

12.3.1 Total Leaf Area

Project Name: Nature4Cities (Grant Agreement no. 730468)

Author/s and affiliations: Florian Kraus¹, Bernhard Scharf¹

¹ Green4Cities GmbH/GREENPASS GmbH

Leaf Area (LA)		Green Space Management Climate Resilience Air Quality
Description and justification	<p>The LA (Leaf Area) is a Key Performance Indicator of the GREENPASS® system.</p> <p>It expresses the sum of leaf area of NBS within project area. The Leaf Area is the operating surface of NBS and therefore decisive for climate regulation, carbon storage and air purification.</p>	
Definition	<p>The LA (Leaf Area) describes the total amount of leaf area of all NBS in a project area.</p>	
Strengths and weaknesses	<ul style="list-style-type: none"> + key performance indicator regarding biodiversity + easy for communication, understanding and decision-making + useful for design optimization + link the NBS performance to a single number - needs area analysis and calculation 	
Measurement procedure and tool	<ul style="list-style-type: none"> - NBS analysis of an area and calculation (eg with GREENPASS® system and tools) - numerical value in m² 	
Scale of measurement	<p>Object, neighbourhood and city scale</p>	
Data source		
Required data	<ul style="list-style-type: none"> - project area - NBS typologies and areas 	
Data input type	<ul style="list-style-type: none"> - numerical analysis of vegetation types incl. characteristics (eg LAI) 	
Data collection frequency	<ul style="list-style-type: none"> - one to several times in planning and optimization process 	
Level of expertise required	<p>easy to understand – for planners and decision makers</p>	
Synergies with other indicators	<p>-</p>	
Connection with SDGs	<p>SDG 11 Sustainable Cities and Communities, SDG 13 Climate action</p>	

Opportunities for participatory data collection	-
Additional information	
References	<p>Kraus, F.; Scharf, B. (2019): Management of urban climate adaptation with NBS and GREENPASS®. Geophysical Research Abstracts. Vol. 21, EGU2019-16221-1, 2019 EGU General Assembly 2019.</p> <p>Kraus, F.; Scharf, B. (2019): Climate-resilient urban planning and architecture with GREENPASS illustrated by the case study 'FLAIR in the City' in Vienna. OP Conf. Ser.: Earth Environ. Sci. 323 012087.</p> <p>Nature4Cities, D2.1 - System of integrated multi-scale and multi-thematic performance indicators for the assessment of urban challenges and NBS. https://www.nature4cities.eu/post/nature4cities-defined-performance-indicators-to-assess-urban-challenges-and-nature-based-solutions.</p> <p>Nature4Cities, D2.2 - Expert-modelling toolbox</p> <p>Nature4Cities, D2.3 – NBS database completed with urban performance data https://www.nature4cities.eu/post/applicability-urban-challenges-and-indicators-real-case-studies</p> <p>Nature4Cities, D2.4 - Development of a simplified urban performance assessment (SUA) tool</p>

12.4 NO_x and PM in gaseous releases

Project Name: URBAN GreenUP (Grant Agreement no. 730426)

Author/s and affiliations: Raúl Sánchez¹, Jose Feroso¹, Silvia Gómez, María González¹, Jose María Sanz¹, Esther San José¹

¹ CARTIF Foundation. Parque Tecnológico de Boecillo, 205, 47151, Boecillo, Valladolid, Spain

NO _x and PM in gaseous releases	Air Quality
Description and justification	<p>Other indicators are defined to assess general impacts of implemented NBS on air quality at building, district or city scale. In contrast, this indicator is focused on the impact of specific NBS on a polluted gaseous stream prior to release into the urban atmosphere.</p> <p>This indicator has been mainly defined for the Urban Garden BioFilter but in the future can be used for other NBS to be installed in outdoor pipes to capture pollutants. At laboratory scale, the impact of this NBS has been measured by a setup with air characterisation upstream</p>