Floods and droughts--community solutions

By Freya Keddie

Who can forget Tofino's water crisis of last summer or the recent images of flooding on Vancouver Island? November rainstorms have challenged the carrying capacity of traditional stormwater drainage systems throughout Southern BC, resulting in costly flooding in many areas.

But is it right to assume that increasing capacity of existing systems is the answer? And how do we reconcile record-breaking winter rainfall with summer droughts in these same areas? Part of the solution may be an integrated approach to urban watershed management now underway near Los Angeles.

Our cities are full of impervious surfaces that channel rainfall, an untapped resource, down the drain. One inch of rainfall on an acre of land equals around 27,000 gallons of water and the amount of runoff depends on a number of factors, including the amount of impervious surfaces. If forested, only 1,300-2,700 gallons leave the acre as runoff; most is absorbed and sustains the forest during dry summer months. For residential areas, about 7,000-9,000 gallons of usable rainwater is lost, and for downtown commercial areas the amount of runoff jumps to 25,000 gallons. It is no wonder that traditional systems can fail us during severe storms!

In Sun Valley (near Los Angeles) a pilot project was undertaken to reduce chronic flooding while capturing water for future use. Shallow, grassy on-site retention systems (swales, basins) filter and store runoff during downpours. Pavement is being replaced with porous surfaces that absorb rainwater and filter out toxins, after which it percolates down to recharge aquifers. Municipal storage facilities and underground residential cisterns store rainwater for watering boulevard trees and gardens in the long summer months.

Here in Victoria we waste potable (drinking) water on our lawns, in our laundry and in toilets. Meanwhile, rainwater is swept away from our homes, mixed with oily street runoff, down drains, into waterways and ultimately into the ocean. In one part of Oak Bay, this oily mix ends up in the same pipe as sewage, occasionally resulting in overflows into the Willows Beach area during heavy storms.

According to Saanich Councillor Vic Derman, "...more natural methods, such as treating rainwater on the edge of streets with rain garden technology has the potential to solve the problem at a fraction of the cost" of traditional methods, such increasing existing capacity or adding a second pipe.

Each new building or subdivision creates more demand on water services and more impervious surfaces that strain stormwater systems during downpours. But new and existing buildings can instead become a source of water, decreasing demand on municipal reservoirs. And in Central Saanich, Councillor Zeb King is betting that his Rainwater Harvesting Project will demonstrate a cost-effective alternative to piped water for those who experience problems with their wells during dry summers.

Although Sun Valley's "urban watershed" plan was the brainchild of TreePeople founder, Andy Lipkis, the cornerstone of the project was the citizens themselves. "Community is key," states Oliver M. Brandes of the University of Victoria's POLIS Institute. "We all have a relationship to water. In a more ecologically sustainable paradigm we need to all be engaged in the planning, management and ultimately conservation of it." This "sense of buy in" can spur grassroots innovations. Says Brandes, "...the public/community can contribute 'creative' thinking and instigate the kinds of significant changes that might not even be imagined in a more status quo environment."

The Sun Valley experiment has become a catalyst for a "paradigm shift" in water management throughout the Los Angeles basin, where "...they talk of turning the most paved urban area on the planet into a 'porous city' that can catch the rain, banish floods and become self-sufficient in water," claims Fred Pearce in his recent book, *When the Rivers Run Dry*.

We need to question our acceptance of traditional "top-down" water management strategies. The Sun Valley experience shows that communities can look "beyond pipes and pumps, mimicking nature to solve water problems, fostering a conservation ethic while creating local jobs. Local advocates of "The Soft Path for Water" know that the journey down that path can begin right in our own backyards.

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Oliver M. Brandes is the Senior Research Associate – Water Sustainability Project Leader for The POLIS Project on Ecological Governance. See: "Thinking Beyond Pipes and Pumps: Top 10 Ways Communities Can Save Water and Money", at www.waterdsm.org

Read more about The Sun Valley Watershed Project at www.sunvalleywatershed.org