This presentation premiered at WaterSmart Innovations

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25 X 25:
AN UPDATE

WATERSMART INNOVATIONS 2013
LAS VEGAS, NV
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NRDC
THE EARTH'S BEST DEFENSE

Today's Presentation

- Who we are
- NRDC's goals for water efficiency
- 25 x 25: An Update to NRDC's Strategy to Reduce Residential Water Use 75 Percent by 2025

Natural Resources Defense Council (NRDC)

- National non-profit membership group; staff of more than 420
- Founded in 1970; 6 offices in U.S., 1 in Beijing
- Mission: "to safeguard the Earth: its people, its plants and animals, and the natural systems on which all life depends" and "to restore the integrity of the elements that sustain life – air, land, and water – and to defend endangered natural places"

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NRDC Water Program

Clean Water Solutions

Water & Climate

Water Efficiency

Water & Wildlife

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Water Efficiency Strategies

- Rational pricing for water and wastewater service.
- Sensible codes, standards, and regulations.
- Pooled investment mechanisms, such as utility programs or tax incentives.
- Research and development.

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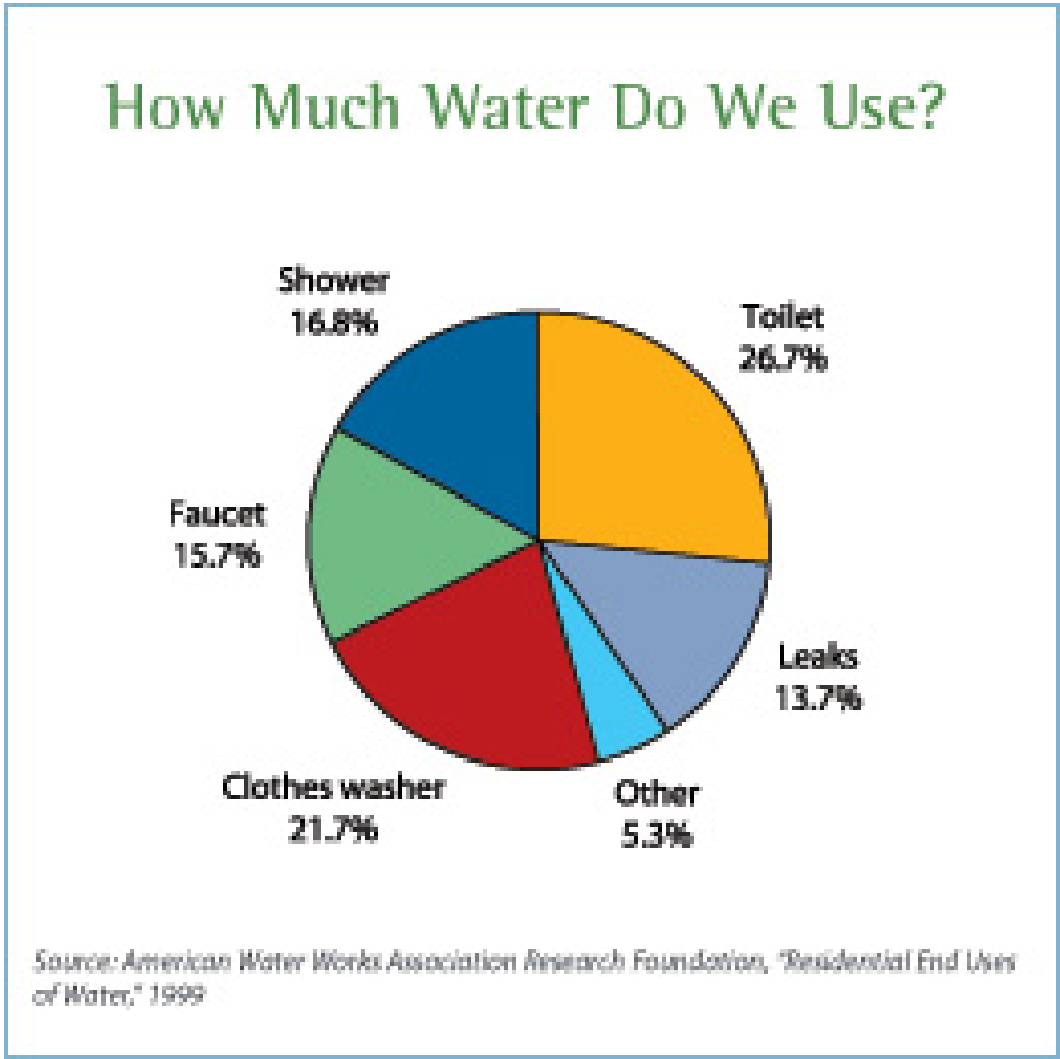
Estimates of Water Use

- In 2005, public water suppliers delivered water at a rate of 44,200 mgd.
- 58% -- 25,600 mgd -- estimated for domestic residential purposes.
- This equals 99.2 gallons per capita per day (gpcd).



25 x 25: Implementing The Strategy

- Goal is to reduce potable water use 75% by 2025 in ***new residential buildings*** compared to residential water use in 2005.
  - By 2025, reduce potable water requirements for indoor uses in new residences to 25 gpcd.
  - Combine with measures to maintain new residential landscapes without the use of publicly supplied potable water.

Indoor Uses: Toilets

- 100 % improvement
  - REUWS 1999 (gpcd): 18.5
  - 2025 goal (gpcd): 0
- *Strategy*:
  - Further improvement in fixture efficiency -- 1.28 gpf and less;
  - Full utilization of on-site graywater and harvested rainwater.
- *Update*:
  - Active proposals before IRC-P & UPC

Photo courtesy of Titanas/Flikr

Indoor Uses: Clothes Washers

- 65% improvement
  - REUWS 1999 (gpcd): 15.0
  - 2025 goal (gpcd): 5.25
- *Strategy*:
  - WF below 4.0, as proposed by Energy Star for 2013.
  - More efficient commercial washers in common area laundry rooms.
- *Update*:
  - NRDC-ACEEE Great Lakes Partnership

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Indoor Uses: Showerheads

- 20 % improvement
  - REUWS 1999 (gpcd): 11.6
  - 2025 goal (gpcd): 9.25
- *Strategies*:
  - Improved hot water distribution to reduce wait time for hot water
  - WaterSense showerhead specifications
- *Update*:
  - Active proposals before IRC-P & UPC

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Indoor Uses: Faucets

- 35 % improvement
  - REUWS 1999 (gpcd): 10.9
  - 2025 goal (gpcd): 7.0
- *Strategies*:
  - Improved hot water distribution to reduce wait time for hot water
  - New specs for lav (1 gpm) & kitchen (1.8/2.2 gpm) faucets
  - Dishwasher vs. hand washing of dishes (DC bill insert)
- *Update*:
  - Active proposals before IRC-P & UPC

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Indoor Uses: Other Categories

- REUWS 1999 (gpcd): 1.6
- 2025 goal (gpcd): 0.8
- *Opportunistic Strategies for improved efficiency and right-sizing*:
  - Whole-house humidifiers
  - Water softening and conditioning
  - Evaporative coolers
  - Cooling towers
    - Update: Improvements to drift rate & automated controls in both IMC & UMC

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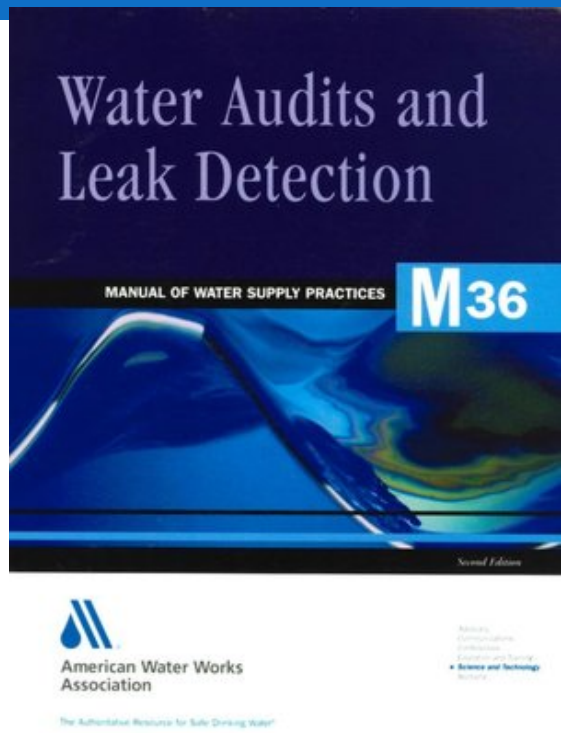
Leak Reductions (Indoor & Outdoor)

- 95 percent improvement
  - REUWS 1999 (gpcd): 9.5
  - 2025 goal (gpcd): 0.5
- *Strategies*:
  - Multifamily submetering
  - Use of AWWA M-36
  - Dripless faucets
  - Advanced Metering Infrastructure (AMI)
  - Service line inspection and insurance

Note: Toilet leaks to be "supplied" by non-potable water



Accuracy of Water Meters

- Goal:
  - Ensure residential water meters are sufficiently accurate at extended low flows
- *Strategies*:
  - AWWA Meter Standards
  - CEC Title 20 Rulemaking
- *Benefits of Accurate Water Meters*
  - Imperative in estimating apparent water losses (Strub, 2013)
  - Improves leak detection capabilities of AMR/AMI
  - Equity and Fairness

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Outdoor Uses

- 100 percent improvement
  - REUWS cities 1999 (gpcd): 100.8
  - Nationwide 2005 (gpcd): 29.9
  - 2025 goal (gpcd): 0

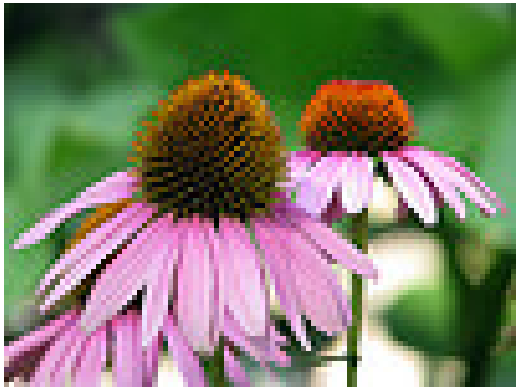

Photo courtesy of theroadhere/Flikr

- *Strategies*:
  - New landscapes supported by precipitation, graywater, and harvested rainwater
  - WaterSense irrigation system improvements
  - Turf varietal improvements
  - Better pool covers and playing surfaces

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Graywater/Harvested Rainwater

- Goal:
  - Graywater/Harvested Rainwater replacing potable water for toilet flushing and outdoor irrigation.
- *Strategy*:
  - Improved understanding of barriers to implementation
  - Development of appropriate product sta can be referenced in building codes.
- *Update*:
  - NSF 350, 350-1
  - IAPMO I207Z, under development

Photo courtesy of Sloan Valve Company website

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25 x 25 Benefits

- Improved water and energy efficiency
- Over 150 mgd in savings of treated water for each year of new construction @ 750,000 units
- Expanded markets for American manufacturers
- Greater revenue stability for public water suppliers
- Improved product performance
- Increased reliability of water supplies

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Summing Up: 25 x 25

- Reduce residential water use in new construction by 2025 to a level that is 75 percent below the average residential consumption in 2005; in other words, bringing potable water use in new homes and apartments down to 25% of 2005 levels.
- Increase the efficiency of indoor and outdoor water using fixtures and equipment, and eliminate the use of potable water for toilet flushing and irrigation by integrating graywater treatment and rainwater harvesting systems into new construction.

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The Path to 25 x 25

- Partnerships with NGOs, states, and manufacturer
- Multi-year advocacy, often in partnership, including:
  - State and federal efficiency standards
  - Voluntary labeling: Energy Star, WaterSense, LEED
  - ICC and IAPMO base code and green code work
  - NSF, IAPMO, and AWWA product standard setting
- Cross-cutting policies and tools
  - Pricing strategies for water and wastewater
  - Water Efficiency Simulation Tool (WEST)
  - Geographic-focused policy work

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