

What a beautiful blue world

As I begin researching this report in July, the reassuring voice of ABC news anchor Charles Gibson seeps into my office from an adjoining room. He's recounting that exactly 40 years ago, Neil Armstrong became the first human to step onto the moon.

Oh, what Armstrong saw as he looked from that barren, rock-strewn landscape into the vastness above him: a huge blue sphere streaked with wisps of white, four times larger than the silvery orb that dominates our skies at night. Like the handful of astronauts and cosmonauts preceding him into space, he marveled at Earth's beauty, a sight so unlike any other in the inky sea of the universe peppered with innumerable tiny points of light.

The beauty of Earth — indeed, the miracle of life — is the gift of its most precious resource: water.

On the following pages, and in the October and November issues of *Landscape Management*, you'll read about vital water issues. You'll develop a better understanding of how our industry fits into the picture of fresh water's availability and its conservation, globally and regionally. You'll also learn about emerging ideas, technologies and partnerships to guide your business and the Green Industry wisely in terms of intelligent water use now and in the future.

Our sincere thanks to Rain Bird for making these reports possible. — Ron Hall

WATER

at a crossroads



PART



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WORD FROM OUR PARTNER

Rain Bird: Encouraging The Intelligent Use of Water™

EVERY DAY, WE MAKE CHOICES — choices that directly affect our families, our communities and our environment. But will our choices leave behind a better world for future generations than the one we inherited?

Rain Bird understands the vital role water plays in a healthy, sustainable environment. We take the challenge of using water responsibly very seriously. That's why our overarching philosophy, The Intelligent Use of Water™, guides everything we do.

We've built a reputation on delivering irrigation systems that combine performance with efficiency. Every day, Rain Bird leverages state-of-the-art technologies to innovate and develop products that apply water in the most effective and efficient manner possible. From pressure-regulating spray heads and water-efficient nozzles, to cutting-edge controllers and state-of-the-art drip irrigation systems, Rain Bird's products use less water to maintain beautiful landscapes and golf courses.

Our commitment to The Intelligent Use of Water extends beyond our products to initiatives aimed at educating the industry and the community on the need for and best practices of outdoor water efficiency.

Through the annual Intelligent Use of Water Summit, Rain Bird brings together some of the world's leading experts on water, irrigation and conservation to openly



discuss and debate water-related issues. From our well-documented white papers to the curricula we've developed with leading educators, Rain Bird constantly seeks out new ways to build a better understanding of water's economic and environmental roles.

We also believe that building partnerships with likeminded individuals and organizations is a powerful way to inspire change. Rain Bird partners with organizations like the GCSAA's Environmental Institute for Golf and the American Public Gardens Association to promote responsible water management.

Rain Bird is dedicated to environmental stewardship, and this commitment is woven into the very fabric of our organization. In the future, we will continue to develop both products and initiatives that have the potential to inspire responsible, informed choices about the way we all use water each and every day.

RAIN BIRD

The biggest state in the continental United States and its robust Green Industry face an uncertain future without new water.

BY **RON HALL** EDITOR AT LARGE

A Texas-sized water challenge

TEXAS IS on a collision course with its fresh water resources. If the state doesn't develop new sources of fresh water and convince Texans to mend their water-wasting ways, its future economic vitality is in jeopardy.

Who says? The 2007 State Water Plan, the latest in a series of reports developed every five years by the Texas Water Development Board. The plans attempt to project the state's water needs 50 years into the future.

But long before the state's economic engine stalls, the Green Industry already would've been squashed flatter than an armadillo attempting to cross Austin's I-35 dur-

ing rush hour. While all other uses of water are expected to increase into the future, the plan is calling for a gradual decrease in water used for irrigation.

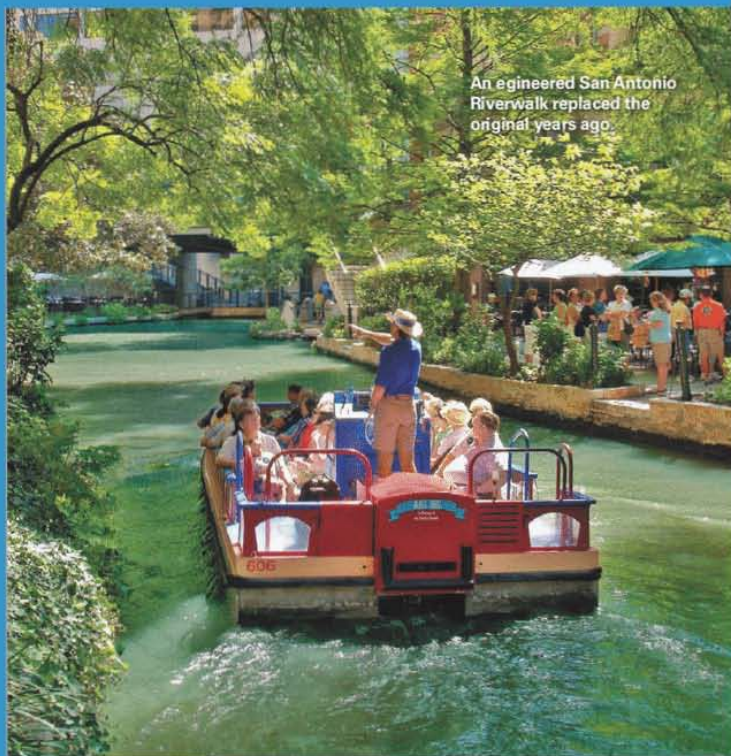
The visibility of the Green Industry's water use and the perception it's wasting water (justified in many instances) guarantee it will be one of the first industries dramatically altered or sacrificed in the name of conservation.

A Green Industry without irrigation? Yes, it could happen, says Todd Magatagan, president of the Texas Turf Irrigation Association (TTIA), a 40-year-old organization of licensed irrigators based in Plano. That's the bad news.

"Too often, the politicians have turned a blind eye on water supply

and building new infrastructure and the irrigation industry is paying the price for this," says Magatagan.

The good news is it needn't happen. Apart from California or Florida, no other state in the union has a broader and deeper array of public and private agencies and entities (Green Industry associations included) focused on protecting and expanding the state's water resources. Encouragingly, many of these groups, especially industry groups, are starting to communicate. Case in point: the growing cooperation between the TTIA and the Texas Nursery & Landscape Association and also with the 10 regional irrigation associations in Texas.



An engineered San Antonio Riverwalk replaced the original years ago.

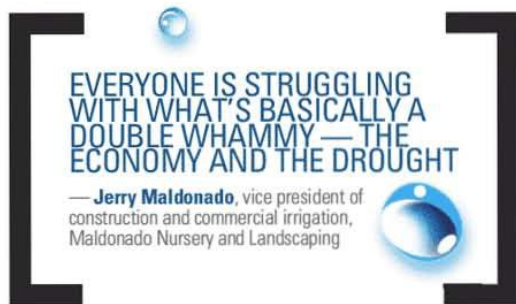
Time to act is now

Everyone in Texas, it seems, understands the stakes. But Magatagan asks, do these entities have the will and foresight to spend the money to address its water needs?

"So far, cities have been spending money on what they see as sexier projects," he says. "There's nothing more vital to our state than water."

Consider this warning from the Texas Water Development Board's 2007 State Water Plan: "If Texas does not implement new water supply projects or management strategies, then homes, businesses, and agriculture enterprises throughout the state are projected to need an additional 3.7 million acre-feet of water in 2010. By 2030, this figure rises to nearly 5.9 million acre-feet and by 2060 it increases to 8.8 million acre-feet. In 2060, slightly more than 85% of the state's population is projected to have water needs." (Note: an acre foot of water = 325,851.4 gallons.)

In light of the realization the state's future economic health is dependent upon adequate supplies of fresh water, a sense of urgency is creeping into the state's often-discussed plans to construct more lakes for surface water cap-



ture and storage and also to consider desalination plants on its Gulf Coast.

Fueling that urgency, like kerosene on a bonfire, is a devastating drought, now approaching its third year, which this summer teamed up with weeks of triple-digit temperatures to ham-

mer south central Texas. By August, 20% of the state was experiencing "extraordinary" drought, reminding some old-timers of the withering 7-year (1948-1955) "drought of record" that caused huge losses to the state's agriculture and livestock.

San Antonio in south central Texas sits at Ground Zero of the current drought. Visitors to this, the seventh largest city in the United States, cannot appreciate the severity of the drought by touring its two most popular destinations, the Alamo, the historic shrine featuring two verdant acres of grass and gardens, and its world-famous Riverwalk. Sitting at an outside cafe and watching flat-bottomed riverboats filled with tourists leisurely motoring by, one can be forgiven for not guessing the engineered waterway, snaking just below the bustling city overhead, replaced the original San Antonio River long ago.

The progressive San Antonio Water System (SAWS) provides water to more than 1.2 million customers, and aggressively protects the region's primary source of fresh water, the Edwards Aquifer. Predictably, the drought has caused SAWS to limit landscape irrigation to a single day a week.

For the most part, the Green Industry is adapting and works closely with SAWS, says Michael Brown, owner of The Grass is Greener Landscape Inc., and past president of the San

Antonio Irrigation Association. San Antonio offers more than its share of challenges to the Green Industry, thanks to an incredible range of landscapes, from older designs loaded with subtropicals to more recently installed drought-tolerant xeriscapes, Brown

says. The topography of the region is just as varied.

"There are some areas in the region where you only have an inch or two of topsoil over rock," he says. "You can't grow landscapes on rock."

Hydrozoning, the concept of selecting and grouping plants with identical water needs within a landscape, is the only option when designing and installing landscapes in San Antonio, Brown says.

Jerry Maldonado, vice president of construction and commercial irrigation for Maldonado Nursery and Landscaping, says he can't remember a hotter or drier summer than the one San Antonio experienced this year. That's saying something. The company he, his two brothers and his father founded almost 25 years ago has grown through just about every condition central Texas has thrown at it.

"We've been through this before and have experienced some sort of irrigation restrictions just about every year, but never this bad," Maldonado says. "Everyone is struggling with what's basically a double whammy — the economy and the drought."

"Once-a-week watering isn't enough to save a lot of landscapes in this heat," Maldonado says. "And we're losing a lot of trees, too."

Irrigating big commercial properties is especially difficult because some of them are too big to water in one day a week, he adds.

SAWS instituted the once-a-week watering restrictions to protect the region's principal source of fresh water, the Edwards Aquifer. SAWS bases its action on the level of the aquifer, which can rise or fall rapidly depending on rainfall within the aquifer's 8,000-sq.-mile boundary. SAWS taps 92 wells to draw its water from the aquifer, although it was the aquifer-fed springs and rivers that originally drew the first settlements to the region hundreds of years ago.

The drought has shriveled demand

TEXAS RESEARCHERS INVESTIGATE 'SMART' IRRIGATION

OVERTON, TX — A new study being conducted by Dr. Karl Steddum, AgriLife Extension plant pathologist, and Dr. Lloyd Nelson, ryegrass breeder with Texas AgriLife Research, compares the effectiveness of different irrigation systems using smart controllers to prevent overwatering of home lawns, athletic fields and public parks. Steddum and Nelson are conducting the study at the Texas AgriLife Research and Extension Center. The East Texas Irrigators Association is cooperating with the study.

"Water conservation is a big issue in Texas," Steddum says. "Legislation is coming that will require professional turfgrass managers — and eventually homeowners, too — to install smarter irrigation systems."

Though the study is being done in East Texas, the results should be applicable to much of the state.

"Turf irrigation demands in East Texas are highly variable," Steddum says. "Our sandy soils and intermittent rainfall patterns result in frequent fluctuations between periods



Karl Steddum

of low and high water demand. This makes this location an ideal or a worst case scenario to evaluate these new approaches to irrigation scheduling."

Professional landscapers and irrigation installers are some of the most important stakeholders in the research, says Todd Magatagan, president of the Texas Turf Irrigation Association and past president of the East Texas Irrigators Association. As smart controllers become used more widely, it'll be the commercial installers like Magatagan who'll need to know which products and technologies prove to be the most reliable for customers.

"We're in phase one of this project," he says. "Phase one creates a baseline, but phase two will run actual products that are on the market and give us an independent testing method where this type of intelligent controller or this one works better."

In commercial systems, the sophistication of off-the-shelf smart controllers ranges from those that try to estimate evapotranspiration to those that actually measure soil moisture.

"The number of (commercially available) smart controllers is growing every year," Magatagan says. "(At this time), we expect to be testing about a dozen smart-controller systems."



Lloyd Nelson

for residential irrigation systems, Maldonado says. "They figure if they can't use them, why put them in," he says.

But Maldonado's company continues to install systems on commercial sites. And even though the San Antonio market has been aware of the efficiencies of drip irrigation for landscape beds, its popularity among property owners remains much less than Maldonado wishes.

It's almost nonsensical to discuss the average weather for central Texas,

says Deborah Cole of Greater Texas Landscapes (GTL), which has locations in Austin and San Antonio. This is especially true for the region's average temperature or precipitation. After all, what does average mean in a state where Beaumont, on the state's humid Gulf Coast, averages 55 in. of precipitation annually and El Paso, in the rocky West, receives 10 inches of rain?

That's a lot to ask of average in a landmass of 268,000 sq. miles and a climate that varies dramatically

with 10 recognizable climate divisions, Cole says. You work with the weather Texas gives you, which can be just about anything, including drought.

"People have finally decided it's OK to have things in their landscapes other than grass and other green plants," Cole says. "For years, we've had a hard time trying to convince people to consider options other than grass. They didn't understand we weren't talking about just rocks and cactus. Now people are beginning to see we're able to do creative things with different textures and colors of material, including rocks, boulders and gravels, and the many native and adapted plants that are now readily available," Cole says.

"Actually, we've had nurseries supplying beautiful native and drought-tolerant plant material for years, thanks to the late Lady Bird Johnson and her love of wildflowers," she adds.

But, as healthy as the Green Industry remains in the state in spite of the drought, its long-term future is problematic.

If water authorities and local politicians don't address the water needs of their cities' growing populations and development, some industries will almost certainly be denied access to fresh water. First on that list could very well be irrigation for landscapes and turfgrass, says Magatagan.

Actually, he says, the stakes are much greater than that.

Heed the words of the Texas Water Development Board's "2007 Water Plan" in assessing the state's potential water shortfalls:

"Needs of this magnitude are projected to cost businesses and workers approximately \$9.1 billion worth of income in 2010. By 2060, this figure increases to roughly \$98.4 billion. Forgone state and local business taxes associated with lost commerce are projected to amount to \$466 million in 2010 and \$5.4 billion in 2060." LHM



SAWS at a glance

The San Antonio Water System covered 620 sq. mi. and, as of the end of 2007, served 344,261 customers and had a water capacity of 899.7 mgd. Here is how that water was distributed.

CUSTOMER TYPE	NO. OF CUSTOMERS	CUSTOMER TYPE BY %	% OF WATER DEMAND
Residential	321,177	93.29%	54.92%
Commercial	18,575	5.40%	23.74%
Apartment	3,447	1.00%	15.49%
Industrial	153	0.04%	4.22%
City of San Antonio	808	0.23%	1.20%
Wholesale	7	<0.01%	0.20%
Bexar Met	1	<0.01%	<0.01%
SAWS Mtrd.	113	0.03%	0.23%

Source: San Antonio Water System



Future Texas water needs

Population in Texas is expected to more than double between the years 2000 and 2060 and demand for water there is expected to increase by 27%. Even so, the amount to be used for irrigation (agricultural and urban) is expected to decrease by more than 15% during the same period.

YEAR	POPULATION	TOTAL DEMAND (acre ft.)	IRRIGATION DEMAND (acre ft.)
2010	24,915,388	18,311,828	10,345,131
2020	29,117,537	19,010,876	9,980,301
2030	33,052,506	19,567,048	9,585,833
2040	36,893,267	20,104,592	9,206,620
2050	41,071,409	20,758,602	8,843,094
2060	45,588,282	21,617,274	8,559,244

Source: "Water for Texas 2007"

The Colorado's uncertain future

RESIDENTS OF Las Vegas and its surrounding areas are all too familiar with them. Residents of other Southwestern states who rely on the Colorado River might be familiar with them sooner than they think.

They're water restrictions.

Even though there aren't mandatory widespread restrictions in states such as Utah, Colorado and Arizona, water authorities and landscape contractors are keenly aware of how the precious resource is used. They are taking steps to educate their customers.

"It's only a matter of time before regulations and standards for irrigation are implemented in the residential market," says Jason Isenberg, owner/landscape designer of Tucson-based Realm (formerly Urban Organics Landscaping). He adds that some restrictions and guidelines in the commercial sector in Tucson exist already. "It horrifies me ... the situation we're in and how far we let it go."

"Even though we have a lot of extra water in Mesa

Contractors in the Southwest are changing how they work with landscapes, thanks to a drought stricken Colorado River.

BY JOHN WALSH

Consult, which offers advice and assistance to water agencies about water development programs.

Though regulations vary from city to city, drought restrictions in Nevada, for example, include:

- ▶ Assigned watering days and seasonal watering restrictions;
- ▶ Limits on decorative fountains and driveway car washes;
- ▶ Development codes prohibiting turfgrass in front yards and restricting it in back yards; and
- ▶ Incentive programs that rebate money to people who make other water-efficiency improvements.

County, there's a lot of associations pushing conservation," says Dan Komlo, partner and landscape manager of Brookcliff Gardens, Grand Junction, CO. "We need to teach the public about conservation today and down the road."

"Limits on water will increase, and there will be conversion from traditional landscaping," predicts Bob Johnson, an affiliate with Loveland, CO-based Water

Colorado River at a glance

- ▶ 1,450 miles long
- ▶ Begins in the Rocky Mountains and flows into the Gulf of California in Mexico.
- ▶ Supplies water to more than 25 million people, and irrigates about 3.5 million acres of farmland.
- ▶ More water is exported from the Colorado River's basin than any other river basin in the world.
- ▶ Flows through Utah, Wyoming, Colorado, New Mexico, California, Arizona and Nevada. All of these territories have rights to the river under the Colorado River Pact of 1922.
- ▶ Approximately 87% of the water leaving Colorado flows out of the Colorado river basin toward the Pacific Ocean. The remaining 13% flows out of the Missouri, Arkansas and Rio Grande river basins toward the Atlantic Ocean. The Colorado River accounts for 25% of the stream flow leaving the state.



A little bit of logic

To be effective, restrictions need to make sense, asserts Doug Bennett, conservation manager of the Southern Nevada Water Authority in Las Vegas.

"Dictating the time you can water doesn't make sense, because different systems deliver water differently," Bennett says. "When people create laws and policies that are hard to enforce, it drives me nuts. They are knee-jerk reactions. Then things go away, and people try something else."

Those "knee-jerk reactions" can be avoided, he adds, by working with people in the Green Industry.

"The Green Industry has the biggest stake in water conservation," Bennett says. "People need to understand their choices."

Since 2002, the Las Vegas Valley has reduced its overall water consumption by about 20.5 billion gallons, despite the arrival of 400,000 new residents and almost 40 million annual visitors. Landscape contractors can, and should, use the regulations to sell other services. After all, they are equipped to lift the burden of water restriction compliance from their customers.

Understanding the river

People in California, New Mexico, Utah, Colorado, Nevada and Arizona depend on the Colorado River, which has suffered historic drought the past nine years (two-thirds its normal average), Johnson says. Arizona and Nevada, both of which have led population growth in the U.S., are more dependent on the river than Utah and Colorado, which haven't used their allotments.

The Colorado River, which nourishes Lakes Powell and Mead, has two basins: The Upper Basin includes Utah, Colorado, Wyoming and New Mexico. The Lower Basin includes Nevada, Arizona, California and Mexico. The Colorado River Compact, which was made in 1922 and ratified by Congress in 1928, divided the Lower and Upper basins equally, each receiving 7.5 million acre-feet of water

THE 7 WATER-CONSERVING PRINCIPLES OF XERISCAPING

1. Planning and design
2. Efficient irrigation systems, properly designed and maintained
3. Use of mulch
4. Soil preparation
5. Appropriate turf
5. Water-efficient plant material
7. Appropriate maintenance

For more information about these principles, visit XeriscapeNM.com.



per year. In 1944, Mexico was allocated 1.5 million af. The Lower Basin states can't buy from Upper Basin states.

"That has been debated for years," Johnson says. "Some want to allow it; others are vehemently against it."

The average flow of the river during the past 100 years has been 15 million af, but 16 million af have been allocated, Johnson says. Other studies, using tree growth, indicate the average amount of water annually during the past 500 years is 12 million to 14 million af. But no matter the study, they all conclude there's less water.

"Some people say the water amount in the 100-year study was unusually high," he says. "Modeling scientists say climate change will reduce flows. Reservoirs are at 50% of capacity, which is 60 million af. The system is half-full now. The Upper Basin hasn't developed its allotment. It has used only 4 million or 5 million af."

Some people are optimistic about water levels; some worry what will happen if the droughts continue. Others say climate change is having a negative impact on the river.

"We should take a conservative approach and say it won't get better," Bennett says.

Implementing restrictions

Any regulations put on end users would come from water entities in the basin, Johnson says, adding that municipi-

palities and water districts have a responsibility for water management. How aggressive they are with end users in urban areas is up to them.

When it comes to restricting water use, landscape is one of the first because it's not a health or human safety issue, Bennett says.

"It's considered a luxury, and will make a sacrifice before other industries do," he says, adding that about 75% of all the water from the Colorado River goes to agriculture. "There are many rules and regulations that dictate who gets what and when in urban areas. Agencies can shut off water if there are chronic violators. The property owner is responsible."

Unlike Las Vegas and Phoenix, Grand Junction, CO, in Mesa County is lucky to have two major drainage systems flow through it: the Gunnison and Colorado rivers.

"We do have an incredible water supply," Komlo says. "We're blessed. Denver envies us. Our annual rainfall ... if we can get 9 in. a year, it's a wet season. Without a river flowing through here, we'd have unusable landscape."

There are other sources of water other than the Colorado River in Mesa County, of course. There are huge aquifers in the Front Range, and 0.05% of the water in the county comes from wells, which are expensive to drill.

Contractors step in

More homeowners and commercial properties will be converting to desert landscaping because of water-use concerns, and that's a boon to landscape contractors, Johnson says. Some landscapes were designed 30 or 40 years ago and need to be redesigned.

Bennett recommends contractors work with water authorities to make it easier for customers to get rebates and understand laws and policies.

Isenberg agrees. "From a design standpoint, we consider water with every step we make," he says. "Design is the first important step in water conservation. The use of invasive and non-invasive plants, how to make space usable, how water moves through a space, minimizing erosion and pooling ... these are the things we think about."

In the commercial sector, there are standards for new construction in Tucson — and similar standards are in the works for the residential sector, Isenberg says.

"Water is a central issue, yet people don't take a conservation approach to water because it's been taken for granted for so long," he says. "Now we don't have a choice. People are resistant to limit water use. The city of Tucson

could pull in revenue by fining people who misuse water."

Many people may still think of xeriscaping as just cactus and rock, but that's not so, Isenberg says.

"That's the biggest hurdle for us," he says. "We usually say xeriscaping isn't a style, it's a tactic, an approach. For example, our xeriscaping award project (see photos) is a super-modern, chic landscape with concrete, glass and steel. It didn't fit the typical model of xeriscaping. You can apply xeriscaping tenets to any landscape.

"The key is that the water conservation efforts and landscape can't be bohemian," he adds. "It has to be approachable and appropriate. It needs to have sex appeal."

Technology

There's a lot of smart technology that can save homeowners money on their water bills and protect their landscape investment, Eisenberg says. Envirotranspiration (ET) clocks with in-ground sensors in which soil moisture dictates

watering is an example.

"We need to divert water to where it's needed, and capture water to save it for later use," he says.

Komlo cites match precipitation, drip irrigation, smart clocks and two-wire systems for better computer control as examples of technology that will help guide the Green Industry toward the future of water conservation.

"There's always innovation with turf and shrubs and plants for drought tolerance," he adds.

The river ahead

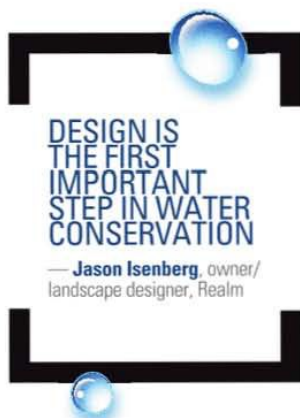
Most cities in the Southwest will continue to grow, so there will be more pressure on water sources. In addition to the Colorado River, other water sources exist. Aquifers are an example, but they tend to be located in unpopulated areas and are distant from demand. Many predict that water will become more expensive, too.

"Water rates in Vegas have increased 500% since 1990," Bennett says. "Landscape contractors need to understand their customers' water sources and rates."

Water conservation needs to be a national effort, Komlo says, adding that drip irrigation, which has been used since the 1980s, has been a big turnaround for the Green Industry.

"Before that, we were watering (flower and shrub) beds like lawns," he says. "It started in California. Rain Bird, Toro, Ewing and Hunter worked to help contractors conserve water and make money." ■■■

WALSH is a Cleveland-based freelance writer. Contact him at info@landscapemanagement.net.



A climate change of attitude

Australian policymakers are talking global warming and its implications for the country's fresh water resources.



BY **RON HALL** EDITOR AT LARGE

Australian water at a glance

- ▶ Population 22 million; projected population of more than 39 million by 2056
- ▶ Continental area of 2,680,000 sq. miles (10 times larger than Texas)
- ▶ On average, 90% of rainfall is directly evaporated back to the atmosphere or used by plants; only 10% runs off to rivers and streams or recharges ground-water aquifers
- ▶ Household water consumption, about 75 gal. per person per day
- ▶ Household water use decreased by 8% from 2001 to 2005
- ▶ Household use of reused or recycled water increased from 11% to 16% from 2001 to 2006

Source: "Australian Water Resources 2005," Australian Government, National Water Commission

AUSTRALIA, THE driest inhabited continent on earth, is a testament to man's industriousness, creativity and, perhaps, to his arrogance by choosing to live wherever he desires.

International attention is focusing on the water issues facing this continent, 80% of which is desert or semiarid. In a sense, it's the Earth's test tube for global warming, especially in terms of water resources.

Australian scientists and policymakers are taking climate change seriously. They're preparing the country's water and energy sectors in anticipation of significant environmental changes.

"I don't care if you believe in climate change or not, but you're a bit of a fool if you don't manage the risk," says Dr. Bryson Bates chief scientist with the Australian Commonwealth Scientific and Research Organization (CSIRO). "We're seeing strong evidence from climate research, and we seem to be locked into a drying cycle into the future."

Evidence of rapid, global change

is impossible to ignore, Bates says. It's most obvious manifestations are:

- ▶ melting ice sheets and caps
- ▶ melting glaciers
- ▶ melting permafrost
- ▶ ocean acidification
- ▶ atmospheric circulation changes
- ▶ ecosystem changes.

Bates' belief is supported by a recent report from the Australian Climate Change Science Program, claiming, that during the past 30 years, there has been a dramatic shift in the country's climate, which is affecting storm tracks in southern Australia. The shift has resulted in a 30% reduction of storm growth rate, meaning less rainfall throughout southern Australia.

Put in perspective

While it's believed the continent has been inhabited for about 50,000 years, it wasn't until 1788 when ships began disgorging England's excess population that today's Australia began taking shape. The newcomers quickly set about attempting to transform the

vast island continent into a facsimile of their former homeland.

But Australia, apart from the common language, isn't like England. The two are quite different geographically and climatically.

Australia's 22 million people are concentrated in and around a few cities on the eastern, southern and southwestern coasts. And Australia is drier, much drier. Much of the most inhabited and agriculturally important areas of the continent are in the grips of a withering 7-year drought.

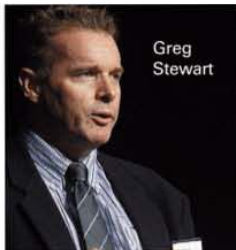
For all of these obvious differences, Australians are finding old habits are hard to break, especially when it comes to landscape irrigation. They are, like today's garden-loving Brits, passionately attached to their landscapes, lawns, golf courses and sports fields.

Changing habits

But break those habits they must. They're starting to get the message, says Greg Stewart, General Manager Total Eden, Chair of Irrigation Association — Western Australia Region.

Stewart cites a water emergency in the region in 2001 as a wake-up call to the Green Industry in terms of landscape irrigation. The water corporation in Perth, the region's capital with a population of about 1.7 million, threatened a complete lawn-and-garden watering ban as the dams that supplied water to the city approached all-time lows.

Thanks to the action of a coalition of Green Industry associations, headed by the Irrigation Association of Australia (now Irrigation Australia), the water corporation agreed to two-day-a-week watering. Even with the restriction, the problem of landscape water waste persisted. Property owners merely increased their watering times and watered on days they



Greg Stewart

weren't allocated.

What was needed and implemented was an aggressive, joint industry/water corporation effort to educate property owners about products and practices to allow them to water only twice a week while still maintaining attractive gardens and lawns, Stewart says.

The resulting media blitz focused on convincing the public to restrict watering to 15-minute intervals during allotted times, adjust controllers regularly, use soil wetting agents and mulch, select and install water-efficient plants and implement proper maintenance practices. These changes began to reduce landscape water waste, says Stewart.

Meanwhile, retailers were encouraged to train their garden staffs about efficient irrigation practices and products. Not only did it improve the advice retailers could offer garden product consumers, it resulted in increased sales of higher-priced, better-quality irrigation products.

ADVANCES IN WATER-EFFICIENT IRRIGATION

Greg Stewart offered these product and product-use suggestions for boosting irrigation efficiency in Australia landscapes:

- ▶ Automatic controllers must come on when required, otherwise the watering day or period is lost. Controllers must not be overly complicated. They should have large, clear display screens.
- ▶ Low precipitation output and high uniformity rotary-type nozzles are becoming more popular for all the right reasons. They must be designed and installed correctly, and programmed for the correct run times.
- ▶ Inline drip and a mixture of well-placed bubblers, drippers and emitters are replacing the traditional spray method. Be advised, drip systems require more education, training and maintenance.
- ▶ Soil moisture and rain sensors should be made mandatory for every automatic system in Australia. The price point needs to be under \$100.



Stuart White

Looking ahead

Water authorities and government agencies are united in preserving and adding to Australia's precious fresh water supplies. They're working with the Green Industry on a range of programs,

including irrigation-product testing and certification, to ensure citizen's have healthy lawns, parks and gardens.

Even as the nation brings alternative supplies of water on line, including using more reclaimed wastewater and construction of desalination plants, it'll continue to seek increased water-use efficiencies from the public.

"There's absolutely no point in putting in systems which reuse water, which capture rainwater, which recycle storm water unless we have maximized efficiency levels first," says Dr. Stuart White, director of the Institute for Sustainable Futures at the University of Technology, Sydney. "This is the largest and quickest contribution we can make to future water sustainability or energy." LM

NOTE: Much of the information used in this article came from Rain Bird's "Intelligent Use of Water Summit X" in Melbourne, Australia, March 19, 2009.