Agricultural Reuse in California



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Defining "Agricultural Reuse":

- Before 2019, Statewide Reuse Totals included water from a municipal treatment facility used to produce an agricultural crop or irrigate pasture
- After 2019, SWRCB requires an approved Title 22
 Engineering Report



Definition of Recycled Water

"Recycled water" means water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefor considered a valuable resource. *CA Water Code § 13050(n)*





Undisinfected Secondary Recycled Water: Fodder, Processed or No Contact with Edible Portion



PHOTOS FROM CITY OF FRESNO

Tertiary-Treated Recycled Water: Unrestricted Use



PHOTOS FROM DWR AND MONTEREY









2018 Ag Reuse Tour Objectives

- Agricultural use of recycled water in CA
- Compare ag recycled water use in CA to Spain
- Identify key 'best practices'
- Identify key challenges

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Energeticas, Medicambientales y Tecnológicas





Facilities Visited in 2018

- ➤ 400 to 18,000 AFY
- Undisinfected secondary to tertiary treatment
- Facultative ponds to state-ofthe-art



Visited facilities shown in **red**

Visited Facilities Commonalities

- Strong commitment to the program at almost every facility
- Revenue generation
- Strong relationship with farmers as partners
- Dedicated staff

Visited Facility Differences

- Reasons for their program
- Treatment methods
- Irrigation approach
- Land ownership/farmer relationship
- Disposal vs Farming

Visited Facilities: Level of Treatment















Visited Facilities: Secondary Treatment Methods

Oxidation Ditches





Clarifiers



Sequencing Batch Reactors

> Aeration Basins



Visited Facilities: Secondary Treatment Methods



Trickling filters



Biotowers

Aerated lagoons

Facultative ponds 13

Visited Facilities: Tertiary Treatment Methods

- Sand filters and chlorine disinfection
- Cloth filters and UV disinfection
- MBR and UV disinfection







Driver: Discharge Limitations

- No surface water discharge available
- Reduce river discharge because of higher treatment requirements
- Seasonal discharge restrictions or prohibition



Driver: Onsite Biosolids Handling

- Key driver for many facilities implementing agricultural reuse
- Treatment plant staff implementation
- Farmer or 3rd party handling
- Active plant monitoring of soil conditions



Implementation

Land ownership

- Agency-Owned
- Farmer-Owned
- Combination
- Can be an issue

Lease Agreements

- Land or Water
- 1 to 3 farmers
- Usually longer-term (<u>+</u>5 years)

Farmer-Agency Contact

- Single point
- Quarterly meeting



Recycled Water

Lease

- Paid by Lease
- Free

Distribution

- Direct from the plant to the farm
- By another agency
- Third-party conveyance
- Irrigation Methods
 - Flood
 - Drip





Miscellaneous Issues

- Sufficient acreage is necessary
- Storage ponds are a critical storage component
- UV Disinfection
 - High energy consumption
 - Multiple facilities have solar partners



- Regulators and regulations did not seem to be a challenge
- Funding seemed to be an issue for some agencies

Increased Use of Recycled Water Make Sense



How Do We Increase Ag Reuse? Step 1: Messaging

- Agriculture is king.
- Effective and successful programs are being implemented.
- Programs can generate revenue.
- Recycled water can support ag, especially where SGMA implementation may impact it.



How Do We Increase Ag Reuse? Step 2: Action

- Focus treatment level on program drivers AND local agricultural needs – tertiary treatment isn't always the goal.
- Support conversion of evaporation ponds to ag holding ponds. This has the dual benefit of reducing nitrate loading in the groundwater and supporting ag.
- **3.** Set up a fund for DAC implementation seek inclusion in the Climate Change Bond.

ROARS BACK

Governor Newsom's \$100 Billion California Comeback Plan

NEWSOM'S \$5.1 BILLION PLAN FOR WATER INFRASTRUCTURE, DROUGHT RESPONSE AND IMPROVED CLIMATE RESILIENCE

It's time to build the infrastructure for the next century. With climate change, the hots are getting hotter and the dries are getting drier. Drought is a recurring theme in California and wreaks havoc on California's communities. That's why Governor Newsom is proposing a **\$5.1 billion** investment over 4 years for drought infrastructure, preparedness and response to ensure a more climate resilient system. In addition to the **\$5.1 billion**, the plan includes **\$1 billion** to help Californians pay their overdue water bills. Under Governor Newsom's **\$100 billion** California Comeback Plan, California will come roaring back from this pandemic.

KEY ACTIONS FOR DROUGHT PREPAREDNESS AND RESPONSE:

- INVESTMENTS TO SUPPORT SAFE DRINKING WATER, WATER
 SUPPLY AND RELIABILITY, AND FLOOD RESILIENCE
 - \$1.3 Billion for Drinking Water/Wastewater Infrastructure especially for small and disadvantaged communities.
 - \$150 Million for Groundwater Cleanup and water recycling to improve climate resilience.
 - \$300 Million for SGMA Implementation to improve water supply security, water quality, and water reliability.
 - \$200 Million for Water Conveyance to address subsidence and rising cost of moving water through the Friant-Kern Canal, the Delta-Mendota Canal, the California Aqueduct, and the San Luis Canal.

- \$220 Million for Salton Sea to maximize habitat outcomes and provide immediate economic relief to the community.
- \$140 Million for Flood to reduce flood risk for 1.1 million people and over \$100 billion of assets.
- \$200 Million for Oroville Pump Storage to increase clean electricity generation to improve grid reliability.
- \$60 Million for State Water Efficiency and Enhancement (SWEEP) in grants to help farmers reduce irrigation water use and reduce greenhouse gas emissions from agriculture pumping.

IMMEDIATE DROUGHT SUPPORT

- \$91 Million for Critical Data Collection to improve forecasting.
- \$27 Million for emergency and permanent solutions to drinking water drought emergencies.
- \$500 Million for Multi-benefit Land Repurposing to support growers.
- \$300 Million for Drought Relief and Urban Water Management. Grants for approximately 2,400 small community water systems that serve schools and all of California's 58 counties as they plan for drought and potential water shortages.
- \$33 Million for fisheries and wildlife to protect and conserve California's diverse ecosystems.

NATURE-BASED SOLUTIONS

- \$266 Million for Water Resilience Projects to improve ecosystem health for native fish in the Sacramento and San Joaquin rivers and their tributaries.
- \$230 Million for ecosystems to improve passage for wildlife or fish.
- \$200 Million for Habitat Restoration and multi-benefit projects including tidal wetland, floodplain, and flood-risk reduction projects to restore fish and wildlife habitat.

https://www.gov.ca.gov/wp-content/uploads/2021/05/Drought-Response-and-Water-Resilience-Factsheet.pdf

Contact Information



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