

A photograph of water being poured into a clear glass. The water is captured in mid-pour, creating a dynamic splash. The glass sits on a dark, reflective surface covered in numerous water droplets of various sizes. The background is a soft, light blue gradient. The overall mood is clean and refreshing.

# Water Conservation in FSM

FSM 120L

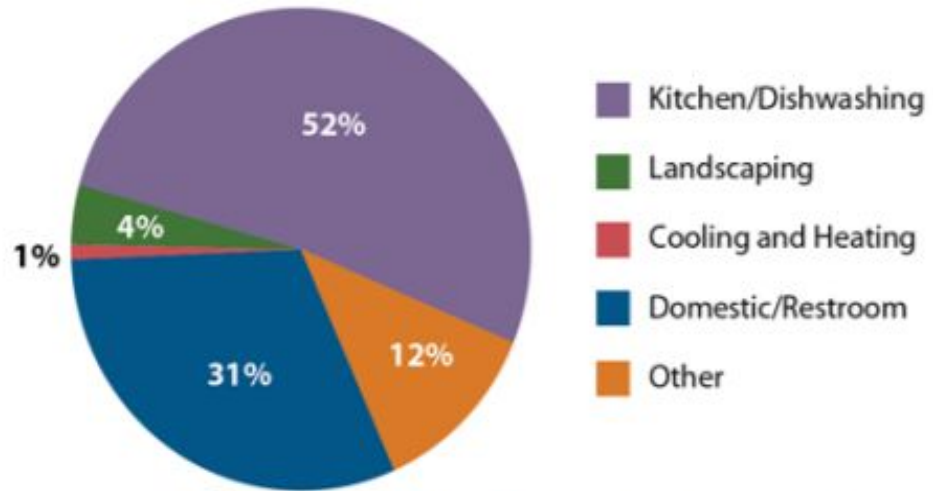
Group 4

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# Introduction

- Foodservice uses 15% of total water in U.S.
- Increasing number of communities face water shortages/droughts
- Goals in foodservice
  - Protect water supplies
  - Reduce water usage, conserve water
  - Ensure efficient water use

## End Uses of Water in Restaurants



"Saving Water in Restaurants." *Environmental Protection Agency*. Nov. 2012.

<https://www.epa.gov/sites/production/files/2017-01/documents/ws-commercial-factsheet-restaurants.pdf>

Payne-Palacio, June, and Monica Theis. *Foodservice Management: Principles and Practices, 13th Edition*. Pearson Education, 2016. Pg. 329-335.

# Important Definitions

- Potable water
  - Water of adequate drinking quality
- Gray water
  - Wash/waste water from sinks, handwashing, dishwashing machines, showers
- Waste water
  - Water used in industries/businesses that can not be reused unless treated
- LEED
  - Leadership in Energy and Environmental Design
  - U.S. Green Building Council standards/rating system for green design of commercial buildings like foodservice

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"Dictionary of Water Terms." *U.S. Geological Survey*.

[https://www.usgs.gov/special-topic/water-science-school/science/dictionary-water-terms?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](https://www.usgs.gov/special-topic/water-science-school/science/dictionary-water-terms?qt-science_center_objects=0#qt-science_center_objects)

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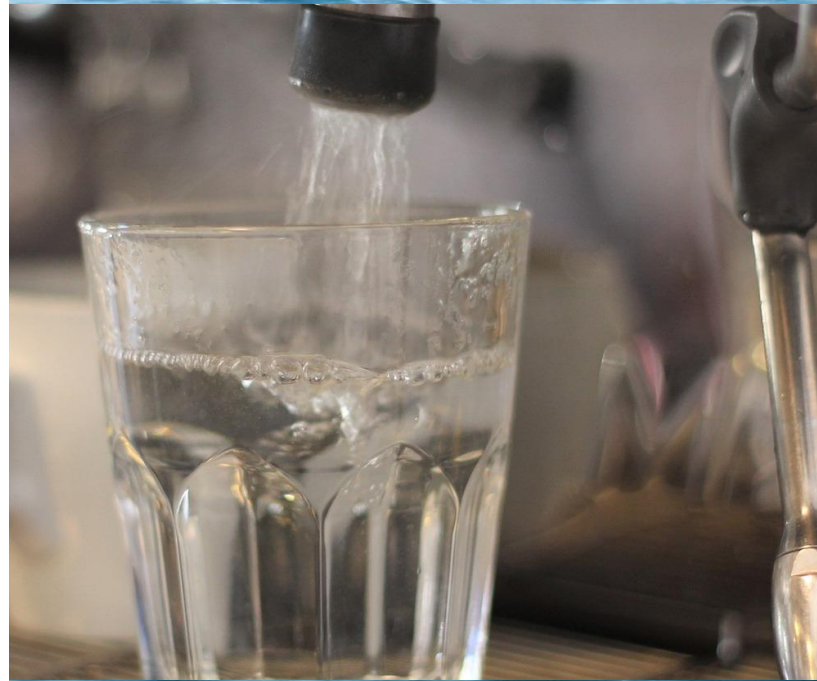
- Storm water
  - Water from rainstorm/rainflow
- Sterile water
  - Water treated with heat/chemicals to kill/remove microbes
- Recycled water
  - Water used more than once before going back into nature
- Reclaimed water
  - Water from wastewater treatment plant used for irrigation, industry, or cooling instead of going back into nature
- Industrial water
  - Water used for industry, like steel, paper, etc.

"Sterilization (of Water)." *Institute of Sustainability*. <https://www.aiche.org/ifs/resources/glossary/isws-water-glossary/sterilization-water>

"Dictionary of Water Terms." *U.S. Geological Survey*.  
[https://www.usgs.gov/special-topic/water-science-school/science/dictionary-water-terms?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](https://www.usgs.gov/special-topic/water-science-school/science/dictionary-water-terms?qt-science_center_objects=0#qt-science_center_objects)

# Strategies Used in Foodservice: Kitchen & Equipment

- Replace existing equipment with water-efficient models
  - Use less water by reusing water throughout cycles
- Use quality valves
  - Minimize dripping faucets
- Turn off faucets completely
- Repair all leaks immediately
- Run dishwashers at full capacity
  - Not half full



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# Strategies Used in Foodservice: Customers & Landscape

- Serve water to customers only when they ask for it
- Recycle gray water
  - Use for watering landscapes outside

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# Pros of Strategies



- Decreased negative environmental impacts
    - Water-efficient equipment decreases water use 15%, energy use 10%
  - Decreased costs, increased savings
    - Cost of water rising, likely will continue to rise with droughts
    - Water-efficient practices decrease operating costs 11%
  - Increased customer satisfaction
    - Customers have preference for organizations committed to sustainability
    - Demonstrate commitment to reducing environmental impact
- Gain competitive edge

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<https://www.epa.gov/sites/production/files/2017-01/documents/ws-commercial-factsheet-restaurants.pdf>

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# Cons of Strategies

- Increased up-front costs
  - Water-efficient equipment has higher purchase prices
  - More expensive option short-term vs. conventional equipment
  - Payback period can potentially be long
- Issues with gray water
  - May contain cleaning chemicals, detergents, soaps, grease, food



“Saving Water in Restaurants.” *Environmental Protection Agency*. Nov. 2012. <https://www.epa.gov/sites/production/files/2017-01/documents/ws-commercial-factsheet-restaurants.pdf>

“How Much Does Energy Efficiency Cost?” *Energy Sage*. July 13, 2020. <https://www.energysage.com/energy-efficiency/why-consume-energy/cost-of-ee/>

“Dictionary of Water Terms.” *U.S. Geological Survey*. [https://www.usgs.gov/special-topic/water-science-school/science/dictionary-water-terms?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](https://www.usgs.gov/special-topic/water-science-school/science/dictionary-water-terms?qt-science_center_objects=0#qt-science_center_objects)



# UC Water Sustainability Policy Goals

**Goal 1:** Reduction of potable water consumption by 20% in 2020 and 36% by 2025

- Recycled water irrigation

**Goal 2:** Development of a water action plan

- Report square feet irrigated



**Goal 3:** Campus laboratory water usage reduction (autoclave & sterilizers)

**Goal 4:** Liquid cooling system restructuring

- No flexible tubing and quick connect fittings

# Water Action Plans (Goal 2)

Water action plans will consider:

- Regional conditions
- Historical progress
- Current location
- Best practices being implemented

Water action plan will address all types of water:

- potable, nonpotable, industrial, sterilized, reclaimed, stormwater, and wastewater

Water action plan will:

- Report water usage
- Strategies to continue reduction
- Implement water efficient tech
- Manages a budget of cost indirect and direct
- Sets a timeline

# UC Davis Food Service Water Management

Protecting natural resources

Supporting sustainable growing practices

- ASUCD Coffee house and dining commons use student farm and other local produce

Sustainable food choices

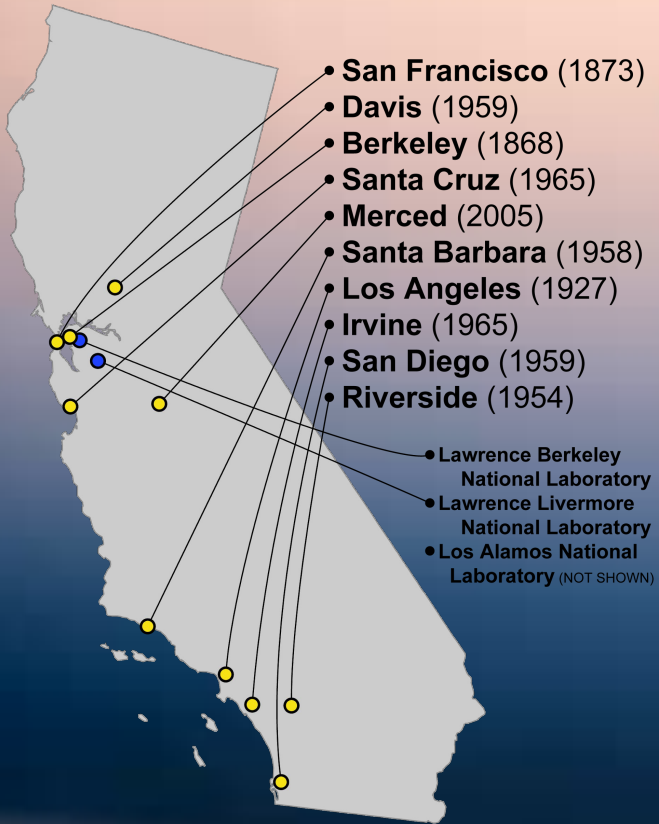
Certification of sacramento area sustainable business program

Cuarto dining is LEED certified and the building has mechanical system improvements



Staab, Josh. "Sustainability." *UC Davis*, 17 Mar. 2021, [www.ucdavis.edu/about/sustainability](http://www.ucdavis.edu/about/sustainability).

LEED PROJECT CHECKLIST. [www.cambridgema.gov/-/media/Files/CDD/ZoningDevel/SpecialPermits/sp179/sp179\\_Parcell\\_Residential\\_20180316\\_2.pdf](http://www.cambridgema.gov/-/media/Files/CDD/ZoningDevel/SpecialPermits/sp179/sp179_Parcell_Residential_20180316_2.pdf).



# UC CAMPUSES APPROACH



**1/3**

## MUSHROOMS

Our residential restaurant burger patties are blended with 1/3 mushrooms. That saves enough water per patty to fill a bathtub!

**4.2**  
MILLION



Amount of gallons of water we've saved since our residential restaurants went trayless in 2008. That's 8,000 gallons/week representing over six olympic swimming pools.

Students return their containers to marked receptacles for intensive cleaning\* We use heat-sanitizing commercial dish machines that meet stringent testing and sanitation standards from NSF International as well as the California Retail Code (CalCode)

# UCSB



- Hydration stations



# UCSF

- BYOC
- Roots + Shoots
  - Plant based mains & animal protein sides



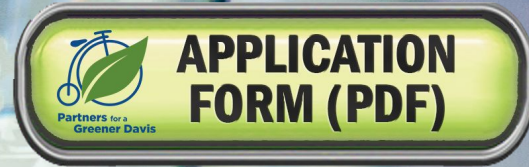


LOCAL COMMUNITY APPROACH



# Green Business Partners of Davis

- In-store certificate and window placard to help inform your patrons about the great things your business is doing.
- Free advertising for your business in local media such as newspaper mention, Partners for a Greener Davis website listing, a spot on the Davis Government Channel and other media as available.
- Support from program staff.



**Partners** for a  
**Greener Davis**

# Annual Greywater Showcase

- Water wise Davis and Cool Davis
- Connecting greywater usage with growing food

COOL  
DAVIS



<https://www.cityofdavis.org/city-hall/public-works-utilities-and-operations/water/water-conservation/water-conservation-workshops>





Chef Suleka Sun-Lindley

- Awarded 2018 “Sustainable Business of the Year” in Sacramento County for water conservation practices

<https://vegsacramento.com/about>



# Rebates from Sacramento City

- Flusho-meter Style High-Efficiency Toilets or Urinals - up to \$250
- Pre-Rinse Spray Valves - up to \$75
- Plumbing Flow Control Valves - \$2.50 each (20 min.)
- Air-Cooled Ice Machines - up to \$300
- Cooling Tower Controllers - up to \$500
- Connectionless Food Steamers - up to \$200 per compartment
- Dry Vacuum Pumps - \$60 per 0.5 HP (up to 2)
- Laminar Flow Restrictors - \$5 each (10 minimum)
- **Customized Rebate Program:** The City also offers up to \$50,000 (\$.50 per 748 gallons saved) for installing new, water-saving technologies, and for making process improvements that reduce water use or re-use water on site.

# Conclusion: Discussion Questions

- One of the water-conserving strategies in foodservice is serving water to customers only when they ask for it, rather than bringing out waters for the whole table. **Have you noticed this in your own experience? What do you, as a consumer, think about this?**
- If you saw a restaurant in Davis with the “Green Business Partners of Davis” placard, **would you be more likely to eat there? What are some ideas for how foodservice managers can get customers to pay attention to this mark of water conservation?**
- Given all the water conservation strategies we’ve talked about, and the pros and cons of each, **what is one thing you would say to a foodservice manager wondering about water conservation in their operation?**

# Works Cited

“Dictionary of Water Terms.” *U.S. Geological Survey*.

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