

Prelude to Change: Defining Roles in Landscape Water Management

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Abstract

This presentation by US EPA Water Efficiency Leadership Award winner describes his vision for filling the missing link in landscape irrigation water management and sustaining our living landscapes with a newly evolving industry focused on water management. During a time when water was plentiful and price was cheap, very little attention was directed toward landscape irrigation. However, times have changed and the demand for professional consultants serving commercial real estate owners is now.

This new industry must be able to fulfill a comprehensive approach to water management including:

- Irrigation scheduling
- Modification of landscape cultural practices
- Elimination of potable water sources
- Proper planting plans for region

At a time when water utility providers look to any avenue of conservation, including turf and plant removal, this industries primary challenge will be sustaining irrigation water conservation and preserving landscapes significant long-term benefits to our environment and health.

Keywords

Comprehensive irrigation management
Water conservation
Preserving landscape
Environmental impact

Prelude to Change

Until recently, United States water policy and laws were derivative of a time of excess and plenty; however, in spite of our increasing awareness of the potential for water shortages, we continue to operate in denial of the reality of our threatened fresh water supply. Numerous regions in this country are faced with potable water shortages due to lasting effects of drought, increasing population, environmental and endangered species requiring protective measures, and a global shift in the climate.

Present day voters are showing progressive concern with environmental issues, while many recent judicial verdicts exhibit support of the environment, in-stream flows and endangered species over other water stakeholders. Watering restrictions and recommendations for the depletion of managed landscapes are to frequently touted as a valid solution to reducing water use. In order for our irrigated landscapes to survive this onslaught of pressure, we must rise to the challenge and become the best possible stewards of this precious resource we call water. As a concerned citizen and professional in the irrigation landscape industry, it is my core belief that landscape and irrigation professionals must unite with the common goal of protecting our landscapes through heightened stewardship of the water resources available to sustain them and our own human existence.

As pressure on our urban water supplies have continued to grow, water purveyors have often reacted with considerably short sited solutions with disregard for the long term environmental consequences. One example of recent is the turf removal program in the Las Vegas, Nevada area, where the water authority has paid \$238 million to remove 5,500 acres of turf grass from the landscape over the last two and one-half years. Some of the areas were modified with hardscape, others with native plantings and high efficiency drip irrigation. While this program has its merits with encouraging use of native plants well adapted to the region's desert climate, the program has been touted as a success for reduction of water consumption, the latter which has only elusively quantified the actual water savings. Program skeptics point to a natural reduction by homeowners due to the current economic recession, coupled with an abundance of home foreclosures and vacant properties where no watering is occurring at all. Imagine the resulting measurable water savings in the same regional area if the \$238 million dollars funded for turf removal were instead directed towards a program advocating restoration of outdated and broken irrigation systems, implementation of new irrigation technology, and enhancement of system and management efficiencies?

An Industry in Fluctuation

The landscape and irrigation industry has not prepared itself to deliver measurable, documentable data to support return on conservation investments for property owners, nor to support our conservation efforts to water authorities. For decades, commercial property owners have looked to the landscape and irrigation professions for expertise and advice on maintaining their landscape investments. In many instances, property owners and managers have designated the landscape service provider as the responsible party for managing the site's water by including irrigation water management in the scope of services for the general landscape maintenance package. This has resulted in a service that is devalued by awarding zero compensation and

fostering little or no attention to the real issue of providing irrigation water in an efficient manner. Additionally, unaware of actual water costs and consumption, the service providers historically err to excessive water application, resulting in additional, unnecessary waste.

Because the landscape service business has become a commodity service, landscape and irrigation professions have been unable to sustain respect and trust of commercial property owners. To a large extent, the blame for excessive water use has landed squarely on the backs of these professions, while the real problem may actually rest on the manner in which business is conducted between the commercial property owner and the landscape service providers. By sheer nature of the business and as a commodity service, landscape service contracts are constantly changing; i.e., landscape service providers come and go, but the site and its context remain. Water management of these sites must be able to survive this fluctuation between commodity service providers in order to effectively sustain measurable water savings and preserve our landscapes.

As a life time descendant of the landscape and irrigation industry, I harbored skepticism as to how effectively this change could be implemented and, whether it would truly make a difference. Since my departure from the commercial landscape service business in 1998, I have dedicated the last eleven years modeling a concept of professional water management that could successfully integrate with the existing service industry. Today, I come before the Irrigation Association membership to speak with you about redefining roles in landscape water management, sharing my experiences and to enlist your support and involvement in the formation of a professional landscape water management industry, quietly in the making.

An Industry in Formation

Over the past two years, having attended multiple water related conferences, dabbled in water policy and legislation and provided input to affiliates of water conservation programs and State and Federal levels, I have noted a common thread. There is an overwhelming theme of fragmentation and disconnect amplified by all stakeholders: water utilities demanding landscape professionals to step up conservation efforts; irrigation manufactures being asked to provide documentation supporting savings claims; landscape professionals asking, “How did I get delegated responsibility for watering?”; irrigation professionals assuming control of the water while historically blamed for overuse; regulatory agencies wanting to hold someone else, anyone else accountable; and finally, water utilities wielding the hatchet to restrict landscape watering, and blaming new landscape installations and plants for excessive water use. Complete chaos – division and continued internal and external fragmentation amongst all stakeholders.

Sorting through all the noise generated within the water stakeholder groups, it is apparent there is a missing component in the landscape water management arena of responsibility. My vision has been to create a new industry focused on water management and capable of bonding the stakeholder parties through trust and respect. In early 2001, my partners and I formed a performance based water management pilot project to prove the theory that 20 percent of landscape water could be saved simply by focusing on precision application. After seven years, the company has documented over 64.8 percent in savings across a seven state portfolio of commercial properties. By managing rain events, monitoring flows, reporting leaks and system

inefficiencies, and with precise application based on range-based soil moisture management, these savings equate to greater than 1.5 billion gallons of water. Just one small company – envision the possibilities. To size up the situation, the United States Environmental Protection Agency estimates this country’s daily potable water use in the landscape as greater than seven billion gallons, with over 50 percent of the water value unrealized; water lost in the landscapes due to inefficiencies, leaks and excess application beyond the plants water requirements. Even as water rates remain relatively low nationwide, the value of this lost water is approximately \$10.2 billion dollars annually, more than enough to support this proposed new industry.

Managing landscape water is a daunting challenge requiring meticulous management of best management practices far beyond adjustment of irrigation control settings. To sustain the required reduction in water consumption in the landscape, water management professionals will need to provide comprehensive irrigation management, cultural practices in landscape maintenance will have to change, and dependency on potable water sources for purposes of irrigation will have to drastically reduce.

The *new* water manager will need to accept responsibility for overseeing all the necessary components required to maximize, measure and document sustainable water savings and success of the program. As a central “hub” for the landscape and irrigation service providers, the water manager will provide a central point of responsibility for maintaining water conservation practices that continues the mission, even as landscape service providers and property ownership change.

Water management professionals will have a strong education in agronomy with a thorough understanding of soil, oxygen and water relationships involved in active soil moisture management, allowing the opportunity to stretch the time between supplemental irrigation cycles to the next rain event. With a comprehensive understanding of the landscape’s water requirements, the water manager will be equipped to direct landscape service providers with prescribed work scopes that complement water conservation. The water management professional will also be required to notify and escalate the need for irrigation repairs to property owners, providing them with the financial detail required by property managers.

While we have abundant SMART control products available to assist the professional water manager, in order to gain rapid adoption of the technology there will need to be a shift from product based sales strategy to performance based contracting. Federal and State water authorities are gearing conservation funding to support entities that produce and sustain measurable water savings over product rebate incentives of the past. The new water management industry is postured, at this very moment, to take advantage of this changed direction.

Acknowledging this would be a dramatic change in the actual control the landscape and irrigation professionals would gain with access to a new array of benefits provided from the water management professionals, allowing them the opportunity to focus their attention on providing services designed to enhance the overall water conservation program. In reality, this model would provide the ultimate control sought by these service providers, while limiting their perceived liability for failures of landscapes.

Irrigation professionals should realize a renewed role in water conservation through this model. Most people are keenly aware of the degradation of our country's water and wastewater infrastructure, but lack the understanding of the same degradation occurring in our abundant existing irrigation systems. Irrigation professionals are poised to provide massive renovation services of existing dilapidated irrigation systems, preparing these systems for new technology and best management irrigation practices. The irrigation industry will also be called upon to continue enhancing distribution and efficiency of irrigation systems.

Water authorities will look to the irrigation professional to provide routine water audits as necessitated by best management practices and to maintain the irrigation system integrity. One of the key missions of the Irrigation Association should be to promote the use of their professionals by water utility providers performing landscape water audits. While many water utility providers offer water free audits to their customers, the program devalues the audit and water. Conservation incentives for water audits should be directed to the irrigation professionals as an incentive to align this important stakeholder group in the conservation program. Water utilities must be urged to mandate landscape water audits to instill value and respect our water resources deserve and enforce maintenance of the irrigation system infrastructure by property owners.

While irrigation system components are normally the focus of landscape irrigation water conservation, it is truly the landscape maintenance program that sets the basis for water conservation success or failure. Landscape service providers will be challenged with training their landscapes to be less dependent on potable water by implementing cultural changes to the way landscapes have been maintained in the past. In the short-term, a process to develop soil moisture holding capacity, aeration to enhance infiltration, designing nutrition programs that reduce growth but maintain plant color, promotion of root growth to expand the root zone water availability, and, increased mowing heights and reduced mowing frequency to reduce stress on plants during times of high temperatures. As a long term strategy, implementation of landscape replacement programs that begin to convert high water use plants with more resource efficient plants, including proper soil and irrigation modification to assure reduced water consumption, will enhance water conservation programs.

Conclusion

Water use in the landscape offers a tremendous opportunity for water savings due to the sheer magnitude of water under utilized each day. Historically there has been an issue of responsibility and control of irrigation dividing the landscape and irrigation professionals, and driven by property owners. The creation of an industry of educated professionals managing water and orchestrating what has historically been a fragmented landscape and irrigation industry could provide the common ground for reducing the under utilized water in the landscape and gaining trust and respect from property owners and water authorities. In due course, this new water management industry will serve to reduce the pressure on our industry and landscapes by water utility providers, and ultimately save water while preserving our landscapes.

Landscape water management involves much more than controlling irrigation scheduling and will require dedicated commitment to best management practices by water managers, landscapers and irrigation professionals. Water utility providers will also play a significant role in the mass adoption of this industry through conservation incentives based on sustained performance satisfying their need for measurable success. Once this group of key stakeholders aligns, “hatchet” restrictions can be converted to incentives, as “Carrots taste better than sticks”.

It may be hard to imagine, but with projected rate increase for potable water the value of water lost in the landscape could surpass the total annual revenue generated by the landscape-green industry. Development of this new industry provides the landscape and irrigation professionals with a much greater assurance of protecting their respective livelihoods in the future, as well as maintaining our access to maintained green spaces for our enjoyment and well being.

Acknowledgements

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