Scale of measurement	Street to metropolitan scale
Data source	
Required data	Amount of green spaces, buildings and other infrastructure assets in the urban area
Data input type	Quantitative
Data collection frequency	Annually
Level of expertise required	Low
Synergies with other indicators	Relation to *Reclamation of contaminated land (brownfields)* indicator and to the whole *Green Space Management* indicator group
Connection with SDGs	SDG 9 Industry, infrastructure and innovation, SDG 11 Sustainable cities and communities, SDG 13 Climate action
Opportunities for participatory data collection	No opportunities identified
Additional information	
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13.3 Perceived quality of urban green, blue and blue-green spaces

Project Name: CONNECTING Nature (Grant Agreement no. 730222)

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Perceived quality of urban green, blue and blue-green spaces	**Place Regeneration**
Description and justification	Perceived quality of space is one of the factors to influence the successfulness of public space, especially in terms of engaging users in activities (Fongar et al., 2019). The value of this indicator is seen in the assessment and promotion of social benefits of NBS in general, and as a monitoring tool for specific aspects of individual NBS (e.g., maintenance of the place, attractiveness of place in terms of various senses such as smell, sound, easiness of finding a place, etc.). Attractiveness of the area for a specific use is a discrete indicator of NBS attractiveness/perceived quality of space understood in terms of stimulation for users to get involved with a particular activity in the space. For example, natural elements and their arrangement in (green) spaces can facilitate calmness and serenity, recovery from stress, and improve mental fatigue. Also, certain arrangement of elements can stimulate the user to actively use the space. Maintenance of place is understood as appropriate handling of vegetation (pruning, cutting branches, mowing grass, vegetation conditions) as well as urban equipment and cleanliness (waste management). Such indicator addresses the pleasantness of place use. A sense of place security is an important aspect of perceived quality of space, considered one of the most important parameters in decision making for visiting and spending leisure time in a location (Rezaie at al.,2019). Additionally, the indicator focuses on spatial parameters addressing safety, such as good orientation in the place, the appropriate lightness of the place and settings of spatial components, which can motivate people to explore. Thus, this indicator addresses sense of security via spatial characteristics and reflects on coherence and legibility as well as complexity and mystery as defined by Kaplan and Kaplan (1989). Access to green space (i.e., structural accessibility) is associated with better health outcomes, such as lower body

	mass index scores, overweight and obesity levels; improved mental health and wellbeing and increased longevity in older people (Institute of…, 2014). Accessibility is often considered in terms of proximity from green space to user's home, however, the perceived accessibility is also very important and is influenced by safety, easy access (no physical barriers), connectivity, continuity of paths, etc. (Žlender, 2017). The pleasantness of place in terms of sound, smell and microclimatic conditions: Although the vision is the most reliable sense, the perception of the environment is multi-sensory (Shahhosseini et al., 2014). Sensory stimulation is particularly important for elderly suffering from dementia since it can improve orientation and trigger memory (Haas et al. 1998). Also, pleasant microclimatic conditions, such as air temperature, humidity etc. affect human comfort, experiencing the space, and behavior patterns. Place attachment and identity refers to a positive emotional bond between user and place. Giving character and identity to a place is essential to creating a meaningful place for people (Lyinch, 1960; Memluk, 2012). In order to promote NBS, it is especially important to consider this indicator since stronger place identity is significantly associated with greater agreement regarding the balance between humans and nature (Budruk at al., 2009).
Definition	Self-reported perceptions of space quality of NBS.
Strengths and weaknesses	+ General promotion of social benefits of the NBS, which can contribute to the implementation of NBS in spatial planning practice + Gathering information about compatibility of different types of NBS regarding their ability to enable certain aspects of quality of space. +Monitoring tool for NBS (e.g., maintenance of the place, easiness of finding a place) that can help to maintain, improve specific aspects of space design +Gathering information about shared notions of perceived quality of space and needs at community level -NBS can address various city challenges and because of NBS process characteristics the assessment of the perceived quality must therefore be understood in relation to specific context, solution, and purpose of the evaluation. The questionnaire needs to be adjusted to NBS specifics.
Measurement procedure (P) and tool (T)	☒ *Quantitative P*: Scale inventory/Questionnaire (survey procedure, paper-and-pencil administration, computer-based administration) Maintenance of the place:

	o T: *Parks and Recreation Questionnaire Results Summary* (The City of Ellensburg, 2015). Adapted to purposed of NBS research A sense of security in a place: o T: *Safety concerns issues for park users* (Gökçen Firdevs, Y. 2006). Adapted to purposed of NBS research Coherence and legibility: o T: *The experience of nature: A psychological perspective* (Kaplan, R., Kaplan, S. 1989) Adapted to purposed of NBS research Place attachment & identity o T: *The measurement of place attachment: Personal, community, and environmental connections* (Christopher M. Raymonda, C. M., Brownb,G., Weber, D. 2010) Complexity and mystery o T: *The experience of nature: A psychological perspective* (Kaplan, R., Kaplan, S. 1989) Adapted to purposed of NBS research
Scale of measurement	• Attractiveness of the area for a specific use. The questionnaire must be adjusted according to the individual NBS and intended use (e.g., gardening, social interaction, relaxation…) 1. Do you find the place attractive in terms of stimulation for gardening / social interaction / relaxation / physical activity 1 Yes, it's attractive 2 No, it's unattractive • Maintenance Adapted from Parks and Recreation Questionnaire Results Summary (The City of Ellensburg, 2015) 1. How would you rate the general upkeep and maintenance of the space? (Cleanliness, maintenance of urban equipment and vegetation)? 1 good 2 ok 3 excellent 4 poor • A sense of security in a place Adapted from Safety concerns issues for park users (Gökçen Firdevs, Y. 2006) 1. How do you feel in the (green) space in relation to its physical appearance and scenery? 1 Unsafe (can you determine why?) 2 Neither unsafe nor safe 3 Safe Easiness of finding a place (structural accessibility)

	1. Is this place easy to find? (Considering the journey, connectivity, continuity of paths, safety, physical accessibility (barriers), level of orientation) 1 The space is easy to find 2 The space is difficult to find • The pleasantness of place in terms of sound, smell and microclimatic conditions 1. Do you find this space attractive in terms of smell, sound and microclimatic conditions (e.g., temperature regarding the shading)? 1 Yes, it's attractive 2 No, it's unattractive (please specify why) • Place attachment & identity Adapted from The measurement of place attachment: Personal, community, and environmental connections (Christopher M. Raymonda, C., M., Brownb,G., Weber, D. 2010) 1. Are you very attached to the place? 1 Yes 2 No 2. Do you identify strongly with this place? 1 Yes 2 No 3. Would you feel less attached to the place if the native plants and animals that live here disappeared? 1 Yes 2 No 4. Doing my activities in this place is more important to me than doing them in any other place. 1 Yes 2 No Please specify your age:
Data source	
Required data	✓ Essential: NBS characteristics for each city/site, more specifically objectives and challenges
Data input type	Quantitative (quantitative and qualitative, if case study methodology and/or participatory data collection are opted for)
Data collection frequency	- Data collection frequency for general promotion of social benefits of the NBS: Before NBS implementation and aligned with timing of targeted (especially long- term) objectives - Data collection frequency as a monitoring tool: assessment of the specific aspects of individual NBS that can help maintain, improve NBS (e.g., maintenance of the place, A sense of security in a place, The attractiveness of place in terms of smell, sound and other senses)
Level of expertise required	☒ Quantitative data collection requires no expertise. ☒ Methodology and data analysis require high expertise in psycho-social research
Connection with SDGs	Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

	Goal 3. Ensure healthy lives and promote well-being for all at all ages Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all Goal 6. Ensure availability and sustainable management of water and sanitation for all Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable Goal 13. Take urgent action to combat climate change and its impacts* Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Opportunities for participatory data collection	Participatory methods (e.g., collaborative participatory data collection, GIS with top-down goals of understanding neighborhood dynamics, location-based GIS) may be applied to collect community-relevant information about factors that play a role in members' perception of quality; data can further inform NBS implementation and expansion.
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13.4 Place attachment (Sense of Place): Place identity

Project Name: CONNECTING Nature (Grant Agreement no. 730222)

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Place attachment (Sense of Place): Place Identity	Place Regeneration
Description and justification	Environmental psychology's place theory is still challenged by a lot of criticism aimed at confusion related to terminologies and concepts used in describing place attachment, and at its lack of developmental theory