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The Emergence and Implications of Non-Potable Water Use in Irrigation

Tom Kundrat CIC, CLIA

Product Manager

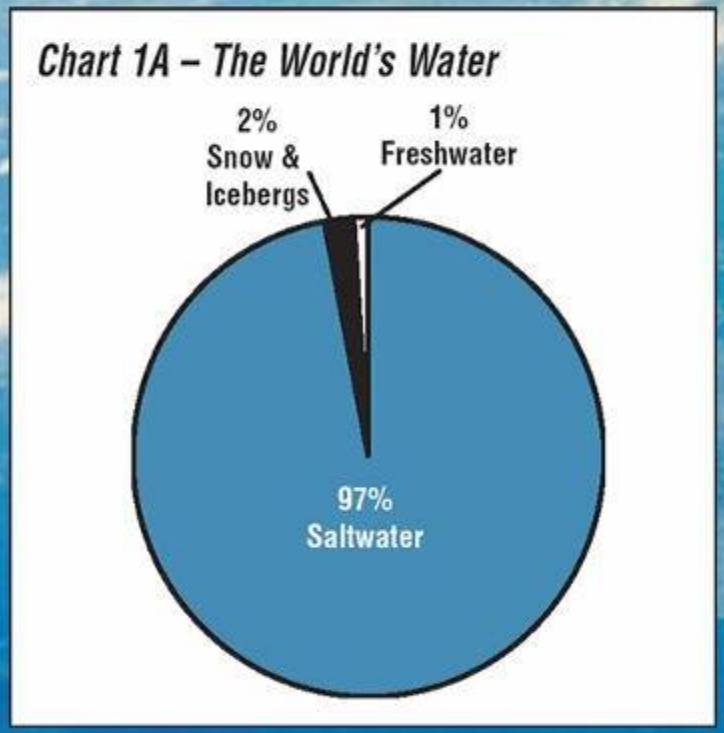
The Intelligent Use of Water.™

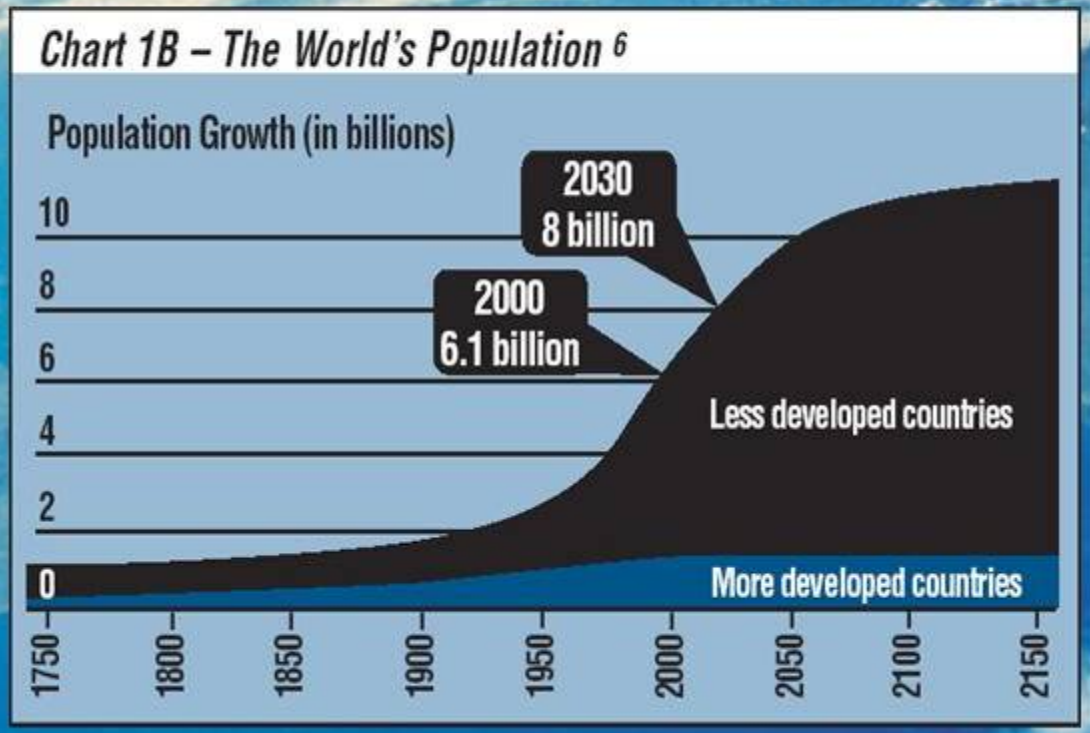
Topics

- Key drivers of demand for non-potable irrigation
- Trends in non-potable irrigation
- Challenges of non-potable water in irrigation
- Future of non-potable irrigation

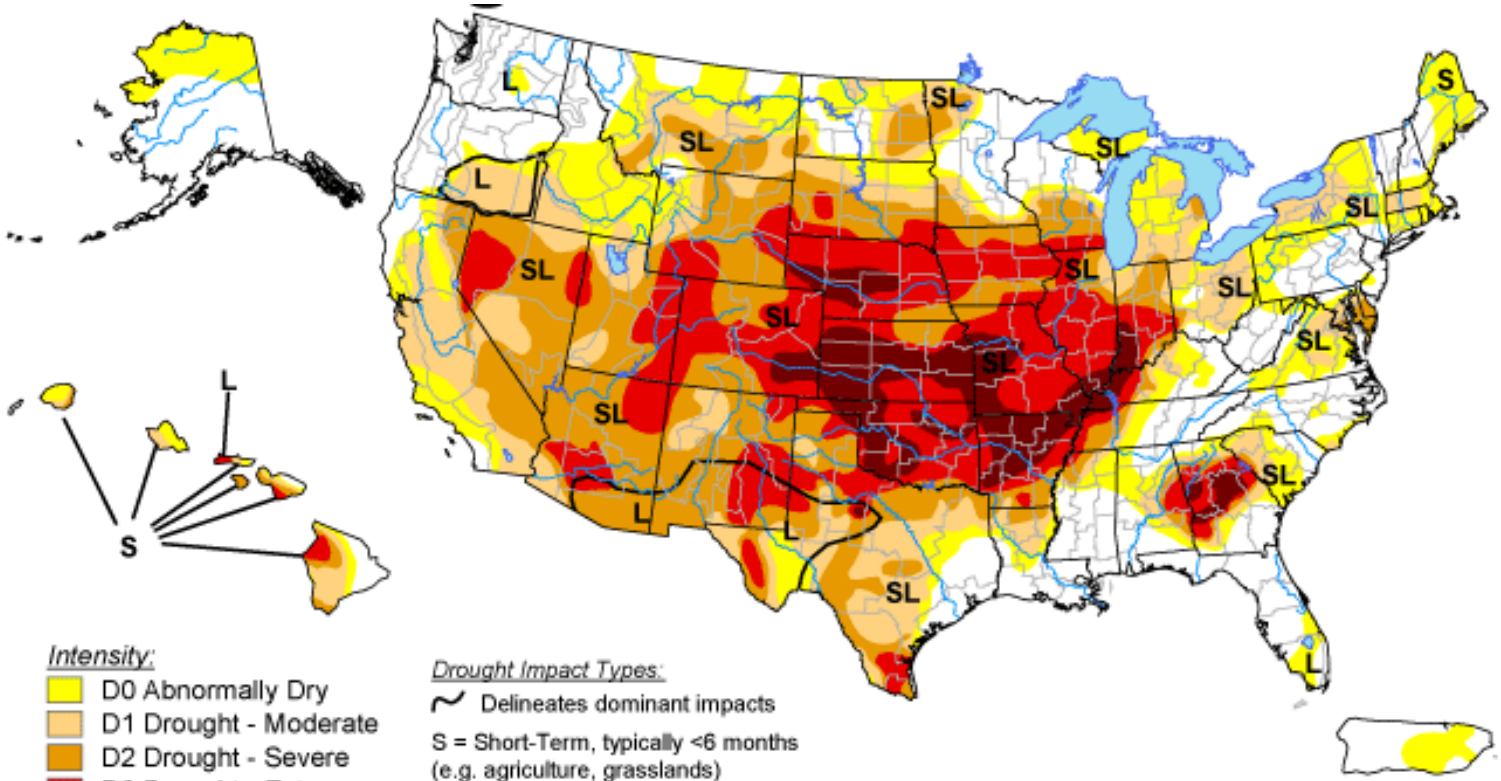
Drivers of demand for non-potable irrigation

The world's water crisis



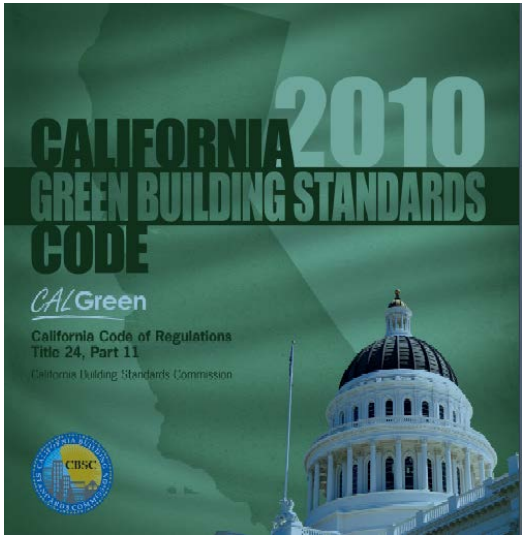


Widespread drought conditions



Increasing regulation

- **New Green Codes requiring use of non-potable and/or reclaimed water**
- **Stronger regulation in particular markets**
  - US: California, Florida, Texas, Arizona
  - Worldwide: Australia, Israel, Spain
- **Anticipate similar levels of regulation across the US**



Increasing Water Costs

Residential Water Bill Increases (Past 12 Years)

- **Atlanta, GA 233%**
- **San Francisco, CA 211%**
- **Wilmington, DE 200%**
- **Philadelphia, PA 164%**
- **Portland, OR 161%**

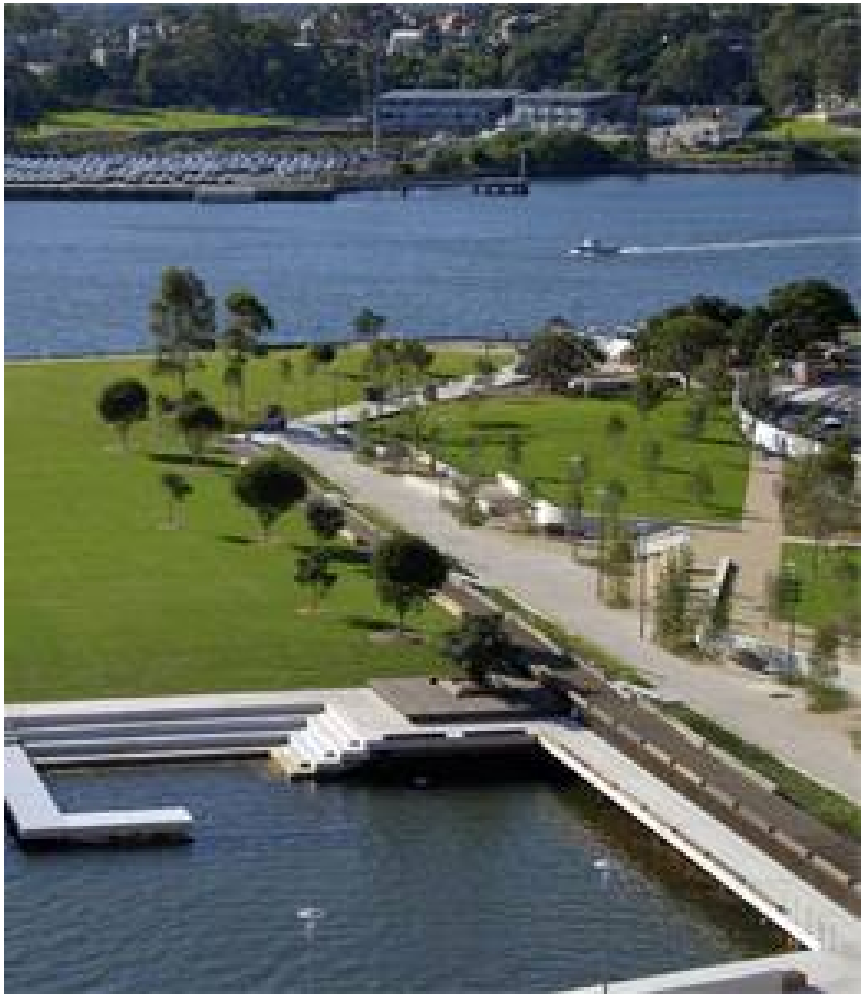
Trends in non-potable irrigation

Widespread applications

- Golf courses
- Municipal landscaping
- Sports Fields
- Dust control
- Agriculture
- Wetlands restoration

Public agency adoption

- **City of Sydney**
  - Supplies 1 billion gallons of recycled water a year to irrigate farms, golf courses, sports grounds and parks
  - Award-winning Pirrama Park, with sustainable solar panels and rain water harvesting



Residential adoption

- **Gladden Farms**
  Marana, AZ
  - 1,500 homes equipped with purple valve boxes for future non-potable water system
- **City of Tampa**
  - Distributes treated wastewater for residential landscape irrigation

On-site reclamation

- **Sydney Olympic Park Water Reclamation and Management Scheme (WRAMS)**
  - Locally integrated approach to water conservation based on rainwater harvesting, wastewater reprocessing and reducing water demand

Challenges of non-potable water in irrigation

Do you know your water source?

Challenges of non-potable water

- Availability
- Public skepticism
- High in chlorine, saline
- Seasonal fluctuations
- Dual piping expense vs. potable water

The future of non-potable irrigation

Emerging irrigation technologies

- **Continued purple identification**
- **Manufacturer investments in reclaimed-resistant materials**
  - Valves
  - Spray heads
- **Expansion of irrigation systems to include water harvesting equipment**
- **Innovation in intelligent control systems**

Broader adoption

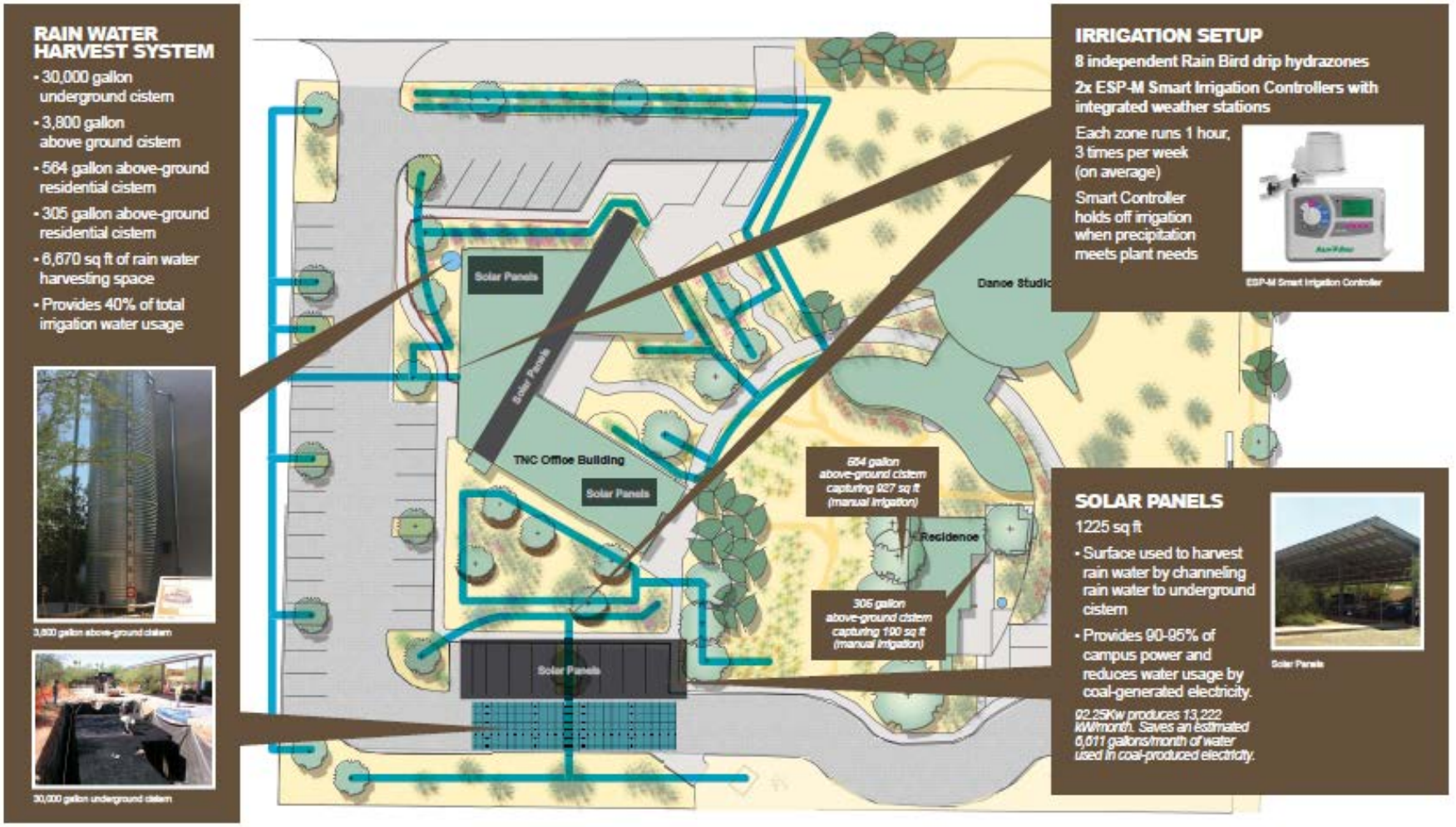
- **Broader adoption, particularly by public agencies and homeowners**
- **Singapore**
  - Aiming to increase desalinated water to 30% of total water supply by 2060

Drivers of broader adoption

- **Increasing regulation, with new Green Codes requiring non-potable irrigation in new construction**
- **Decreased or subsidized pricing**
- **Irrigation technologies that can withstand variety of non-potable water sources**
  - Graywater systems
  - On-site reclamation
  - Desalination

A look at the future

The Nature Conservancy



Thank you

Tom Kundrat CIC, CLIA
Product Manager
Rain Bird Corporation
6991 E. Southpoint Rd.
Tucson, AZ 85756
(520) 434-6212
tkundrat@rainbird.com

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