of Istanbul has embarked on the "Istanbul Play" initiative. This initiative seeks to prioritize outdoor play within urban design, aiming to enhance the quality of life for city residents, with a particular emphasis on children. The overarching goal of the "Istanbul Play" initiative is to transform Istanbul into a "playable city." To achieve this objective, various activities and interventions, including the revitalization of play areas, are being implemented, with a specific focus on the Atatürk Urban Forest. These efforts are guided by the principles outlined in the Istanbul Play Master Plan, which emphasizes the importance of creating inclusive and engaging play opportunities for children and youth within the urban landscape.
- IMM promotes planning and management of both active and passive green spaces through a comprehensive, city-wide evaluation and planning strategy. Department of Parks and Recreation of IMM has a 5 years strategic plan in place, latest one being 2019-2023, encompassing detailed delineation of green areas, their intended functions, effectiveness, and other pertinent characteristics such as incorporation of social participation mechanism. Within this plan, a great focus is given to "Urban Forests" under the heading of "Large Scale Projects".
- Istanbul Metropolitan Municipality places a lot of emphasis on social participation for green areas through a dual focus on both revitalizing and optimizing existing green spaces, as well as developing specially tailored areas to cater to the diverse needs of urban residents spanning various age groups and socio-economic backgrounds, including infants, the elderly, individuals with disabilities, and the homeless population.

  The overarching objective is to meticulously identify green areas and parks in a manner that fosters a sense of ownership and connection among citizens. This concerted effort aims to not only instil a strong sense of identity as Istanbulites but also to cultivate a deep-rooted sense of belonging to

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the city. Central to this endeavour is the transformation of green spaces and parks from mere visitation sites into vibrant hubs conducive to social interaction and conducive to a wide array of educational and recreational activities. Moreover, in alignment with sustainability principles, the project incorporates comprehensive energy and water management strategies at every stage of planning to ensure long-term environmental stewardship.

- IMM has a General Municipal Branding Strategy (2019) in which the brand “Yesil Istanbul” (*Green Istanbul*) is an active part. Branding green infrastructures’ policies and management has allowed for a greater outreach to the citizens, as well as fostering a sense of community and appropriation by Istanbulites.

6 Future outlook

The Knowledge Exchange activities reported above have led to several further planned or expired activities:

- Mexico City and Belo Horizonte have been exploring further knowledge exchanges and exchange visits in the future, including larger delegations then we could accommodate under the CLEARING HOUSE project
- All the involved cities have been invited to participate in the concluding conference of CLEARING HOUSE in Brussels (November 2023), Belo Horizonte and Mexico city have sent a representative that shared their experiences with the conference delegates.
- The knowledge exchange visits illustrated the need for such activities, strengthening the case for a Knowledge Exchange Mechanism under the upcoming **Nature-based Solutions Community of Practice** (CoP) coordinated by Metropolis. Lessons learned during the CLEARING HOUSE exchanges contribute to improving the setup of the CoP.
- Following the exchanges, Haikou City and Mexico City are in contact with IUCN to implement the Urban Nature Indexes.

CONCLUSION

This report provides a comprehensive overview of the knowledge exchange mechanism of the CLEARING HOUSE project, focusing on urban forests as nature-based solutions (UF-NBS). It explores the project's learning architecture mechanism, including city exchanges, city tandems, and task force sessions.

The inaugural City Tandem involved Mexico City and Belo Horizonte, Brazil, addressing inner-city afforestation and green infrastructure challenges. Belo Horizonte showcased initiatives like the "Mini Forests" program, while Mexico City highlighted the "Bosque San Juan de Aragón" project.

The first task force in Bogotá, Colombia, focused on reviewing Bogotá's Urban Forestry Policy and Implementation Plan. The second task force in Braga, Portugal, maintenance and governance aspects of urban trees was examined.

Despite structural challenges, the second city tandem between Istanbul, Turkey, and Haikou, China, focused on green infrastructure projects for recreational use.

Recommendations stemming from those exchanges include dredging park waters, using green manure, collecting seeds from native species, enhancing environmental education, and designing landscape landmarks.

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Key insights from the exchange sessions include fostering community initiatives, addressing soil improvement and food sovereignty, managing water bodies, caring for native flora and fauna, implementing green infrastructure laws, and planning future exchanges.

Highlights from the cities participating in the knowledge exchange mechanism included the following: Bogotá benefits from a favorable legal framework but faces challenges like urban tensions. Braga focuses on collaborative initiatives but grapples with forest fires and invasive species. Haikou prioritizes ecological preservation and sustainable development, backed by robust legal frameworks and community engagement. Istanbul Metropolitan Municipality's initiatives encompass change management, planning, policy, and delivery, emphasizing social participation and sustainability principles. The "Yesil Istanbul" branding strategy enhances citizen outreach and fosters community engagement in green infrastructure management. Mexico City is piloting a “circular bioeconomy’ approach: combining circular economy with greening the city. Belo Horizonte, finally, focusses on urban agroforestry – combining food provisioning and giving meaning to abandoned spaces with increasing the green cover and access to green spaces in the city.

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ANNEX I: SELECTION CRITERIA FORM 1st Call

GENERAL INFORMATION

Post Date: 3 March 2022	**Closing Date:** 11 May 2022	**Title:** CLEARING HOUSE knowledge exchange mechanism

About the City Tandem

The global objective of the City Tandem is to promote capacity development and exchange of knowledge and practices in urban forests as nature-based solutions (UF-NBS), based on peer-to-peer exchanges. Local authorities (cities, metropolises, or regions) wishing to exchange with another local administration facing similar challenges in planning and managing urban forests are encouraged to apply to take part in a CLEARING HOUSE-supported City Tandem.

About the Task Force

The global objective of the Task Force is to offer the opportunity to a selected local authority to receive scientific support regarding UF-NBS challenges from the CLEARING HOUSE experts' partners. This support will include a review of the challenge stated, research for gaining more in-depth insight into the challenge in the specific territory of the local authority, and an action plan for implementing the suggested solutions.

EVALUATION CRITERIA

Nº	Specific criteria	
1	Level of political commitment to UF-NBS	0 to 5 pts
2	UF-NBS policies implemented by the local authority	0 to 5 pts
3	Experience with UF-NBS projects (past, present or future)	0 to 5 pts
4	Involvement of the local authority in another H2020/EU project tackling UF-NBS or other nature-based solutions	0 to 3 pts
5	Strength of compliance of the UF-NBS to the Global Standard for NBS	0 to 3 pts
6	Topic submitted matches to the one of a potential city partner	0 to 2 pts
7	Contribution of submitted UF-NBS project/s to the accomplishment of goals established by the global agendas	0 to 2 pts
	Total maximum points	**25**

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GENERAL INFORMATION FOR THE EVALUATION PROCESS

- Each member of the evaluation panel will fill out one form;
- Each specific criterion needs to be scored at its discretion, but the sum of all these criteria must not exceed the maximum of 25 points.
- Each criterion has an evaluation scale from cero (0) to a maximum of five (5) points, according to the specific criteria.
- To help the process and identify the possible points to be allocated, there will be an evaluation table for each application received that allows a full evaluation of each of the criteria described above.
- Once the analysis and evaluations process end it will be needed to score each application received according to the below scores' description;
- There are two score tables, one for the City Tandem and one for the Task force.
- The jury will meet to deliberate on the final ranking and selection.

	Criteria 1 to 3	Criteria 4 & 5	Criteria 6 & 7
5 Points	The proposal evidences strong political support for UF-NBS; UF-NBS policies/programs can clearly be identified, information is available on funding/budgets. In addition, projects/programs are implemented and included in actual/future urban development plans of the local administration	N/A	N/A
4 points	The proposal evidences political support for the UF-NBS; UF-NBS policies/programs can clearly be identified but information is missing on funding/budgets. In addition, the projects are somehow linked to actual/future urban development plans of the local administration but information gives a partial understanding of the link between those.	N/A	N/A

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3 points	The proposal shows some political support for UF-NBS; UF-NBS policies/programs are listed but information is lacking. Projects/programs implemented are not necessarily linked to actual/future urban development plans of the local administration	The proposal shows a strong involvement of local authorities on another H2020/EU projects related to UF-NBS initiatives either as coordinator of a project or partner, as well as a strong level of commitment to the compliance of the UF-NBS to the Global Standard for NBS;	N/A
2 points	The proposal shows low political support for the UF-NBS; UF-NBS policies/programs are not necessarily implemented. Some projects are implemented and included in actual/future urban development plans of the local administration;	The proposal shows involvement of the local authorities on another H2020/EU projects related to UF-NBS initiatives as a partner, as well as commitment to the compliance of the UF-NBS to the Global Standard for NBS;	The information and documents provided show matches to one or several of the potential city partners and clearly demonstrate how the UF-NBS projects/programs implemented by the local administration are linked to the accomplishment of goals of the global agendas.
1 point	The proposal shows low political support for the UF-NBS; UF-NBS policies/programs are not under implementation. In addition, the are no projects implemented or included in the actual/future urban development plans of the local administration;	The proposal shows little or low involvement of local authorities on other H2020/EU projects related to UF-NBS initiatives. Also, show a low commitment to the compliance of the UF-NBS to the Global Standard for NBS.	The information and documents provided show a potential match to one of the potential city partners and shows partially how the UF-NBS projects/programs implemented by the local administration are linked to the accomplishment of goals of the global agendas.
0 point	It was not possible to identify political support for the UF-NBS; UF-NBS policies or programs are not implemented. No information available on UF-NBS involvement in the actual/future urban development plans of the local administration.	The proposal does not show involvement of local authorities in other H2020/EU projects related to UF-NBS initiatives. Also, the proposal does not show a commitment to the compliance of the UF-NBS to the Global Standard for NBS.	The information and documents provided do not show any match to one of the potential city partners. There is a lack of information about how the UF-NBS projects/programs implemented by the local administration are linked to the accomplishment of goals of the global agendas.

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ANNEX II: AGENDA OF THE MEXICO CITY VISIT AS PART OF THE CITY TANDEM №1

"Dialogue of metropolitan areas on green infrastructures: overcoming challenges and boosting benefits" and "H2020 Clearing House" WORK AGENDA MEXICO CITY			
TIME (CDMX)	**ACTIVITY**	**PLACE**	**PARTICIPANTS**
Day 0 (Tuesday March 21, 2023)			
Airport to hotel transfer (suggested hotel at Historic Center, Mexico City)			
Day 1: North of Mexico City (Wednesday March 22, 2023)			
8:00 Departure from the hotel			
9:00 – 10:00	Welcoming speech	Location: Plaza de la Constitución 1, Colonia Centro Cuauhtémoc, 06000 Ciudad de México CDMX https://goo.gl/maps/xUpACNX6oio56roe8	1-2 representatives of Aburrá Valley Metropolitan Area 1-2 representatives from Barcelona Metropolitan Area 2 representatives from Belo Horizonte 1 Clearing House representative 1 Metropolis representative 2 CGAAI representatives SEDEMA representatives
10:00– 11:00	Introductory presentations		
12:00 – 14:00	Visit to San Juan de Aragón Forest (lake)	Location: Av. José Loreto Fabela, Zoológico de San Juan de Aragón, Gustavo A. Madero, 07920 Ciudad de México, CDMX https://goo.gl/maps/YJ83GQWYqmA2nDHP7	
14:00 – 15:30	Lunch		
15:30 -17:30	Workshop		
18:00 Return to hotel			
Day 2: East of Mexico City (Thursday March 23, 2023)			
8:00 Departure from the hotel			
09:00 - 12:30	Visit to Cuitláhuac Park (Park, farm, wetland, materials treatment plant)	Location: Av 8, Renovación, Iztapalapa, 09209 Ciudad de México, CDMX https://goo.gl/maps/rA6WU1JKcT4mc5to9	1-2 representatives of Aburrá Valley Metropolitan Area 1-2 representatives from Barcelona Metropolitan Area 2 representatives from Belo Horizonte 1 Clearing House representative 1 Metropolis representative
12:30- 14:00	Lunch (Mercado Quetzalcoatl)	Location: Esquina Camino a Las Minas (Palmas, Av. Guanábana, Xalpa, 09640 Ciudad de México https://goo.gl/maps/ikTQW29EGkqEyRfS7	

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14:00-15:30	Route in Cablebus L2	Location: Location: Esquina Camino a Las Minas (Palmas, Av. Guanábana, Xalpa, 09640 Ciudad de México https://goo.gl/maps/ikTQW29EGkqEyRfS7	2 CGAAI representatives SEDEMA representatives
15:30 - 17:30	Workshop	Location: Av. Camino a las Minas MZ9 LTSN, Lomas de la Estancia, Iztapalapa, 09640 Ciudad de México, CDMX https://goo.gl/maps/UeQYCjH3QahYT9yZ6	
18:00 Return to hotel			
Day 3: South of Mexico City (Friday March 24, 2023)			
8:00 Departure from the hotel			
9:00 – 12:00	Visit to Canal Nacional	Location: *Canal Nacional, Coyoacán, 04260 Ciudad de México, CDMX*	1-2 representatives of Aburrá Valley Metropolitan Area 1-2 representatives from Barcelona Metropolitan Area 2 representatives from Belo Horizonte 1 Clearing House representative 1 Metropolis representative 2 CGAAI representatives SEDEMA representatives
12:15 – 13:15	Visit to Xochimilco Ecological Park and Chinampa Xóchitl Museum	Location: Periférico Oriente S/N, Colonia Ciénega Grande, Alcaldía Xochimilco https://goo.gl/maps/RjrzxtbM82egyfzD6	
13:15 – 15:00	Workshop and debriefing session		
15:00 - 15:15	Closing statement		
15:45-17:45	Trajinera tour, lunch in a chinampa		
18:30 Return to hotel			
Day 4 (Saturday March 25, 2023)			
Airport transfer for the second part of the technical visit in Belo Horizonte			

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ANNEX III: AGENDA OF THE BELO HORIZONTE CITY VISIT AS PART OF THE CITY TANDEM Nº1

Day 1: Northest Area of Belo Horizonte (Monday March 27, 2023) 07:50 all the guests gathered in the hotel lobby *Dresscode: comfortable clothes for hot weather			
8:00 Departure from the hotel			
9:00 - 10:30	Visit to Parque Nossa Senhora da Piedade	Location: Rua Rubens de Souza Pimentel, 750 Aarão Reis https://goo.gl/maps/TpFnVHCYt17Bds4s7	• Valder Vladimir Pliego del Ángel - MEX • Carmen Yenitzia Chávez Carpio - MEX • Bernardo Silva de Oliveira - BH • Dany Silvio Souza Leite - BH • Rik de Vress - EFI • Guillaume Berret - Metrópolis • Sônia Knauer - BH • Carolina Rocha - BH • Regilane Alves – SMMA – BH • Ursula Caputo – DGAU – BH
11:00 – 13:00	Visit to Agroforest Tudo Saudável Jardim Vitória	Location: Rua Terracota, 80 – Jardim Vitória; https://goo.gl/maps/2K1zWib1irUkv3gj6	• Valder Vladimir Pliego del Ángel - MEX • Carmen Yenitzia Chávez Carpio - MEX • Bernardo Silva de Oliveira - BH • Dany Silvio Souza Leite - BH • Rik de Vress - EFI • Guillaume Berret – Metrópolis • Carolina Rocha - BH • Sônia Knauer - BH • Ediglenia Lopes – SUSAN
13:00-14:30	Lunch Guided gastronomic tour at Mercado Central de Belo horizonte	Location: Av. Augusto de Lima, 744 - Centro https://goo.gl/maps/swNKFrgD9j47yxUc9	
15:00 – 18:00	Workshop	Location: Avenida Afonso Pena, 1212, Centro - City Hall https://goo.gl/maps/1kW35dWhbGQPgGK67	2 representatives from: • Mexico City • Clearing House representatives • Metropolis representatives • DIRI/PBH representatives • SMMA representatives
18:00 Return to hotel			

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ANNEX IV: AGENDA OF THE VISIT: TASK FORCE Nº1 IN BOGOTÁ, COLOMBIA

Dia 1 (jueves 30 de marzo de 2023)				
Foro de intercambio de experiencias para el manejo e implementación de bosques urbano				
Hora	**Actividad específica**	**Lugar**	**Responsable**	
08:00 - 08:15	**Llegada de los asistentes**	**Secretaría Distrital de Ambiente Auditorio segundo piso**	Todos	
08:15 – 08:30	**Bienvenida por parte de la Secretaría Distrital de Ambiente**		Secretaría Distrital de Ambiente	**Natalia María Ramírez Martín** Subdirectora de Ecosistemas Ruralidad
08:30 – 09:00	**Presentación del proyectos CLEARING HOUSE and INTERLACE**		World Association of the Major Metropolises	**Natalia Burgos** **Rik De Vreese** Expertos internacionales
09:00 -09:30	**Presentación Decreto 555 /2021, Plan de Ordenamiento Territorial de Bogotá**		Secretaría Distrital de Planeación	**Alfonso Eduardo Pinaud Velas**
09:30 -09:45	**Espacio de preguntas**		Todos	
09:45 – 10:15	**Resolución 5531 de 2022 "Por medio de la cual se establecen los lineamientos para la implementación de los Bosques Urbanos en el Distrito Capital" y contexto ejercicios piloto Brazo Salitre y Santa Helena.**		Secretaría Distrital de Ambiente	**Alexander Ibagon Montes** Subdirección de Ecosistemas Ruralidad – Secretaría Distrital Ambiente
10:15 – 10:30	**Espacio de preguntas**		Todos	
10:30 – 10:45	**Break**			
10:45 – 12:30	**Presentación experiencias internacionales de implementación de bosques urbanos**		World Association of the Major Metropolises	**Natalia Burgos** **Rik De Vreese** Expertos internacionales
12:30 - 14:00	**ALMUERZO**		**Por definir**	
14:00 – 16:00	**Recorrido Reserva Distrital de Humedal Santa María del Lago**		Lidera Subdirección de Ecosistemas y Ruralidad Oficina de Participación y Localidades – Secretari Distrital de Ambiente	

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Dia 2 (viernes 31 de marzo de 2023)				
Hora	**Actividad marco**	**Actividad específica**	**Lugar**	**Responsable**
08:00 – 09:00	**Desplazamiento hasta el Bosque de Santa Helena**			
09:00 – 10:30	**Visita de campo a comunidad con enfoque de estrategias de apropiación social de bosques urbanos**	**Recorrido Bosque urbano Santa Helena**	Bosque urbano Santa Helena	Coordina Secretaría Distrital de Ambiente Participa: Comunidad
10:30 – 11:30		**Intercambio de experiencias con la comunidad que ha trabajado por la recuperación y conservación del área Bosque urbano Santa Helena**	Bosque urbano Santa Helena	
11:30 – 13:00	**Almuerzo**			
13:00 – 13:30	**Desplazamiento al Bosque Urbano Brazo Salitre**			
13:30 – 15:00	**Visita de campo a comunidad con enfoque de estrategias de apropiación social de bosques urbanos**	**Recorrido Bosque urbano Brazo Salitre**	Bosque urbano Brazo Salitre	Coordina Secretaría Distrital de Ambiente Participa: Comunidad
15:00 – 16:00		**Intercambio de experiencias con la comunidad que ha trabajado por la recuperación y conservación del área Bosque urbano Brazo Salitre**	Bosque urbano Brazo Salitre – Propuesta huerta comunitaria	
16:00 – 17:00	**Retroalimentación/taller del día uno – dudas, comentarios**		POR DEFINIR	Coordina Secretaría Distrital de Ambiente
Cierre de actividad				

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ANNEX V: AGENDA OF THE VISIT: TASK FORCE Nº2 IN BRAGA, PORTUGAL

CLEARING HOUSE Task Force 2 **26 - 28 June 2023 - Braga, Portugal - Timings in Portugal**	
Monday 26th June	
09:00-12:00	**Arrival of delegates**
12:00-TBA	**Lunch**
14:00 - 17:30	**Activity 1 – Meeting – Projects done in Braga** Florestar and Oxigenar Braga, microforests, Picoto Park, involvement of enterprises with the adoption of forest plots in Picoto Park, tree plantations associated with the 2017 forest fire, control of invasive plants, Este River rehabilitation project and riparian forests. Location: room in Braga Pedagogical Farm
19:30 - 20:00	**Dinner**
Tuesday 27th June	
9:00 - 12:30	**Activity 2 - Field Visits** Locations: Mosteiro de S. Martinho de Tibães (autochthonous forest) and tree plantations associated with the 2017 forest fires, municipal nursery
12:30 - 14:00	**Lunch**
14:00 - 17:30	**Activity 3 – Field Visit** Location: Picoto Park, microforest in Braga, riparian forest in Este River and Bom Jesus Forest (UNESCO heritage); Camélias Park – laboratory for climate change adaptation strategy
19:00 - 21:00	**Dinner**
Tuesday 28th June	
9:00 - 12:30	**Activity 4 – Meeting - conclusion** Location: Office in Braga City Hall
12:30 - 14:00	**Lunch**
14:00-	**Transfer to Porto**

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ANNEX VI: AGENDA OF THE VISIT: CITY TANDEM Nº2, HAIKOU, CHINA

Urban Forests as Nature Based Solutions - City Tandem nº2 - CLEARING HOUSE
5th to 13th December 2023 / Haikou, Hainan Province - Istanbul Metropolitan Municipality

	Day 1 **Tuesday, December 5th 2023**	**Day 2** **Wednesday, December 6th 2023** **Haikou, Hainan Province**	**Day 3** **Thursday, December 7th 2023** **Haikou, Hainan Province**	**Day 4** **Friday, December 8th 2023** **Haikou, Hainan Province**
Morning Sessions (9h30 - 12h)	Arrival in Haikou for delegates from Istanbul & CLEARING HOUSE	*Opening and Presentation of the CLEARING HOUSE project * City Tandem Introduction Session * Presentation of the Haikou Municipal People's Government & Haikou Forestry Bureau	Presentation & Discussion of Haikou Forestry Bureau project on Urban Forest in Haikou * Presentation & Discussion of Haikou Volcanic Cluster Global Geopark	* Presentation & Discussion of Dongzhaigang Mangrove Wetland (Ramsar Site) * Technical Visit Dongzhaigang Mangrove Wetland
Lunch (12h to 13h30)		Lunch[1]		
Afternoon Sessions (14h to 18h)		* Presentation & Discussion of Wuyuan River National Wetland Park (14h to 15h30)	* Technical Visit project on Haikou Volcanic Cluster Global Geopark (14h to 16h)	
		* Technical Visit Wuyuan River National Wetland Park (15h30 to 18h)	* Cultural Visit in Haikou[2]: Qilou Old Street, Thean Hou Temple, Wormhole Library (16h to 18h)	Departure to Istanbul – Haikou airport at 16h()
Dinner (19h30)		Welcoming Dinner[3]	Free Dinner	

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ANNEX VII: AGENDA OF THE VISIT: CITY TANDEM Nº2, ISTANBUL, TURKEY

	Day 5 Saturday, December 9th 2023	Day 6 Sunday, December 10th 2023	Day 7 Monday, December 11th 2023 Istanbul Metropolitan Municipality	Day 8 Tuesday, December 12th 2023 Istanbul Metropolitan Municipality	Day 9 Wednesday, December 13th 2023 Istanbul Metropolitan Municipality
Morning Sessions (9h30 - 12h)	Arrival in Istanbul for delegates from Istanbul & CLEARING HOUSE	Arrival in Istanbul for delegates from Haikou / Rest Day	* Wrap Up Session from the Haikou Workshops (Rik de Vreese – EFI) * Presentation of the Istanbul Metropolitan Municipality * Presentation of the Department of Parks and Recreation	* Presentation & Discussion of Yıldız Grove	* Presentation & Discussion of Çamlıca Grove
Lunch (12h to 13h30)			Lunch[4]		
Afternoon Sessions (14h to 18h)			* Presentation & Discussion on Atatürk Urban Forest (14h to 16h)	Technical Visit of Yıldız Grove (14h to 16h)	Technical Visit of Çamlıca Grove (14h to 15h) Wrap Up Session (16h to 17h) (Rik de Vreese - EFI)
			Technical Visit of Atatürk Urban Forest (16h to 18h)	Cultural Visit in Istanbul[5] Sultanahmet, Hagia Sophia, Basilica Cistern (16h to 18h)	Departure to Haikou/Brussels/Barcelona (*if flights allow, otherwise on Thursday*) (20h)
Dinner (19h30)			Welcoming Dinner[6]	Free Dinner	

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