8.15.2 Modelled carbon content of the upper soil layer

Project Name: PHUSICOS – According to Nature (Grant Agreement no. 776681)

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Modelled carbon content of the upper soil layer	**Climate Resilience** **Green Space Management**
Description and justification	Indicators of Carbon Sequestration in Soil sub-criterion will assess the carbon sequestration in soil.
Definition	In soils and sediments, there are three basic forms of carbon that may be present: elemental, inorganic, and organic C. The quality of organic matter in sediments is critical to the partitioning and bioavailability of sediment-associated contaminants. Elemental carbon forms include charcoal, soot, graphite, and coal. The primary sources for elemental carbon in soils and sediments are as incomplete combustion products of organic matter (i.e., charcoal, graphite, and soot), from geologic sources (i.e., graphite and coal), or dispersion of these carbon forms during mining, processing, or combustion of these materials. Inorganic carbon forms are derived from geologic or soil parent material sources. Inorganic carbon forms are present in soils and sediments typically as carbonates. Naturally-occurring organic carbon forms are derived from the decomposition of plants and animals. In soils and sediments, a wide variety of organic carbon forms are present and range from freshly deposited litter (e.g., leaves, twigs, branches) to highly decomposed forms such as humus. In addition to the naturally-occurring organic carbon sources are sources that are derived as a result of contamination through anthropogenic activities.
Strengths and weaknesses	
Measurement procedure and tool	Model/Sampling/Survey
Scale of measurement	ton/ha
Data source	

Required data	
Data input type	Quantitative
Data collection frequency	
Level of expertise required	High
Synergies with other indicators	
Connection with SDGs	-
Additional information	
References	http://webcache.googleusercontent.com/search?q=cache:http://bcodata.whoi.edu/LaurentianGreatLakes_Chemistry/bs116.pdf

8.15.3 Soil carbon to nitrogen ratio

Project Name: UNaLab (Grant Agreement no. 730052)

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Soil carbon to nitrogen ratio (C/N)	**Climate Resilience Green Space Management**
Description and justification	The respective quantities of carbon and nitrogen in soil is critical to soil microbial activity and a fundamental indicator of biogeochemical cycling in ecosystems. Changes to soil C/N ratio impacts nutrient cycling in soils and the structure and function of plant communities, thereby affecting ecosystem service functions. Soils with higher C/N ratio are better able to buffer soil and water N pollution, because soils with greater C/N ratio generally exhibit slower rates of N mineralisation and nitrification, and greater capacity for N immobilisation (Groffman et al., 2006). The accumulation of C and N in urban green space soils is determined both by the length of time following urbanisation that an area is managed as a green space and the structural composition of green space vegetation. Factors such as the presence of