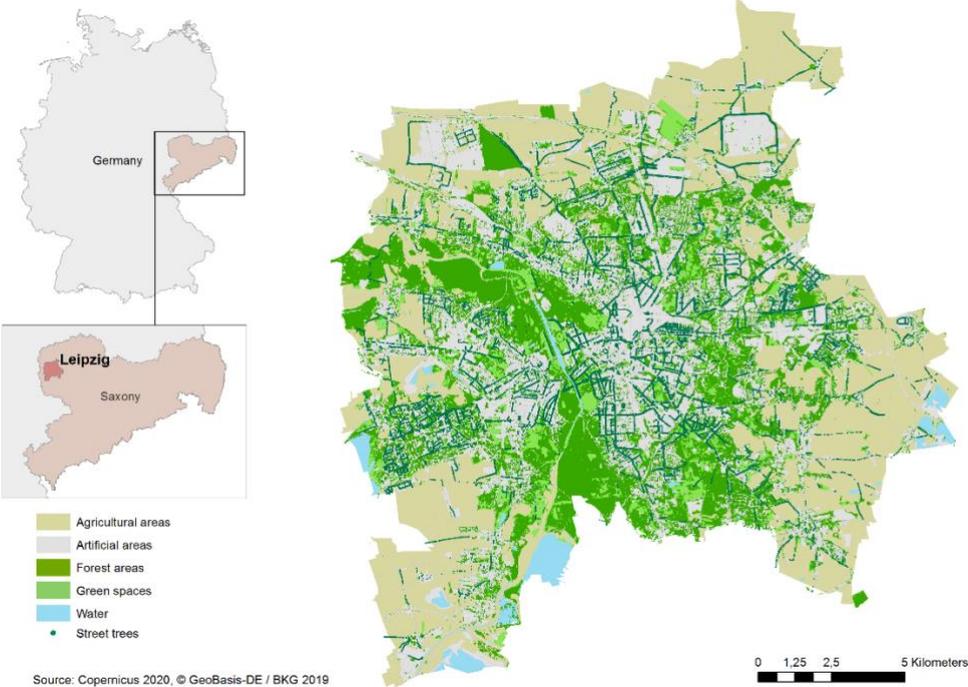


## PROGRAMME “BAUMSTARKE STADT” - LEIPZIG, GERMANY

Authors: Manuel Wolff, Dagmar Haase, Sebastian Scheuer

<p>Section</p>	 <p>CLEARINGHOUSE 中欧城市森林应对方案</p> <p><i>This project has received funding from the European Union’s Horizon 2020 research and innovation Programme under grant agreement No 821242</i></p>
<p>1</p>	<p><b>TITLE OF CASE STUDY AREA:</b> “Baumstarke Stadt” LEIPZIG, Germany</p>
<p>2</p>	<p><b>INTRODUCTION</b></p> <p>In 1996, Leipzig launched the fundraising campaign "Baumstarke Stadt" as a political instrument. The project has two goals: On the one hand, the money is used for the planting of new trees. On the other hand, the city seeks to establish a long-term engagement of citizens with the city greenery. A location for the plantations is determined by the Office for City Greenery and Water. The Office is also responsible for the implementation of the planting. The donor can currently choose the tree species from a current planting catalogue. Those who also take on a sponsorship can choose a sponsored tree between these specified locations and young trees that have already been planted. The city takes care of the sponsored trees. But it needs to be questioned how sustainable the plantings of new city trees in Leipzig is planned and implemented, and which ecological, the social and the economic challenges are related to this Programme.</p>
<p>3</p>	<p><b>KEY FACTS AND FIGURES OF THE CASE STUDY AREA</b></p> <p><b>Biogeographic region<sup>1</sup>:</b> Continental</p> <p><b>Surface area:</b> 297 km<sup>2</sup> (city area), 56,737 planted roadside trees (status 2016) and a potential of another 45,000 possible road tree locations (Office for Urban Greenery and Water Leipzig, 2019)</p> <p><b>Country:</b> Germany</p> <p><b>Region/Province:</b> Saxony</p>
<p>4</p>	<p><b>LOCATION MAP(S) Location of the study area – Leipzig, Germany</b></p>  <p>Legend:</p> <ul style="list-style-type: none"> <li>Agricultural areas</li> <li>Artificial areas</li> <li>Forest areas</li> <li>Green spaces</li> <li>Water</li> <li>Street trees</li> </ul> <p>Source: Copernicus 2020, © GeoBasis-DE / BKG 2019</p>

<sup>1</sup> <https://www.eea.europa.eu/data-and-maps/data/biogeographical-regions-europe-3>



5	<b>NAME OF MUNICIPALITY AND WEBSITE ADDRESS</b> City of Leipzig: <a href="https://www.leipzig.de/">https://www.leipzig.de/</a> Programme "Baumstarke Stadt": <a href="https://www.leipzig.de/freizeit-kultur-und-tourismus/parks-waelder-und-friedhoefe/spenden-und-patenschaften/baumstarke-stadt/">https://www.leipzig.de/freizeit-kultur-und-tourismus/parks-waelder-und-friedhoefe/spenden-und-patenschaften/baumstarke-stadt/</a>							
6	<b>LEAD ORGANISATIONS:</b> City of Leipzig Sebastian Fried Programme Coordinator, Amt für Stadtgrün und Gewässer City of Leipzig, Germany Tel: + 49 (0)341 123-6146 stadtgruen.gewaesser@leipzig.de							
7	<b>LOCAL CONTACT(S)</b> Dagmar Haase (dagmar.haase@hu-berlin.de, dagmar.haase@ufz.de) Manuel Wolff (manuel.wolff@hu-berlin.de, manuel.wolff@ufz.de)  Humboldt-Universität zu Berlin Department of Geography / Lab of Landscape Ecology Unter den Linden 6 / 10099 Berlin / Germany  Helmholtz-Centre for Environmental Research – UFZ Permoserstrasse 15 / 04318 Leipzig / Germany							
8	<b>PRINCIPLE UF-NBS (Urban Forests as Nature-Based Solutions) ACTION(S)</b> <ul style="list-style-type: none"> <li>• Street tree plantations</li> <li>• Ecological corridors to overcome barriers that prevent ecological connectivity</li> <li>• Annual implementation of new plants/trees</li> <li>• Provide shadow and thus contribute to cooling corridor pedestrians can use and what improves the adjacent living conditions</li> </ul>							
9	<b>OTHER PRINCIPLE NBS ACTION(S) – non-UF</b> <ul style="list-style-type: none"> <li>• Encourage engagement of citizens with local green and green initiatives</li> <li>• Sponsorship provides additional budget for maintenance e.g. due to heat and climate change adaptation</li> </ul>							
10	<b>LOCAL STAKEHOLDERS LIST ONLY</b> 1. <b>Governing authorities:</b> The City of Leipzig 2. <b>Associations:</b> Ökolöwe Leipzig, BUND Leipzig, Initiative Georg-Schumann-Straße, StadtLabor, NABU 3. <b>Citizens:</b> Volunteer sponsors, residents form neighbourhood, volunteers within the frame of the "volunteer ecological year" 4. <b>Municipalities:</b> Municipality of Leipzig 5. <b>Public/private institutions:</b> Office for urban greenery and waters of the City of Leipzig; Department for Environmental Protection of the City of Leipzig; Urban planning office of the City of Leipzig; Department of roads and civil engineering of the City of Leipzig; Private sponsoring companies 6. <b>Park planner and authorities:</b> The City of Leipzig, Office for urban greenery and waters 7. <b>Technicians for park maintenance/monitoring and to educate and support citizens:</b> Office for urban greenery and waters; Department for Environmental Protection; Urban planning office; Department of roads and civil engineering							
11	<b>UF-NBS FRAMEWORK</b> <table border="1" data-bbox="159 1809 1484 2128"> <tr> <td data-bbox="159 1809 220 2011">a.</td> <td data-bbox="220 1809 837 2011"> <b>UF-NBS typology</b> </td> <td data-bbox="837 1809 1484 2011">           Tree rows, single trees, tree and forest plantations, choice of plants (i.e., indigenous tree species, non-indigenous ornamental tree and plant species)             Trees in public parks, along streets and on squares, on cemeteries         </td> </tr> <tr> <td data-bbox="159 2011 220 2128">b.</td> <td data-bbox="220 2011 837 2128"> <b>Integration</b> </td> <td data-bbox="837 2011 1484 2128">           Built-up structure (accompanying buildings); Transport infrastructure (in particular along streets and on squares), Water management system (e.g., watering of street trees and newly planted trees)         </td> </tr> </table>		a.	<b>UF-NBS typology</b>	Tree rows, single trees, tree and forest plantations, choice of plants (i.e., indigenous tree species, non-indigenous ornamental tree and plant species)  Trees in public parks, along streets and on squares, on cemeteries	b.	<b>Integration</b>	Built-up structure (accompanying buildings); Transport infrastructure (in particular along streets and on squares), Water management system (e.g., watering of street trees and newly planted trees)
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c.	<b>Network/connectivity</b>	<p>The location for the plantations is determined by Planning Office. Sponsors can choose between these specified locations and already planted young trees. The city provides a web-based public list of planned plantations of trees indicating street name, house number and time of planting. This list corresponds to the planting Programme of the City of Leipzig for the current and previous year. The city suggests concrete individual locations that best meet the requirements of interested parties in a mutual agreement. By providing the necessary resources, the stock of street trees can not only be maintained, but also specifically developed and extended. New plantings of trees are particularly focussed on previously treeless streets, especially in the densely populated urban districts, but also on district connecting roads. In this vein, street trees are an integral part of a connected green network for the sustainable City of Leipzig.</p>
d.	<b>Multifunctionality</b>	<p>Multiple functions are combined with trees with regulating services (carbon sequestration; regulation of micro, local and/or regional climate; shadow; maintenance of air quality; reduction of odour, noise, visual disturbances), supporting functions (habitats and biodiversity for animal and plant species), cultural functions (recreational value, aesthetic pleasure; sense of place, inspiration)</p>
e.	<b>Multi-scale</b>	<p>The long-term nature of the Programme (since 1996) is a success factor also in times of tight budgets. The continuity of the Programme allows its implementation within a strategic framework for action up to the year 2030 taking into account the objectives of the sustainably growing city formulated in the Integrated Urban Development Concept (INSEK) 2030 and the open space strategy of the City of Leipzig. The future depends on the common will of politicians, administration and citizens to carry out such a tree planting Programme together, because it is all about the money. Maintaining the long-term character of the Programme (e.g. maintain continuous contact with long-standing sponsors and interested parties) is challenging. The support of interested parties, donors and tree sponsors including consultation and documentation is realized with the support of staff from the employment promotion (Arbeitsförderung) and, in the future, maybe by the Federal Voluntary Service. In the future the Programme might be extended towards surrounding municipalities. But other than that, this Programme has no direct multi-scale character.</p>
f.	<b>Strategic planning processes</b>	<p>The Programme "Baumstarke Stadt" is an integral part of the street tree concept Leipzig 2030 designed as an interdepartmental and interagency process under the leadership of the Office of Urban Greenery and Water Management. For the first time, this concept sets out a strategic framework for action up to 2030 that is geared to the development of the entire urban street tree stock and, with its guidelines and priorities for action, takes account of the objectives of the sustainably growing city formulated in the Integrated Urban Development Concept (INSEK) 2030 and the City of Leipzig's open</p>



			<p>space strategy. The expansion of the street tree stock - as an essential component of the urban green infrastructure - makes an important contribution to the implementation of the Clean Air Plan and the Urban Development Plan for Transport and Public Space as well as to adaptation to climate change. The street tree concept Leipzig 2030 was approved by the City Council on 27 June 2019.</p>
<b>g.</b>	<b>Inter- and transdisciplinary</b>		<p>The street tree concept Leipzig 2030 was developed by a working group involving all relevant actors from the city administration and municipal companies (e.g. cleaning company). At the same time, citizens were able to actively contribute to the planning in an extensive participation and coordination process. Thus, different interests with regard to street trees were bundled, which finally resulted in a coordinated, comprehensible and implementation-oriented action instrument. Information about the Programme "Baumstarke Stadt" is publicly available to interested citizens accompanied special offers for various anniversaries, press releases and a leaflets.</p>
<b>h.</b>	<b>Social cohesion and biocultural diversity</b>		<p>The sponsored tree is maintained by the City, but the sponsor can provide additional support, e.g. by watering the trees extensively in dry periods, keeping the tree disc free from weeds, loosening the soil surface of the tree disc (if not overgrown) to aerate the soil, checking the attachment of the tree-supporting post, cleaning the tree disc of debris such as paper etc., or simply informing the department of urban greenery in case of larger waste deposits, damage to the tree or its holding device etc. This all contributes to identification of residents with their "green city". In fact, for many citizens the signs at the trees have emerged as the most important thing. The first part of the sign inscription indicates the name of the tree species, the second part the name and dedication by the sponsor. Consequently, the trees are given a designation for the sponsor or pedestrians in terms of being a memorial or for inspiration. Others than that, there is an increasing problem awareness of direct climate change impacts e.g. in case of dry trees – so people see the need to take responsibility which then fosters social cohesion, supported by the city.</p>
<b>i.</b>	<b>Governance arrangements</b>	<b>I. Project management structure.</b>	<p>Programme coordinator: Amt für Stadtgrün und Gewässer (Office for City Greenery and Water) of the City of Leipzig. As in particular streets trees also influence other planning sectors such as built-up structure (accompanying buildings), transport infrastructure (in particular along streets and on squares), water management system (e.g., watering of street trees and newly planted trees) there is cooperation with the Department for Environmental Protection, the Urban planning office, and the department of roads and civil engineering.</p>
		<b>II. Local community engagement and the nature of their engagement.</b>	<p>The Programme offers sponsorships for urban trees within the responsibility of the city authority. The donor can choose an already planted young tree or a tree which is intended to be planted on one of these specified locations. The sponsored tree is maintained by</p>



			<p>the City, but the sponsor can provide additional support, e.g. by watering the trees extensively in dry periods, keeping the tree disc free from weeds, loosening the soil surface of the tree disc (if not overgrown) to aerate the soil, checking the attachment of the tree-supporting post, cleaning the tree disc of debris such as paper etc., or simply informing the department of urban greenery in case of larger waste deposits, damage to the tree or its holding device etc. This all contributes to identification of residents with their "green city". In fact, for many citizens the signs at the trees have emerged as the most important thing. The first part of the sign inscription indicates the name of the tree species, the second part the name and dedication by the sponsor. Consequently, the trees are given a designation for the sponsor or pedestrians in terms of being a memorial or for inspiration. Additionally, citizens have also been involved in the development of the street tree concept Leipzig 2030 within an extensive participation and coordination process.</p>
		<p>III. City-scale and/or region-wide governance for the project and/or UF-NBS (city and regional stakeholders and character of their engagement)</p>	<p>Implementing tree plantings city-wide is the basic governance mode of the Programme. The city follows a long-term strategy seeking for two targets. On the one hand, the street tree network is systematically developed. New plantings of trees are particularly focussed on previously treeless streets, especially in the densely populated urban districts, but also on district connecting roads. In this vein, street trees are an integral part of a connected green network for the sustainable City of Leipzig. On the other hand, the city seeks to establish a long-term engagement of citizens with the city greenery. There is an increasing problem awareness of direct climate change impacts e.g. in case of dry trees – so people see the need to take responsibility which then fosters social cohesion, supported by the city. In the future the Programme might be extended towards surrounding municipalities as a consequence of the fast densifying core areas of the city and the increasing need to find compensation areas for new constructions and infill development.</p>
		<p>IV. National and international governance context (national and international stakeholders and character of their engagement)</p>	<p>Basically, the Programme is a pure local instrument. However, there are two important links towards the national governance context which refer to the framing above the local nature of the Programme (see point j.III.) and the municipal budget available for this Programme (see point k.V.).</p>
		<p>V. Other (specify)</p>	
j.	<p><b>Institutional frameworks</b></p>	<p>I. Project staff responsibilities.</p>	<p>A location for the plantations is determined by the Office for City Greenery and Water and suggested to the potential sponsor. The Office is also responsible for the implementation of the planting and the maintenance of the sponsored trees. The city provides a web-based public list of planned plantations of trees indicating street name, house number and time of planting. This list corresponds to the planting Programme of the City of Leipzig. The city provides permanent contact with</p>



			sponsors and is informed e.g. in terms of damages at the trees. Furthermore, the city is continuously monitoring the stock of street trees within a tree cadastre indicating e.g. information on the tree species, the year of planting and the location. Information about the Programme “Baumstarke Stadt” is publicly available to interested citizens accompanied special offers for various anniversaries, press releases and a leaflets.
		II. Project Management Committee (Y/N) if Y.	There is no real committee, but considering the goals and mechanism explained above, we can list a project management which consists of the Office for urban greenery and waters, volunteer sponsors and residents form the neighbourhood taking care of planted (street) trees.
		III. Frameworks <u>above the project</u> that exert influence on the project and/or UF-NBS e.g. Municipality, National Forestry Department.	The Programme “Baumstarke Stadt” is an integral part of the street tree concept Leipzig 2030 designed as an interdepartmental and interagency process under the leadership of the Office of Urban Greenery and Water Management. This concept sets out a strategic framework for action up to 2030 taking into account the objectives of the sustainably growing city formulated in the Integrated Urban Development Concept (INSEK) 2030 and the open space strategy of the City of Leipzig. The expansion of the street tree stock - as an essential component of the urban green infrastructure - makes an important contribution to the implementation of the Clean Air Plan and the Urban Development Plan for Transport and Public Space as well as to adaptation to climate change. The street tree concept Leipzig 2030 was approved by the City Council on 27 June 2019. As the Programme is coupled to the objectives of the Integrated Urban Development Concept (INSEK) 2030 and the City of Leipzig's open space strategy, it will constantly be evaluated and adjusted if necessary.
		IV. Private companies that work on behalf of/or are embedded within the project.	Local initiatives/associations: Ökolöwe Leipzig, BUND Leipzig, Initiative Georg-Schumann-Straße National initiatives/associations: NABU Private planning office: StadtLabor
		V. Trade representative organisations that are involved in the project	n/a
		VI. Regulatory frameworks that the project operates within (i.e. bylaws, municipal laws, national laws, licences and leases, partnership agreements etc)	In particular, the Programme is framed the street traffic law. This means that the implementation of plantings and the maintenance of trees within the responsibility of the city authority has to meet requirements and regulations in terms of street safety (e.g. height of trees, canopy, or fall of biological material concerns visibility or safe driving/walking)
		VII. Other (specify)	
k.	Economic frameworks	I. Community fundraising	The core of the Programme is a sponsorship for urban trees in public parks, along streets and on squares, on cemeteries. The donation is based on any amount from 250 Euro onwards.



		II. Project delivered services and monies raised by project	n/a
		III. City, regional general funds	The City of Leipzig has an own budget for planting and, particularly, for maintaining trees. However, without the donations for the trees the number of newly planted trees would be lower by about one third annually. The full costs for a tree range between 700 - 1,000 Euro.
		IV. Special funds e.g. National Lottery, Challenge funds	n/a
		V. National government funds	All planning aspects of the city has to meet or address the objectives formulated in the Integrated Urban Development Concept (INSEK) 2030 (see point j.III). A developed concept and associated instruments like the Programme "Baumstarke Stadt" meeting its overall objectives is a prerequisite for getting funded by any of the national funding Programmes for urban development. In addition, maintaining the long-term character of the Programme, particularly the plenty of responsibilities (see point j.I) is challenging due to staff costs. Currently, the support of interested parties, donors and tree sponsors including consultation and documentation is realized with the support of staff from the national employment promotion (Arbeitsförderung) and, in the future, maybe by the Federal Voluntary Service.
		VI. Private sector investment	Private sponsoring companies
		VII. International funds e.g. European Union structural funds, LIFE + etc.	n/a
		VIII. Other (specify)	n/a
<b>I.</b>	<b>Sino/European comparative relevance</b>		In European terms Leipzig is s medium-sized city white popular as it developed from a fast shrinking city to one of Germany's fastest and re-densifying cities. Although Leipzig is not comparable to Chinese cities, densification, its speed and ways to tackle that in times of increasing climate change impacts are very relevant also in China. Leipzig provides a very good example of a long-term an integrated approach seeking to green built-up structures and paved areas within the public space. Planting trees with existing urban green areas such as parks and cemeteries is furthermore supporting multiple functions for a sustainable city.
<b>m.</b>	<b>UF-NBS valorisation</b>		The project has two objectives: On the one hand, the money is used directly for the planting of new trees. On the other hand, a long-term identification of the citizens with the city greenery should be archived. For a large part of the population, life in a green city more attractive and of higher value. A higher tree share also contributes to improving the urban climate by absorbing carbon dioxide and improve human health and wellbeing through mitigating the temperature of the surrounding environment. A greater awareness and



			<p>appreciation of the values of nature can be detected among residents.</p> <p>The location for the plantations is determined by Planning Office. Sponsors can choose between these specified locations and already planted young trees. The city suggests concrete individual locations that best meet the requirements of interested parties in a mutual agreement. The sponsored tree is planted and maintained by the City after payment, but the sponsor can provide additional support. The city provides permanent contact with sponsors and is informed e.g. in terms of damages at the trees. Furthermore, the city is continuously monitoring the stock of street trees within a tree cadastre indicating e.g. information on the tree species, the year of planting and the location. As the Programme is coupled to the objectives of the Integrated Urban Development Concept (INSEK) 2030 and the City of Leipzig's open space strategy, it will constantly be evaluated and adjusted if necessary.</p>
	<b>n. Procurement of UF-NBS</b>		
	<b>p. Ecosystem services (list the three most important services being provided in no more than 50 words)</b>		<p>Multiple functions are combined with trees with regulating services (carbon sequestration; regulation of micro, local and/or regional climate; shadow; maintenance of air quality; reduction of odour, noise, visual disturbances), supporting functions (habitats and biodiversity for animal and plant species), cultural functions (recreational value, aesthetic pleasure; sense of place, inspiration)</p>
	<b>q. Renaturing</b>		<p>The project is financed by donation (of any amount from 250 Euro on) and through own budget by the city. Tree sponsors can choose between a young tree or for a tree from the current plant Programme. The full costs for a tree, however, range between 700 - 1,000 Euro. For example, in 2011 400 trees were planted with donations and just over 300 trees have been allocated a sponsorship. Without the donations for the trees the number of newly planted trees would be lower by about one third annually. New plantings of trees are particularly focussed on previously treeless streets, especially in the densely populated urban districts, but also on district connecting roads.</p>
<b>1</b>	<b>LESSONS AND TRANSFERABILITY</b>		
<b>2</b>	<p>The fundraising campaign "Baumstarke Stadt" in the City of Leipzig can be seen as a well-established and successful strategy to increase the tree infrastructure of the city while establishing a long-term engagement of citizens with this type of greenery. Trees as nature-based solutions are this way promoted for co-development and co-design to alleviate problems of heat, air pollution and noise in the city in a participatory way. So far, an increasing interest to be a tree-steward shows that people can made interested in co-funding urban greenery and this way appropriating it – definitely a blueprint for other cities.</p>		
<b>1</b>	<b>REFERENCES (Harvard style)</b>		
<b>3</b>	<p>City of Leipzig (2020). Unsere Aktion Baumstarke Stadt [Our action tree-strong city]. Information platform available at <a href="https://www.leipzig.de/freizeit-kultur-und-tourismus/parks-waelder-und-friedhoeft/spenden-und-patenschaften/baumstarke-stadt">https://www.leipzig.de/freizeit-kultur-und-tourismus/parks-waelder-und-friedhoeft/spenden-und-patenschaften/baumstarke-stadt</a> (Accessed: 18 May 2020).</p> <p>City of Leipzig (2019). Straßenbaumkonzept Leipzig 2030 [Street tree concept Leipzig 2039]. Available at <a href="https://static.leipzig.de/fileadmin/mediendatenbank/leipzig-">https://static.leipzig.de/fileadmin/mediendatenbank/leipzig-</a></p>		



[de/Stadt/02.3\\_De3\\_Umwelt\\_Ordnung\\_Sport/67\\_Amt\\_fuer\\_Stadtgruen\\_und\\_Gewaesser/Baeume\\_Baumschutz/Stadtbaeume/Strassenbaumkonzept\\_Leipzig\\_2030.pdf](#) (Accessed: 10 June 2020).

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