

Opportunities for participatory data collection	The questionnaires are self-reported and as such are reported by the citizens themselves.
Additional information	
References	Cohen, Kamarck & Mermelstein. 1983. A global measure of perceived stress. <i>Journal of Health and Social Behavior</i> ; 24, 4.

21.3 General wellbeing and happiness

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Author/s and affiliations: Adina Dumitru¹, Catalina Young², Irina Macsinga²

¹ *University of A Coruña, Spain*

² *West University of Timisoara, Romania*

General wellbeing and happiness	Health and Wellbeing
Description and justification	<p>Cross-disciplinary literature operates with a variety of concepts to delineate general wellbeing (WB) and happiness, such as (subjective) wellbeing (SWB), happiness, life satisfaction (LS), experienced utility, and quality of life (Larson, Jennings, & Coutier, 2016; MacKerron & Mourato, 2013). Cervinka, Röderer, and Hefler (2012) categorize WB as an umbrella-term that includes experiences of positive emotional states and processes ranging from short-term to long-term, from current positive feelings (positive affect) to habitual dispositions (personality-factors), and that encompasses pleasurable affect as well as general life satisfaction. A growing body of empirical evidence documents the otherwise intuitive notion that people who are more connected with nature and engage in nature's beauty (i.e., experience positive emotional responses when witnessing nature's beauty) report more subjective well-being (Frumkin, Bratman, Breslow, Cochran, Kahn Jr., Lawler, Levin, Tandon, Varanasi, Wolf, & Wood, 2017; ; Howell, Dopko, Passmore, & Buro, 2011; Howell & Passmore, 2013; Larson et al., 2016; Pritchard, Richardson, Sheffield, & McEwan, 2019; Zhang, Howell, & Iyer, 2014). MacKerron and Maurato (2013) document theoretical and empirical evidence for at least three reasons for thinking that experiences of natural environments will be positively related to health, wellbeing and happiness:</p> <ol style="list-style-type: none"> 1. the existence of direct pathways by which such experiences affect the nervous system, bringing about stress reduction and restoration of attention;

	<p>2. natural environments may be lower in environmental 'bads' that have significant negative impacts on physical and mental wellbeing, which in turn could affect happiness;</p> <p>3. natural environments might increase happiness by facilitating and encouraging – for practical, cultural and/or psychological reasons – behaviours that are physically and mentally beneficial, including physical exercise, recreation and social interaction.</p> <p>Research on complex/multi-dimensional relationship between nature connectedness/nature affiliation (i.e., affective, cognitive and experiential factors related to our belonging to the natural world) and wellbeing indicate that exposure to elements of the natural world affects our wellbeing by boosting our positive affect, by eliciting feelings of ecstasy, respect, and wonder, by fostering feelings of comfort and friendliness, by heightening our intrinsic aspirations and generosity, and by increasing our vitality (Capaldi, Dopko, & Zelenski, 2014; Howell & Passmore, 2013).</p>
Definition	<p>MacKerron and Maurato (2013) distinguish three categories of SWB: <i>evaluative</i> SWB, in which people are asked for global assessments of their lives – for example, their 'satisfaction with life as a whole'; <i>eudemonic</i> SWB, based on reports concerning 'flourishing', purpose and meaning in life, and the realization of one's potential; and hedonic or <i>experienced</i> SWB, based on reports of mood, affect or emotion, and representing the Utilitarian view of wellbeing as pleasure and pain. The authors note that answers across the three categories of SWB or happiness tend to be positively correlated – and also related to other account of wellbeing – but they may respond differentially to different external factors, such as income (MacKerron & Maurato, 2013).</p> <p>Life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985) is a cognitive, judgmental process based on a comparison of one's current state of affair with a standard that each individual sets for him or herself (i.e., not externally imposed). Diener et al. (1985) developed the Satisfaction with Life Scale (SWLS) around the idea that one must ask subjects for an overall judgment of their life in order to measure the concept. Life satisfaction belongs to the category of evaluative subjective WB, as organized by current literature (Dolan & Metcalfe, 2012; MacKerron & Maurato, 2013).</p>
Strengths and weaknesses	<ul style="list-style-type: none"> + reliable indicator of a global assessment of an individual's satisfaction with own life + empirical evidence as to relationship between subjective wellbeing and connectedness to nature

	<p>- multidimensional and complex construct whose relationship with exposure to nature is mediated/moderated by numerous of variables, like engagement with natural beauty (Zhang et al., 2014), meaning in life (Howell, Passmore, & Buro, 2013), mindfulness (Howell et al., 2011), presence of natural elements (Ryan, Weinstein, Bernstein, Brown, Mistretta, & Gagné, 2010)</p>
Measurement procedure and tool	<p>☒ <i>Quantitative P</i>: Scale/Scale inventory/Questionnaire (survey procedure, paper-and-pencil administration, computer-based administration)</p> <ul style="list-style-type: none"> ○ T: <i>Satisfaction with Life Scale</i> (Diener et al., 1985), a 7-point scale comprising 5 items that measure individual's general satisfaction with own life as a cognitive-judgmental process (i.e., based on a comparison with a standard that individual had set for him/herself)
Scale of measurement	<ul style="list-style-type: none"> ▪ Satisfaction with Life Scale (SWLS – Diener et al., 1985) <p><i>Instructions: Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding. The 7-point scale is: 1-strongly disagree, 2-disagree, 3-slightly disagree, 4-neither agree nor disagree, 5-slightly agree, 6-agree, 7-strongly agree</i></p> <ol style="list-style-type: none"> 1. In most ways my life is close to my ideal. 2. The conditions of my life are excellent. 3. I am satisfied with my life. 4. So far I have gotten the important things I want in life. 5. If I could live my life over, I would change almost nothing.
Data source	
Required data	<ul style="list-style-type: none"> ✓ Essential: NBS characteristics for each city/site, more specifically nature of activities one can get involved into while engaging with nature, opportunities for social interaction and for physical exercise, etc. ✓ Essential: Data on SC6 (Place Attachment-Sense of Place: Place Identity) ✓ Desirable: Data on symbolic/affective meanings assigned to NBS (case studies, participatory data collection methods) – see also indicator SC6 (Place Attachment)
Data input type	Quantitative
Data collection frequency	After NBS implementation or aligned with timing of targeted (especially long-term) objectives

Level of expertise required	<input checked="" type="checkbox"/> Methodology and data analysis requires high expertise in psycho-social research <input checked="" type="checkbox"/> Quantitative data collection requires no expertise
Synergies with other indicators	SC6 Place attachment (Sense of Place): Place Identity SC11.1 Positive environmental attitudes motivated by contact with NBS SC11.2 Environmental Identity HW4 Life expectancy and healthy life years expectancy HW5 Prevalence and incidence of auto-immune diseases HW6 Prevalence, incidence, morbidity, and mortality of cardiovascular diseases HW7 Prevalence, incidence, morbidity, and mortality of respiratory diseases HW8 Incidence of obesity/obesity rates (adults and children) HW10 Prevalence, incidence, morbidity of chronic stress HW11 Mental Health Wellbeing: Depression and Anxiety HW12 Restoration-Recreation: Enhanced physical activity and meaningful leisure HW13 Levels of aggressiveness and violence HW14 Improvement of behavioural development and symptoms of attention-deficit/hyperactivity disorder (ADHD) HW15 Exploratory behaviour in children
Connection with SDGs	Goal 3. Ensure healthy lives and promote well-being for all at all ages Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
Opportunities for participatory data collection	-
Additional information	
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