This presentation premiered at WaterSmart Innovations

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ICC Monitoring

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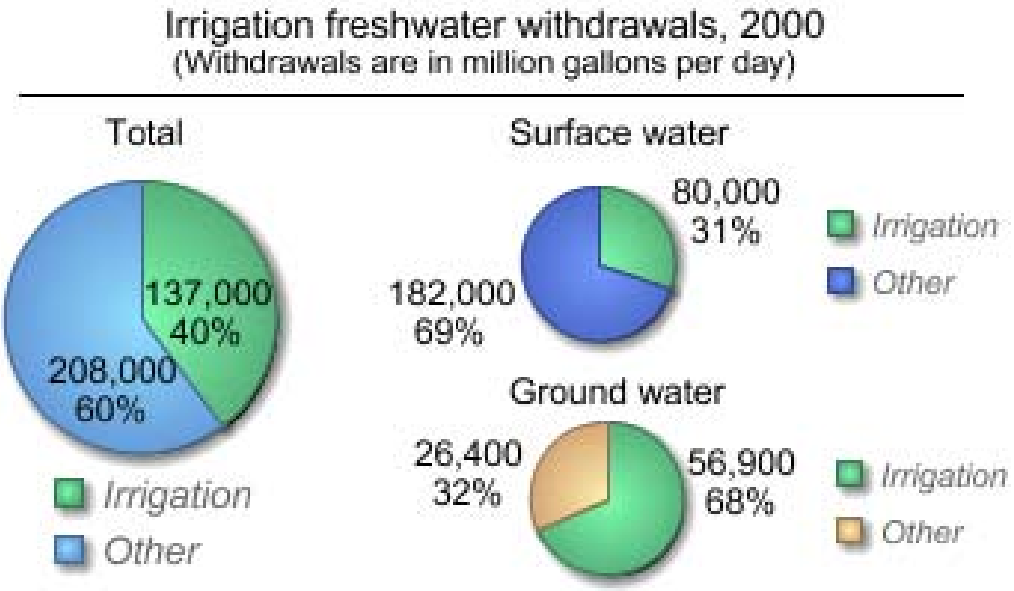
Water Conservation Through Properly Managed Outdoor Irrigation

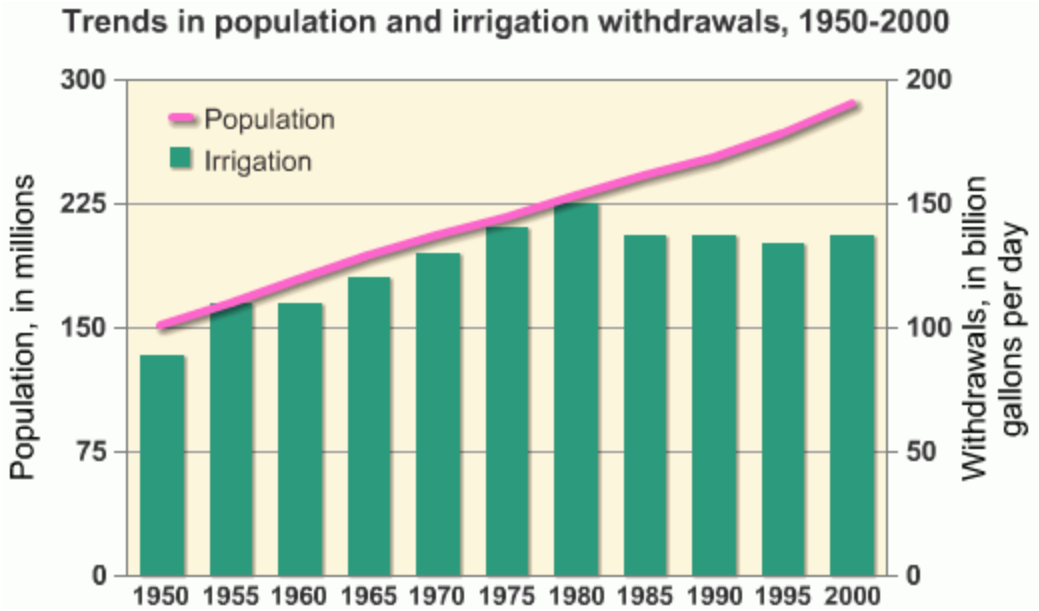
Water Usage World Wide

- Significant amount of freshwater withdrawals is used for irrigation



US Irrigation water usage

- Irrigation water is the only water not returned back to the system
- Withdrawals have decreased since 1980 and have stabilized at between 134,000 and 137,000 Mgal/d between 1985 and 2000, can be attributed to climate, crop type, advances in irrigation efficiency, and higher energy costs.

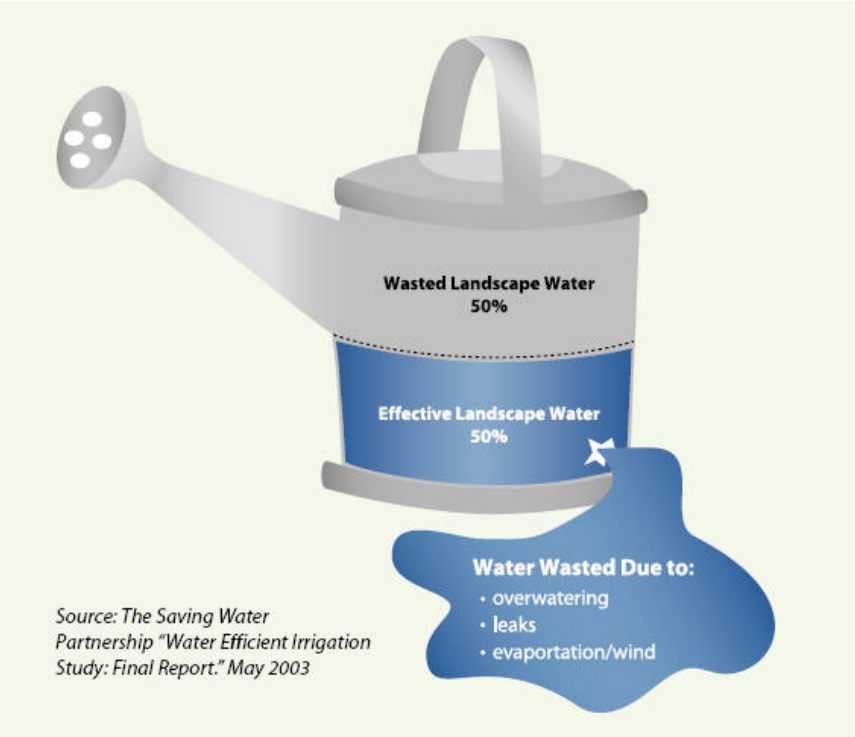


How we waste?

- A Newly installed perfectly designed irrigation system at best is only 60-80% efficient.
- After 3 years its only 30-40% efficient.
  - Leaks
    - One broken emitter can fill a swimming pool in one month
  - Over Watering
  - Watering when water is not needed
  - Mis-management
  - Aging system

Outdoor Irrigation waste

- Leaky system
- Change of Plant type without change to the irrigation system, Turf removal
- Mix of irrigation emitters and sprinklers on the same zone
- Run off due to soil angle
- Etc.



EPA and Water Authority Efforts

- Education
- Rebates
- SWAT
- WaterSense
- Xeriscape

Technology Change

- Weather based irrigation controllers
  - Weather- or sensor-based irrigation control technology uses local weather and landscape conditions to tailor irrigation schedules to actual conditions on the site or historical weather data. Instead of irrigating according to a preset schedule, advanced irrigation controllers allow irrigation to more closely match the water requirements of plants. These new control technologies offer significant potential to improve irrigation practices in homes, businesses, parks, and schools across the United States. WaterSense plans to label weather-based irrigation controllers and soil moisture sensors.
- ET based irrigation controllers!

Benefits and Stumbling Blocks

- Benefits - Standard irrigation controllers require users to calculate complex irrigation schedules and adjust run-times with changing weather conditions. A “smart” ET controller can determine adjustments to the watering schedule based on weather conditions... and it can do so without human interaction.

- Stumbling Blocks – ET based controllers do not account for many other issues, their benefit of “set it and forget it” could cost you in long run if its not paired with other services.

Irrigation Industry

- Product driven industry
  - Products are only as good as the people and services behind them

Missing Key… Human Element

Best method

- ET based Irrigation Controllers
- Sensors: Rain Sensor, wind Sensors…
- Irrigation based on “Volume” not “Time” (****)
- Manage water meters, High Flow, Low Flow, No Flow, Leaks
- Human Service… Look, Touch, Listen
- Dedicated Human Element
- Technology is only as good as the management behind it
- Accountability / Reporting
- Continuing Site Evaluation to look at irrigation products and plant type
- Partnership and cooperation

Irrigation Based on Volume

- Theoretical: Calculate the probable water usage based on pressure, pipes, emitters, sprinklers
- Actual: Run the system and measure the actual water usage under perfect conditions and set a baseline.
  - Example: water flow of 20GPM with high flow threshold of 10 percent is 22GPM and low flow threshold of 10 percent is 18GPM. Using Hydrometers would reduce mainline failures by shutting down the irrigation lines

Conclusion

- Encourage corrective measurement in older irrigation systems
- Manage the water
- Educate yourself on actual water needs
- Conduct a System Inspection: "Smart" controllers work properly only when the entire irrigation system is working optimally. That's why it's important to conduct a full irrigation system inspection, or audit, prior to installing a new "smart" controller. The system audit will check for leaks, malfunctioning hardware, water pressure, site coverage and uniformity, and other related issues that might impact the effectiveness of your entire system. Repairing these problems will ensure your "smart" controller is able to deliver the benefits promised.
- Finally, no matter how intelligent an irrigation system common sense and visual inspection is important, Human Element. Be mindful of mirco climates, change in the ecology. Example: Plant in shade require less water and shaded areas change due to plant growth and seasons.