

Get out of the drain age, into the retain age

Deborah K. Rich

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Embedded in both urban and suburban lot design is the "pave and pipe paradigm," according to Brock Dolman, director of the Occidental Arts & Ecology Center's Water Institute. It favors grading, piping and paving properties to drain away rainwater as quickly as possible.

But rapidly draining water off landscapes rather than allowing it the time and space to soak in causes a host of problems downstream and in the pipes. Culverts pour water into gullies and seasonal creeks, overloading and eroding the natural drainage area and rushing sediment into rivers, streams and estuaries, where it imperils fish.

Downspouts, gutters and sloping driveways conduct water into the storm water and sewer systems, which can dump raw sewage when overloaded. After we're finished draining our properties, we pay, increasingly dearly, to pipe water back into our homes and landscapes.

Dolman advocates replacing the "drain age" with a new "retain age," wherein we capture and store storm water for future use and resculpt yards and gardens to allow water to percolate into the ground.

To take a step into the retain age, consider harvesting rainwater from your roof and banking more water in your soil.

Harvesting roof water

Every inch of rainfall on 100 square feet of roof surface yields 55 to 60 gallons of water. For a 2,500-square-foot home, that translates to 1,375 to 1,500 gallons of water per inch of rain. This water can be caught and stored in above- or belowground cisterns and used for drinking, in-house nonpotable uses or irrigation, depending upon what filtration systems are installed and upon local regulations.

For information on roof water harvesting systems, go to:

-- www.arcsa.org: The American Rainwater Catchment Systems Association Web site features links to a wide range of rainwater harvesting resources. Click on Resources to see the list.

-- links.sfgate.com/ZFOA: This page links you directly to the ecology center's list of articles and books on the subject (scroll to the bottom of the page).

-- links.sfgate.com/ZFOB: A "Renewable Energy Site for Do-It-Yourselfers" with links to information on roof water harvesting systems.

If installing a roof water cistern seems too daunting, consider cutting off the bottom of a downspout and sliding a rain barrel under it to catch a portion of the water falling on your roof. Use the water to irrigate your garden during dry periods between storms.

Several sites provide information on rain barrels:

-- <links.sfgate.com/ZFOC>: The San Francisco Public Utilities Commission's Web site has information on the commission's recently launched program to help San Francisco residents purchase rain barrels at a discounted price.

-- <links.sfgate.com/ZFOD>: A good description of how to build a rain barrel from the Maryland Department of Natural Resources.

-- <links.sfgate.com/ZFOE>: Find rain barrel as well as roof water harvesting information on this "Renewable Energy Site for Do-It-Yourselfers."

Harvesting water in the soil

Creating rain gardens, berm and swale configurations, and other landscape features that allow draining rainwater to safely infiltrate the soil can increase the beauty and productivity of yards, gardens and extended acreage while reducing the impact of downstream and gutter storm water flow.

Erik Ohlsen, owner of Permaculture Artisans in Sebastopol, offered these ideas:

-- First, go outside when it is raining and see where the water is flowing on your property. "Pay special attention to the downspouts on your structures and remember that the water in the downspouts is a resource. Is it just draining away into a pipe? Find out where it's going."

-- Then imagine the draining water being put to use. "Look around your property and think what it might look like if that water was entering the landscape."

-- Track the money and time you spend on your irrigation system, and look at your drought-stressed plants. "As you bring storm water into your landscape, those issues will start to go away."

-- Finally, remember that we're all in this together. "Think of your responsibility to do what you can on your property to reduce the amount of water that flows into storm drains."

Some practical advice:

-- Start with a shovel rather than a backhoe. Get a feel for your soil and water interactions before taking on a large project. Or pay for advice from someone who has worked with the soils, slopes and climate in your area.

-- The steeper the slope, the more strategic you'll have to be about what techniques you apply to slow water drainage. "It's not always appropriate to infiltrate thousands or hundreds of thousands of gallons of water on a particular site."

-- Geological surveys will help you understand how water moves through a property. On slopes where you have shallow soil resting on bedrock, you must be careful about harvesting too much water. If the soil becomes saturated and the water starts to sheet and flow on top of the bedrock, the soil can slump off and trigger severe erosion.

-- Spillways and diversion drains that conduct water to a rain garden or lower swale should be lined with rock to prevent erosion.

-- Design your project to handle the amount of water entering the landscape during the heaviest rain. "You design for catastrophe," said Ohlsen. "And then you go just a little bit more."

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