4-Right irrigation designs, right irrigation products, right irrigation installation, right irrigation maintenance to maximize the benefits of green areas at long term

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Reasons to irrigate green areas in urban environments

- No blue no green - nothing can live without water; the question is about right amount of available water.
- Brown is not new green – brown is brown. Is that the future we are ready to accept?
- Environmental benefits of irrigated green areas (improve life quality, reduction of temperature, reduction of air pollution, improvement of biodiversity, preventing soil erosion, …).
- Social benefits of irrigated green areas (nice and well-maintained public parks stimulate positive behavior of inhabitants, reduce vandalism, improve public safety …).
- Economic benefits of irrigated green areas (Improving public landscapes creates more hospitable environment and contributes to economic prosperity of the community).

Challenges of installing and maintaining irrigation systems in urban areas

- Managing competing water uses in urban areas (landscape irrigation is not a luxury, it should just be well planned, and managed with accountability).
- Educate to elevate competence level among all shareholders (from planers and landscape architects to irrigation professionals and end-users).
- Benefits of standardization, regulation, and certification in design, installation, and maintenance of irrigation systems.
- Specific challenges in irrigation of public landscape and sports fields areas.
- Specific challenges in residential irrigation.

Maintenance

The ornemental value of a green area (beauty) depends 60% on its conservation, 20% on the choice made of the species and their quality, and 20% on the state of the soil, physical support, and its implantation Serafin Ros "The company of gardening and landscaping 1995"

Therefore, the proper maintenance of a green area (and irrigation is vital point) is key to achieve the objectives and benefits stated in the previous sections.

- In many cases, maintenance of green areas is in hands of private companies which compete for the public bidding based on economic points. It is true the municipalities encourage to improvements, but they are not specific in terms of water savings. Water saving should be rewarded by municipalities and on the other hand water waste should be hard penalized. Example: In Spain, municipalities do not pay extra money for extra maintenance but pay extra money for reparations, so in some way maintenance companies prefer products more susceptible of being broken than products with ant vandalism features.

Achieving better landscapes with less water - basics of irrigation system efficiency

- Water sourcing and water quality (always use the lowest water quality available: E.G. Reclaim water, Retention Pond water, well water before using potable. Combine (potable) systems with rainwater harvesting systems, …).
- Irrigation system design and product selection (Low volume irrigation for plants, bubblers for trees and overhead irrigation for turf areas, ...)
- Irrigation system installation (proper head spacing, quality products, proper installation, …).
- Irrigation scheduling, system operation and maintenance (irrigate early in the AM when evaporation is at its lowest level of the day,

system efficiency and irrigation scheduling, most common repair requirements, system winterization and spring startup, …)
- Retrofit and improvement of existing irrigation systems (upgrade existing systems to be more efficient, replace heads with leaky seals, install heads and drip tubing with check valves so not all the water in the zone lines runs out of the lowest head, add sensors so system will only run when really needed, …).

Irrigation industry solutions for improved irrigation efficiency and water conservation in urban areas

- Irrigation products developed for improved water conservation (products with water saving features by product category)
    - Pressure compensated drip, check-valve drip, responsive drip ….
    - Xerigation solutions
    - Pressure regulated spray heads, check valve on spray heads, rotary nozzles, matched precipitation rate nozzles, ….
    - Rotor nozzle efficiency, rotors with pressure regulated stems, …
    - Pressure regulation benefits and solutions for valves, flow sensors, …
    - Smart controllers, controllers with flow management capacity, …
    - Multi-site irrigation management software and platforms
    - Weather and soil sensors

Solutions for big cities managing multiple green areas to simplify and optimize maintenance by using new technologies such as centralized and integrated systems (smart cities etc).

- Benefits of centralized system scheduling
- Benefits of system flow management
- Optimizing maintenance costs with central control systems
- Improving water use accountability through central control systems

Irrigation in urban areas and EU water regulatory framework