

Protecting health in efforts to meet California's water-use reduction targets

Water conservation can benefit health, but careful planning is needed to avoid unintended harm

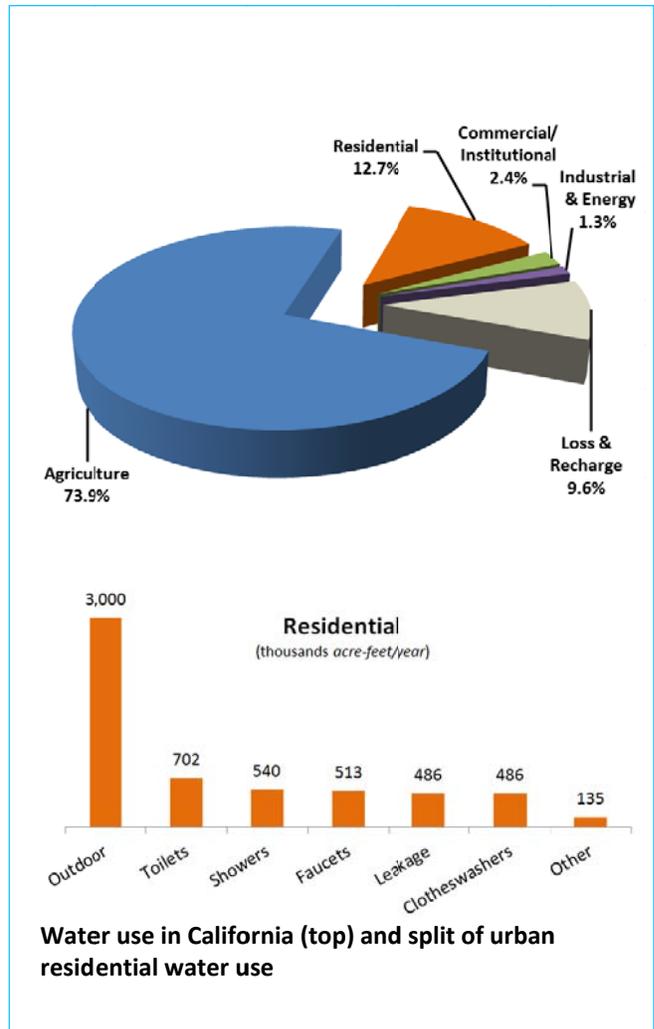
Whether it's a glass of cold water on a hot day, a plentiful supply of fresh fruits and vegetables, or a green park for play and relaxation, water provides a foundation for healthy lives. But less can be better. Good water conservation policies can preserve and even enhance the public health benefits of water, while reducing water usage to meet the challenges of shrinking water supplies. Some water conservation measures, however, may have unintended consequences harmful to the public's health. These harmful effects may also increase the disparate burden of ill health borne by the poor, certain ethnic minorities and populations living in underserved communities. Understanding the connections between water conservation and health can help water providers and communities choose the best policies for reducing water use while protecting the public's health and proactively mitigating potential harm.

CONSERVING WATER, PROTECTING & ENHANCING PUBLIC HEALTH

AIMS OF THIS HIA

This HIA aims to provide recommendations for urban water conservation strategies in California that protect and promote public health. The primary emphasis is on water conservation measures that California's urban water suppliers can adopt to meet a mandated 20% reduction in water deliveries by 2020 as specified by State Senate Bill x7-7 (SB X7-7), the so-called "20 by 2020" law. The analysis and recommendations are also relevant to on-going water conservation challenges beyond "20 by 2020" and to areas outside of California. Although three-quarters of California's water use is for agriculture, the scope this HIA is limited to urban water use (i.e. residential, commercial and institutional).

This HIA brings together information from water suppliers, water management agencies and research. Recommendations based on the findings address ways to both minimize harm and to maximize potential benefits. Particular attention is given to effects on existing health disparities. In addition to the general, statewide analysis, the HIA includes a case-study analysis for water conservation in the City of Burbank. Although Burbank has already met its SB X7-7 targets well before 2020 and is considered by many to have exemplary water conservation policies, it serves as a model of how general recommendations from the HIA can be adapted and applied to specific locales. And, there is still much more that Burbank can and will probably need to do to bring demand in line with shrinking water supplies.



Conservation must become a way of life for everyone in California...We must continue to build on our existing efforts to conserve water and promote the innovation of new systems for increased water conservation.

From the 2014 California State Water Action Plan

WATER CONSERVATION ALTERNATIVES

Urban water conservation alternatives were selected for analysis from the demand management measures (DMMs) listed in SB X7-7, including:

1. Water survey (conservation audit and assistance) programs for residential customers;
2. Residential plumbing retrofit (e.g. high-efficiency showerheads);
3. System water audits, leak detection, and repair (i.e. upstream of end-users);
4. Metering currently unmetered uses;
5. High-efficiency washing machine rebates;
6. Conservation programs for commercial, industrial, and institutional accounts;
7. Conservation pricing (e.g. budget-based tiered pricing);
8. Residential ultra-low-flush toilet replacement.

Five other DMMs listed in SB X7-7, primarily dealing with education and agency personnel, were not selected, since they lacked the specificity necessary to estimate water savings and potential health effects. In addition to the DMMs listed in SB X7-7, two additional conservation measures were also analyzed:

9. Lawn replacement rebates
10. Increased use of recycled water

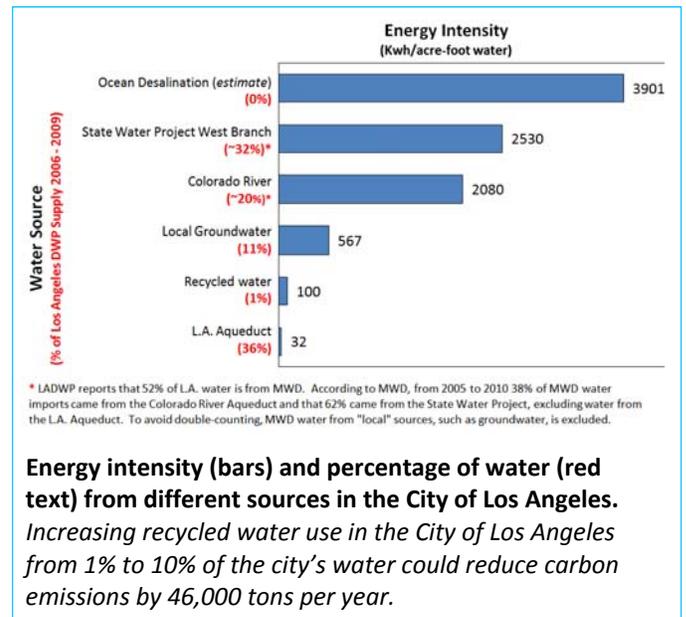
RECOMMENDATIONS

1. **Early, well planned efforts leading to significant, maintained reductions in usage.** Failure to use less water and to make water-use more efficient will harm the public's health, particularly the health of low income households and communities.
2. **Conservation measures with environmental and health co-benefits.** For example:
 - a. Planning based on quadruple bottom-line – water savings, cost, greenhouse gas emissions, local health impact;
 - b. Promoting high-efficiency showerheads where not already widespread, saving water, money and energy with little upfront cost;
 - c. Making installation of water-efficient fixtures a condition of home resale and rental;
 - d. Expanding recycled water use and infrastructure through investment, mandate and/or pricing;
 - e. Using Carbon Cap & Trade revenue to fund household, community and regional water conservation programs.

HEALTH-RELATED IMPACTS

With guidance from a technical advisory committee made up of experts and officials in water management and public health, the project team identified seven health-related impacts for analysis in the HIA:

- **Air quality/air pollution** (air emissions from generating energy needed to pump and treat water);
- **Surface and groundwater quality** (run-off, dilution of existing groundwater pollution);
- **Urban heat island effects** (mediated by vegetation);
- **Recreational opportunities** (quality of spaces for play and sports irrigated by water);
- **Household financial burden** (metering, water rates);
- **Water and wastewater infrastructure costs** (recycled water distribution, sewage pipe corrosion);
- **Indoor mold exposure** (water leaks in buildings).



3. **Incentives for more water-efficient landscapes** while taking steps to avoid the fiscally regressive combinations of rebates and rate increases.
4. **Infrastructure investments** to reduce system leakage and increase end-user efficiency.
5. **Budget-based tiered conservation pricing** where feasible to promote conservation, minimize regressive rate increases and stabilize revenue streams.
6. **Integrated inter-agency conservation planning** at the local level to develop joint sustainability plans that support health and economic goals in efforts to improve water and energy efficiency.
7. **Inter-agency/inter-sectoral cooperation for monitoring the health-related impacts of water conservation policies.**

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Full report available at <http://www.ph.ucla.edu/hs/health-impact>