

Romancing Rainwater By Rachel Olivieri

I recently attended a lecture in Willits entitled Rainwater Harvesting by author Brad Lancaster. Although water conservation and rainwater harvesting techniques have been around for ages, I was struck by Brad's story of Mr. Phiri, an unemployed man from Zimbabwe, who took seven heavily eroded acres of sloped land and created a sustainable food and livestock production for his family. How did he accomplish this feat? By observing water erosion patterns, use of his hands and natural materials found on his property, Mr. Phiri simply "invited the water to stay and not rush away anymore."

At the top of his property where the water begins to flow, he constructed loosely formed stacked stone walls at random intervals perpendicular to the water flow. By spreading and slowing rainwater runoff, water was allowed time to infiltrate the soil and new topsoil began to build upslope behind the stone walls. Just down from these check walls, he hand dug earthworks or depressions to hold water, much like small reservoirs. These depressions were filled with mulch and vegetation to create a water sponge allowing the water to draw efficiently into the soil. When these filled, they overflowed into still more earthworks down slope. This pattern of earthworks, berms and terraces continued to the bottom of his property. With these innovations, Mr. Phiri raised the water-table on his property. Through a shallow hand dug well lined with rocks, Mr. Phiri had fresh well water available year round.

Within the terraces that Mr. Phiri created on his slope, were his main house, an open cement water tank collecting fresh rainwater from the roof, his well, an outdoor wash basin, free range chickens and turkeys, cattle and goats, courtyard gardens with fruit trees, sugar cane and a dense banana grove at the bottom.

Before, rainwater would begin to run off, collecting water and velocity as it cascaded downhill, eroding everything in its path. Precious top soil was carried away leaving the land eroded and devoid of vegetation with no available ground water for cultivation or domestic use.

So what does this story have to do with Willits' water? It relates to how we care for the average 58 inches of rainfall that Willits receives most years. Despite the high rain fall, in drought years we face the specter of water shortages, which should prompt us to look at innovative ways to preserve our precious water supplies.

The City of Willits has commissioned a water study that could result in the drilling of wells to alleviate a possible water shortage in drought years should Morris or Centennial Reservoirs incur a shortfall. While drilling wells in the Valley could provide additional pumped groundwater in emergencies, the wells would not create a new source of water, only a new way of delivering water.

Willits has only one water source, rainfall, and only that rainfall that is captured as groundwater, as illustrated by Mr. Phiri. In short, you can only pump what is available

determined by annual rainfall captured and its sustainable recharge rate. Beyond that, you are over-pumping and driving the water table down subjecting others wells to go dry during the drought years. Not good a thing.

Willits is built like one gigantic drain system. Building techniques which have been standard for so many years only consider moving rain events out and away from the city as quickly as possible, not to stay and infiltrate as ground water which watersheds and wells depend on.

Beginning with the ridges that rim the valley marking the top of the valley watershed, water rushes down to the valley floor finding low points or sinks, like the northwest section of Hwy 101 and Reynolds Highway. In the city proper, water flows from rooftops onto landscapes, then to streets, drains, and creeks and finally to the sewer plant. With all of this water rushing towards sink areas, oil, fertilizers, pesticides, and many other toxic agents that might be present on landscapes, sidewalks, driveways and streets are carried along with the rushing water into the lower watershed possibly adversely affecting waterways down-flow.

So, the question is: How much of those 58 odd inches per rainfall season does Willits send elsewhere? How can Willits invite that water to stay longer and infiltrate as fresh ground water available for year round use for domestic use as well as maintaining healthy watersheds? Willits needs thoughtful ways to improve groundwater retention on the supply side while using less on the demand side of domestic water.

So, in addition to drilling emergency water delivery systems like wells, we should develop thoughtful water management practices that increase water productivity by inviting rainwater to stay and infiltrate as groundwater. This is the only way to sustainably feed wells in the valley.