Indicator: Run-off reduction (%)

Naturvation challenges: Water management
SDGs: 6
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Indicator description
Run-off reduction indicates how an intervention reduces the surface run-off during storms and/or flooding event (1). Thus, run-off reduction directly relates to the Naturvation challenge 'water management' as it measures the relative change in the total volume of surface water after the implementation of a nature-based solution. One of the main goals with water management is to reduce flooding by for example reducing high volumes of water in order to avoid drains being flooded (1, 2). Knowing how much an intervention reduces run-off makes it possible to compare nature-based solutions' effectiveness to reduce flooding risks (1, 3).

For this indicator it is recommended to also consider infiltration rate, soil moisture, vegetation, substrate, differences in elevation as well as duration, frequency and volumes of rain (1, 4, 5). Surface run-off is measured using a flow meter (m/s) combined with a timer and knowing the width of the exit pipe, collector tank or other types of discharge measuring equipment (1). The relative difference in run-off between the "control" and the "nature-based solution" is thus the indicator 'Run-off reduction (%)'.

Indicator scoring
Values used for run-off reduction scores were based on 11 empirical studies (3, 6-15) and 9 modelling studies (12, 13, 16-22). Scores were derived by normalizing the values between 0 and the maximum value onto the scale 1 to 5.

Scores, run-off reduction (%)		
Nature-based solution	**Score**	**Median value (min – max)**
Parks and (semi)natural urban green areas	5	57 (15.25 – 99)
Urban green areas connected to grey infrastructure	3	33 (8 – 62)
Blue areas	4	44 (22 – 64)
External building greens	4	48 (21 – 85.7)
Allotments and community gardens	2	18 (11 – 25)
Green areas for water management	2	12 (1.93 – 87.3)

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