The Water Front:
Mitigating and Adapting to Climate Change
Via Integrated Urban Watershed Management
The Sun Valley Watershed Project, a case study

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One of our biggest opportunities to fight – and adapt to – climate change is to change our thinking about urban infrastructure. **This can free up enormous resources to solve multiple problems at once, while making cities healthier, cleaner, safer, and more livable.**

How do we do that? Through changing the way we think about infrastructure from "single-purpose" which wastes resources (energy, water, and cash) and produces excessive carbon emissions, to "multi-purpose," which saves in almost every way imaginable.

The Sun Valley Watershed Project, led by the County of Los Angeles with support from other agencies, nonprofits such as TreePeople, and community members, is a major demonstration of how an integrated, multi-purpose, multi-agency and stakeholder approach can save money, protect public health and safety, and dramatically cut sources of greenhouse gas emissions while mitigating drought and floods. It provides an inspiring vision of how we can truly "green" our cities by investing in human and natural capital (people and nature) instead of grey infrastructure (pipes and job-eliminating technology).

The Sun Valley watershed is located in the Northeast San Fernando Valley of the City of Los Angeles. It is a 2,700 acre, six-mile-long industrial urban community with a population of 64,000. This underserved area, home to mainly low-income residents who suffer from higher than normal incidences of cancer and other diseases, has been declared the City of LA's first Environmental Justice Zone. For years Sun Valley has experienced flooding caused by a lack of storm drains and too many soil-sealing buildings, roads, parking lots, and other forms of gritty urban development. Every time it rained in Los Angeles, it flooded in Sun Valley. This situation continually endangered human safety (one infamous intersection regularly submerged cars), damaged the local economy because of impassable streets, threatened human health, especially children's health -- -- with rain water flushing toxins off of industrial sites into neighborhood streets, schools and parks --and impacted the larger environment as polluted stormwater gushed through drains to the Los Angeles River and the ocean.

To address the chronic flooding, Los Angeles county and city flood control officials planned to install a massive 9-mile-long storm drain which would take all the flood water away…for a cost in 1997 of $42 million. Officials were preparing to begin construction until they considered, and then studied, the feasibility of managing the area as an *urban*

forest watershed instead of simply a paved drainage. After a multi-year process in which TreePeople provided cost/benefit computer modeling for engineering, environmental and economic analyses, the concept was proved feasible and resulted in a project that is now under construction for a cost of nearly $200 million.

So, how, in this day and age, did a $200 million project turn out to be more feasible than a $42 million one? Because the research powerfully demonstrated that the benefits of this urban watershed approach far outweighed the costs, and would actually save the city and county more than $300 million over 30 years. Coming to this conclusion was possible because of the project's multi-purpose approach that involved participation and funding from an unprecedented collection of diverse partners, agencies, non-profits, businesses and residents.

Key to understanding the Sun Valley Watershed Project is to understand what an urban watershed is. Before there were cities, there were natural landscapes that handled water with no waste or pollution, with trees and plants performing ecosystem services that allowed rain water to seep into the ground to recharge the water table. As cities were developed, the natural ecosystem functions were replaced by separate infrastructure agencies: water importation, flood management, water pollution control, air pollution control, solid waste disposal, etc. The urban watershed approach means that these "single purpose" agencies come together collaboratively to find cross-agency solutions to problems, rather than what too often happens – cross-purpose problems created by single agency solutions. This is what we call the "integrated approach."

What an urban watershed project looks like is a cool green forest, even in the heart of the most urbanized area: numerous strategically planted trees shading buildings and streets, asphalt and concrete taken out and replaced with mulch chipped from tree-trimming, with the landscape incorporating water-saving technologies such as cisterns and French drains, and practices such as berms and swales. Rainwater, instead of becoming potentially dangerous polluted stormwater, is captured, cleaned and then stored for use or recycling…to provide or augment local water supplies.

Here are a few of the savings that are projected when Sun Valley finally looks like this "forest-in a city."

Climate change prevention: The significant amount of water that will be captured, reused and conserved in Sun Valley would replace some of what is currently pumped over the mountains into Los Angeles at a tremendous cost of energy and related carbon emissions. The California State Water Project is the largest single user of energy in California. The amount of energy used to deliver that water to residential customers in Southern California is equivalent to approximately one-third of the total average household electric use in the region.

Energy conservation: Also preventing climate change, the trees and greening will mitigate the "urban heat island effect" caused by too much asphalt and concrete, and directly shade residential, commercial, industrial, and school buildings, dramatically lowering electricity use for air conditioning. The reduction of trash trucks hauling green waste will also reduce air pollutants generated by trips to the landfill.

Water conservation: Retrofitting the area as an urban forest watershed will remove enough concrete, plant enough trees, capture enough mulch, and install enough water-capture and reuse systems to return roughly $200 million in water back into the city's groundwater supply, protecting against drought while capturing water that can present a flooding hazard.
Solid waste reduction: By instituting an aggressive on-site garden-waste mulching and recycling for the area's 8,000 homes, the city will save roughly $30 million by not collecting, hauling and processing the "waste."
Water pollution prevention: The water now being captured and reused will not be polluting the local receiving waters (LA River and San Pedro Bay) as it scours streets on the way to storm drains, thereby mitigating stormwater pollution fines and cleanup costs.
Jobs: Converting the mostly paved and impermeable surfaces to functioning forest watershed could create a host of jobs in manufacturing, installing, and maintaining the living and non-living components of the watershed. One economic analysis of the Sun Valley Watershed plan estimates the creation of up to 300 new jobs for that community.

TreePeople's specialty in the project is our expertise in community engagement. Over the past 35 years we have inspired, trained and supported people to take personal responsibility for their environment. In Sun Valley we are working with community members, school children, and business leaders so that they are actively involved in planning the exciting and important changes happening around them – including significantly expanded parks and open spaces. The opportunities presented by this project extend to other quality of life issues, in particular jobs. Eventually, local young people will be trained to fill the projected sustainable "green collar" jobs.

Construction of the Sun Valley Watershed is underway with two lead projects already complete. The next phases will involve retrofitting up to 40% of the 8,000 single family homes in the community and construction of numerous other projects including the creation of school watershed parks and the conversion of a large gravel pit into a massive water-remediating lake, wildlife refuge and passive recreation area.

This promising project gives a glimpse of how we can re-imagine and re-engineer cities to be green, healthy and environmentally, economically, and socially sustainable -- with government, community, and nature working together to benefit all. Projects like this are possible in many communities, if the public engages in the planning process, demanding that their government agencies coordinate their activities to eliminate waste and inefficiency and the loss of resources needed to develop healthy and resilient communities.

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