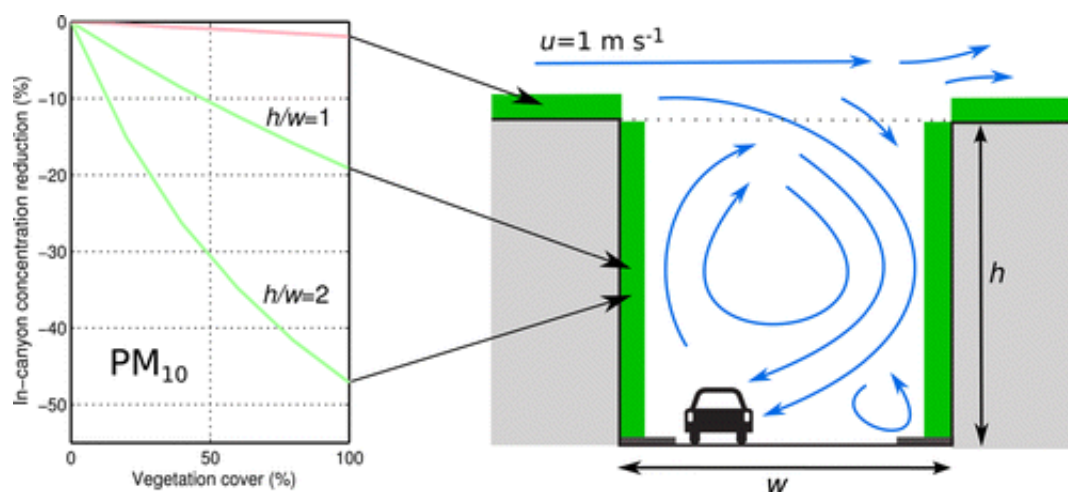


Green plants reduce city street pollution up to eight times more than previously believed

July 18 2012



Trees, bushes and other greenery growing in the concrete-and-glass canyons of cities can reduce levels of two of the most worrisome air pollutants by eight times more than previously believed, a new study has found. A report on the research appears in the ACS journal *Environmental Science & Technology*.

Thomas Pugh and colleagues explain that concentrations of nitrogen dioxide (NO_2) and microscopic particulate matter (PM) — both of which can be harmful to human health — exceed safe levels on the streets of many cities. Past research suggested that trees and other green plants can improve urban air quality by removing those pollutants from

the air. However, the improvement seemed to be small, a reduction of less than 5 percent. The new study sought a better understanding of the effects of green plants in the sometimes stagnant air of city streets, which the authors term "urban street canyons."

The study concluded that judicious placement of grass, climbing ivy and other plants in urban canyons can reduce the concentration at street level of NO₂ by as much as 40 percent and PM by 60 percent, much more than previously believed. The authors even suggest building plant-covered "green billboards" in these urban canyons to increase the amount of foliage. [Trees](#) were also shown to be effective, but only if care is taken to avoid trapping pollutants beneath their crowns.

More information: Effectiveness of Green Infrastructure for Improvement of Air Quality in Urban Street Canyons, *Environ. Sci. Technol.*, 2012, 46 (14), pp 7692–7699
[DOI: 10.1021/es300826w](https://doi.org/10.1021/es300826w)

Abstract

Street-level concentrations of nitrogen dioxide (NO₂) and particulate matter (PM) exceed public health standards in many cities, causing increased mortality and morbidity. Concentrations can be reduced by controlling emissions, increasing dispersion, or increasing deposition rates, but little attention has been paid to the latter as a pollution control method. Both NO₂ and PM are deposited onto surfaces at rates that vary according to the nature of the surface; deposition rates to vegetation are much higher than those to hard, built surfaces. Previously, city-scale studies have suggested that deposition to vegetation can make a very modest improvement (

Citation: Green plants reduce city street pollution up to eight times more than previously believed (2012, July 18) retrieved 9 April 2024 from <https://phys.org/news/2012-07-green-city-street->

pollution-previously.html

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