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Trapping the rain

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What should Southern California do to get more water? Build differently.

A new report estimates that by 2030 the equivalent of two-thirds of Los Angeles' annual water use could be harvested every year in major urban areas if new construction incorporated rain-capture techniques.

Low impact development, as it is called, is designed to harvest storm water rather than send it into storm drains. Kept on site, the water seeps into the ground, reducing irrigation needs and replenishing local aquifers. It also cuts the volume of polluted runoff that reaches the sea.

The study, conducted by the Natural Resources Defense Council and a UC Santa Barbara professor, looked at projected rates of growth and redevelopment in Southern California and parts of the Bay Area. It then calculated how much water could be retained if that new residential and commercial construction was built according to low-impact guidelines.

More than half of Southern California's water supply comes from hundreds of miles away. But the region is rich in groundwater basins that provide a significant amount of local water. With new building techniques, they could provide more.

“There’s plenty of place right now to put that water if we’re able to reestablish the groundwater recharge patterns that existed before we paved everything over," said UC Santa Barbara professor Robert C. Wilkinson, coauthor of the study.

Rain-harvesting is relatively simple. Roof gutters empty into a cistern or below-ground storage tank. Pavement is porous. Curb cuts allow storm water to wash from parking lots into landscaped areas. Planted swales catch and filter runoff.

“We're creating a better sponge," Wilkinson said.

Los Angeles engineers figure that each quarter-acre of hardscape in the city has the potential to generate 100,000 gallons of storm runoff in a typical year, according to a report on green infrastructure in L.A.

Increasing local supplies also cuts energy use, because it takes less electricity to pump groundwater than to import water long distances from Northern California or the Colorado River. That in turn means fewer carbon emissions.

--Bettina Boxall

Photo: Rainwater flows from a roof gutter into a filter and then into two 1,800-gallon storage tanks at a demonstration house in Los Angeles. Credit: Lawrence K. Ho / Los Angeles Times.