Connection with SDGs	Strongest link to SDGs 14 & 15. However there are links to all SDGs except 1 and 5: Biodiversity underpins food production; Links between biodiversity and health & wellbeing benefits; Links to environmental education; Links between biodiversity and water quality; Links between biodiversity and clean energy (biosolar, biofuel); Job creation; Improved green infrastructure and industry associated with biodiversity (potential disservices also); Social equality in relation to access to nature; Sustainable urban development; Biodiversity a good indicator of responsible consumption; Climate change adaptation; More sustainable water management; Biodiversity benefits; Environmental Justice in relation to biodiversity; Opportunities for collaborative working.
Opportunities for participatory data collection	Surveying habitats represents an excellent opportunity for widening participation, this includes survey of habitat condition change over time. Alternatively, participatory GIS portals can be used to ground-truth satellite imagery.
Additional information	
References	Chhetri, P.K., Thai, E. (2019) Remote sensing and geographic information systems techniques in studies on treeline ecotone dynamics. J. For. Res. 30, 1543–1553. Johnston C.A., Pastor J., Pinay G. (1992) Quantitative Methods for Studying Landscape Boundaries. In: Hansen A.J., di Castri F. (eds) Landscape Boundaries. Ecological Studies (Analysis and Synthesis), vol 92. Springer, New York, NY Johnston CA, Bonde JP (1989) Quantitative analysis of ecotones using a geographic information system. Photogrammetric Eng and Remote Sensing 55:1643–1647

10.5 Publicly accessible green space connectivity

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

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Publicly accessible green space connectivity	**Biodiversity**
Description and justification	The extent and spatial arrangement of accessible green space within each sub-demo area may have an important

	influence on public health and wellbeing; as well as having the potential to increase biodiversity. Vegetated areas provide cooling on hot days through evapotranspiration; and trees reduce radiant heat by shading, making public space and travelling routes more comfortable for people on days when temperatures in urban areas are high. This KPI will focus on public accessible greenspace, therefore residential gardens will not be considered here.
Definition	This environmental (biological) indicator evaluates the increases of connectivity related to existing green infrastructures.
Strengths and weaknesses	This KPI requires specific software (GIS software).
Measurement procedure and tool	Typology map data representing areas of GI both before and after NBS GI interventions will be analysed using a Geographic Information System (GIS) to calculate change in each sub-demo area in a) the proportion of the sub-demo area represented by GI, b) distance between areas of GI, and c) the number of street trees Use of GIS to calculate % change in the following parameters in each sub-demo area following NBS GI interventions: • The extent of accessible GI. Calculate the proportion of the sub-demo area occupied by GI (select all GI types in typology layer except residential gardens) pre- and post- GI interventions. • The distance between each accessible GI patch and its nearest accessible GI neighbour within the sub-demo area. If d is the nearest-neighbour (Euclidean) distance from accessible GI patch i to accessible GI patch j; calculate the mean nearest-neighbour distance over all patches, both pre- and post-intervention (FRAGSTATS, 2015) • The distance to the nearest accessible green infrastructure everywhere (for every raster cell) calculated using a raster nearest neighbour approach • the number of street trees
Scale of measurement	City
Data source	
Required data	This KPI (Key Performance Indicator) can be measured throughout specific software, such as GIS software and spreadsheet software. QGIS is the GIS software proposed to be used, due to it being an open source and

	multiplatform software and it is distributed under Creative Commons Attribution-Share Alike 3.0 licence (CC BY-SA).
Data input type	GIS data (vectorial, raster)
Data collection frequency	Pre and post intervention.
Level of expertise required	Technical/expert
Synergies with other indicators	This KPI is related with KPI Accessibility: distribution, configuration and diversity of green space and land use changes (multi-scale, green spaces quantity), and Perceptions of citizens on urban nature – green spaces quality.
Connection with SDGs	This KPI is directly related with SDG 11 and SDG 3.
Opportunities for participatory data collection	This is not a KPI open to participatory collaboration.
Additional information	
References	URBAN GreenUP KPI: Increased connectivity to existing green infrastructure URBAN GreenUP Deliverable D2.4 - Monitoring program to Valladolid. https://www.urbangreenup.eu/insights/deliverables/d2-4---monitoring-program-to-valladolid.kl URBAN GreenUP Deliverable D3.4 - Monitoring program to Liverpool https://www.urbangreenup.eu/insights/deliverables/d3-4---monitoring-program-to-liverpool.kl URBAN GreenUP Deliverable D4.4 – Monitoring program to Izmir https://www.urbangreenup.eu/insights/deliverables/d4-4--monitoring-program-to-izmir.kl URBAN GreenUP Deliverable D5.3: City Diagnosis and Monitoring Procedures https://www.urbangreenup.eu/insights/deliverables/d5-3-city-diagnosis-and-monitoring-procedures.kl Data processing software: https://www.qgis.org/en/site/forusers/download.html# https://docs.qgis.org/2.18/en/docs/user_manual/ ://plugins.qgis.org/plugins/LecoS/ http://www.umass.edu/landeco/research/fragstats/fragstats.html.