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**Kaweah Delta Water Conservation District**

For more than 80 years, the Kaweah Delta Water Conservation District has been working to fulfill its mission by conserving and storing waters of the Kaweah River, maintaining channels for flood control, and by conserving and protecting the underground waters of the Kaweah River Basin. Through its efforts, and the efforts of other coordinating local agencies, Kaweah Delta WCD helps ensure reliable and adequate water supplies for its service area now and into the future.

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CIT Study on "New Water"

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# K A W E A H D E L T A

# Water Conservation DISTRICT

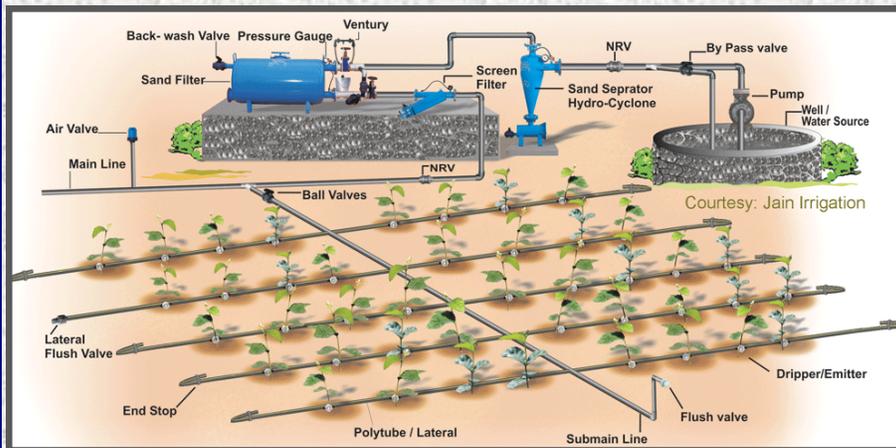


## **Agricultural Conservation: On-Farm Conservation Yields No "New" Water**

As California enters another drought year, all water users buckle down and implement conservation measures to help preserve the state's most precious resource: water.

Yet with all users participating in conservation efforts, the statement will undoubtedly be made by someone somewhere that if farmers saved more

sympiotic relationships that aren't easily undone. One example cited is the recovery of irrigation inefficiencies. It is a common occurrence that recoverable inefficiencies from irrigation events are recovered somewhere by someone else in the system whether agriculture, urban or the environment and are beneficially used.



What is an Acre-Foot of Water? An acre-foot of water is the unit used to measure volumes of water. One acre-foot is the volume of water sufficient to cover an acre of land to a depth of 1 foot, or approximately 325,851 gallons.

water, there would be more water to go around.

Really? While it may sound plausible because of the amounts of water used by agriculture, the reality of any "new" water supplies coming from agricultural water conservation just doesn't pan out.

Claims that California farmers are wasteful and inefficient water users, and that large volumes of "new water" are available through agricultural water conservation simply are inaccurate, according to a recent study released by the Center for Irrigation Technology at Fresno State University. The findings were based on a review of published research and technical data, including State of California publications, to assess the overall potential for agricultural water-use efficiency to provide new water supplies.

According to the CIT study, little potential exists for new water from agriculture unless large swaths of agricultural land are taken out of production, which technically is not water-use efficiency. A fundamental purpose of the study was to point out the fallacy that agricultural water conservation can produce sufficient new water to solve water management problems in the State, or at least provide the volumes of water desired by all California water users.

"Agricultural Water Use in California: A 2011 Update" was prepared by irrigation experts at the Center for Irrigation Technology to update a 1982 University of California Cooperative Extension report. The new report, as well as the 1982 study, indicates that agricultural water users are linked to municipal and industrial users, as well as the environment, in

**Among the study's key findings are:**

The estimated potential new water from agricultural water use efficiency is 1.3% of the current amount used by the state's farmers, or about 330,000 acre-feet per year. That represents about 0.5% of the State's total water use of 62.66 million acre-feet.

Groundwater overdraft of about 2 million acre-feet per year continues to be a serious problem in certain regions of California because of inconsistent and uncertain surface water supplies.

Previous reallocations of agricultural water supplies for environmental purposes represent at least 5% of farm water diversions depending on water year.

Changes in irrigation practices, such as switching from flood irrigation to drip, have the effect of rerouting flows within a region but generally do not create new water outside of that region.

On-farm water conservation efforts can affect downstream water distribution patterns, with potential impacts on plants and animals, recreation, as well as human and industrial consumptive uses. The effects can be positive or negative and also inconsistent.

For more information about the report, contact the Center for Irrigation Technology at Fresno State University, (559) 278-2066, or [www.californiawater.org](http://www.californiawater.org).

The report can be accessed on-line at [www.californiawater.org/ocsCIT\\_AWU\\_Report\\_v2.pdf](http://www.californiawater.org/ocsCIT_AWU_Report_v2.pdf)

***Urban Conservation: Who, What, Where and When***



***Drip irrigation using in-line 1/2" tubing***

**Lawn & Garden Conservation Tips**

Ahhhh, spring! It's finally here, and what better time to rethink outdoor water use. Since spring is the traditional time that homeowners begin preparations for new garden plantings and landscape improvements, it only makes sense to take water use into account.

Outdoor water use is the single largest use of water in most homes, particularly where large blocks of turf are involved. By using efficient irrigation systems designed for home use, as well as incorporating the abundance of native and drought-tolerant plants now available, home gardens can maintain their lush curb appeal with myriad colors and textures, and help conserve a valuable resource.

To make the most of enjoying a garden that reduces water use, consider these tips from the University of California's Agriculture and Natural Resources Department.

**Limit Turf Areas:**

Since lawns are the single largest water user outdoors, consider using turf only in areas where it serves a purpose, such as play areas. Water-efficient grass varieties can replace water-thirsty types. Lawn alternatives include ground covers and hard-scapes, such as decks or dry creeks.

**Put Plants in the Right Places:**

California is arid and its native plants are hardy and beautiful. Consider California natives in your garden plans. Once established, they require less water and add a wonderful dimension to any garden. Likewise, group plants according to water need. Water-loving plants, including lawn, should be planted in the same area to maximize irrigation. Those that are drought-tolerant should be together, with irrigation schedules adjusted to take advantage of the less-frequent watering requirements.

**Irrigate Efficiently:**

Outdoor irrigation schedules should be adjusted monthly, taking into account changes in temperature, humidity, and rainfall. Irrigation systems should be programmed to provide only the water needed for a planted area, whether high or low water use. Many efficient watering systems are available to homeowners, with drip or soaker hoses being the most effective at minimizing water loss through evaporation or runoff. Watering during the cooler hours of the day also help reduce evaporation. Remember to maintain irrigation systems, checking regularly for leaks, broken heads, or faulty valves.

**Try Mulch:**

Mulch that is at least three inches thick or more provides insulation for soil and significantly reduces soil moisture evaporation. Mulching is particularly useful in the summer because it protects plants' roots from heat and the drying effects of the sun. Since mulch can reduce weed growth by blocking the sunlight needed for germination, it also helps reduce competition for soil moisture. When using mulch, check the soil underneath periodically to ensure that water is reaching the soil and root zone of the plants.

*Source: University of California Agriculture and Natural Resources, "Water Conservation Tips for the Home Lawn and Garden," Publication 8036*

**City of Visalia Residential & Commercial Watering Regulations:**

**Daily Watering:**

- ⇒ Even Addresses water on Wednesday, Friday and Sunday
- ⇒ Odd Addresses water on Tuesday, Thursday and Saturday
- ⇒ No Watering on Monday

**Sprinkler Timers:**

- ⇒ Timers should be checked twice a year for correct time, sprinkler run times and battery replacement.

**Hosing Down:**

- ⇒ Use a broom or rake to remove debris from driveways, patios, sidewalks, and decks.
- ⇒ Hosing down is not allowed unless needed for public health and safety.

**Swimming Pools:**

- ⇒ Draining a swimming pool is allowed with a permit only. Permits are free. To obtain one, call 713-4531 or visit the website at: [www.GoGreenVisalia.com](http://www.GoGreenVisalia.com)

*Source: City of Visalia, Natural Resource Conservation, [www.ci.visalia.ca.us/depts/natural\\_resource\\_conservation/water\\_conservation](http://www.ci.visalia.ca.us/depts/natural_resource_conservation/water_conservation)*



***Flagstone Courtyard Garden***

The Kaweah River Basin Integrated Regional Water Management Plan (KIRWMP), established in 2007, is a collaborative effort to manage all aspects of water resources in the Kaweah Basin region.

There are many agencies and stakeholders involved in the IRWM group, including the Kaweah Delta Water Conservation District, County of Tulare, Exeter Irrigation District, Lakeside Irrigation District, Tulare Irrigation District and the cities of Lindsay, Tulare, and Visalia. The IRWM meets monthly to evaluate how the water in the area can best be managed as well as discuss future projects for grant applications. Projects must conform to the group's objectives, which include groundwater management, water supply, water quality, flood control, and ecosystem restoration.

The KIRWMP group will receive funding through the State's Proposition 84 Grant Program focusing on Planning, Implementation and Stormwater Flood Management. As a result of these funds, five projects are in development.

cess to a more reliable supply of surface water for TID, improve groundwater recharge capabilities for the City and TID, and foster a water exchange program between two regional partners. Additional benefits include water conservation, groundwater recharge, water marketing, reduction of groundwater overdraft, drought protection, and improved water reliability, management and water quality.

**Groundwater Quality Protection & Investigation Project**

Recognizing that groundwater contamination is a pervasive problem particularly impacting critical water supplies for disadvantaged communities within its boundaries, the County of Tulare, in cooperation with Self-Help Enterprises and the Community Water Center, is launching a project to investigate and determine the best ways in which these small community water systems and private household wells can provide safe potable water to their customers.

To address this problem, the Groundwater Quality Protection & Investigation Project will take a three-phase approach: eliminating pathways for contamination in vulnerable areas; developing solutions for those areas; and planning for improvement in water quality delivery. The project will help with the IRWM's goals of protecting groundwater quality, as well as addressing environmental justice and critical water supplies of disadvantaged communities.

**Paregien Basin Project**

Kaweah Delta Water Conservation District plans to use a 78-acre basin, along with associated structures and monitoring wells, for both groundwater recharge purposes and for temporary diversions/impoundments of surface water to allow for enhanced storm water control by the nearby

City of Farmersville.

There are many beneficiaries to this project. The Kaweah Delta Water Conservation District will continue its efforts in recharging the groundwater table, since the site offers an ideal location for percolating surface water. Additionally, the site's riparian nature makes it a valuable site for the District's developing Habitat Conservation Plan and Natural Communities Conservation Plan. The City of Farmersville will gain channel capacity to handle stormwater flows. Habitat preservation and enhancement at the Project will create added value to the existing Kaweah Oaks Preserve, enhancing the habitat corridor. Recharge activity, likewise, will benefit Farmers Ditch Company and the City of Farmersville.

**Oakes Basin Habitat Enhancement Project**

In the mid-1800s, the Kaweah River Delta supported the largest stand of valley oak riparian forest in the world. Most of this habitat now has been converted to agricultural lands. The Kaweah Delta Water Conservation District has created a project that will help restore some of these trees. The District's project involves constructing two groundwater recharge/stormwater detention basins and restore valley oak dominated riparian habitat around the perimeter of the recharge basins.

A variety of other riparian plants will also be planted around the recharge basins. Additionally, to help support the riparian habitat, the District will promote and coordinate a long-term maintenance program that provides for the greatest survivability of the plantings.

While the District benefits from the ability to recharge the groundwater basin, the community and public-at-large also benefits from the aesthetics of the newly created riparian forest that will be preserved for generations to come.



**Plum Basin Recharge Project**

The Tulare Irrigation District and the City of Tulare have joined together for the Plum Basin Recharge Project. The main goal of this project is to capture water during wet years and use it to recharge the groundwater table. During wet years, TID will convey water (either free flood water or water purchased by the City of Tulare) to the Plum Basin property for groundwater recharge.

The area typically experiences a wet year once every five years. With a recharge season of about four months, estimates indicate that 12,000 acre-feet of water could recharge during each cycle. Additionally, the recharge could be enhanced by a longer recharge season or more frequent wet years. During other periods where flood water or reasonably priced water is not available, TID will use the basin for peak power enhancement projects and, as necessary, for a regulation basin. The subsequent recharge from these types of operations will further enhance the groundwater recharge program.

**Water Reuse Pipeline Project**

The City of Visalia and Tulare Irrigation District are developing a program of water reuse, exchange and groundwater recharge to improve the use of existing water resources. Those existing resources are in the form of secondary treated waste water generated primarily from residents and businesses within Visalia. A critical component of this project is the construction of a pipeline that will allow Visalia to deliver tertiary-treated effluent from the City's Water Conservation Plant (waste water treatment plant) to lands located within the TID.

There are many public benefits to this project. The Project Pipeline will be used to conserve water, create ac-

**Kaweah  
River  
Basin  
IRWM  
Members**

*Kaweah Delta  
Water  
Conservation  
District*

*County of  
Tulare*

*City of Tulare*

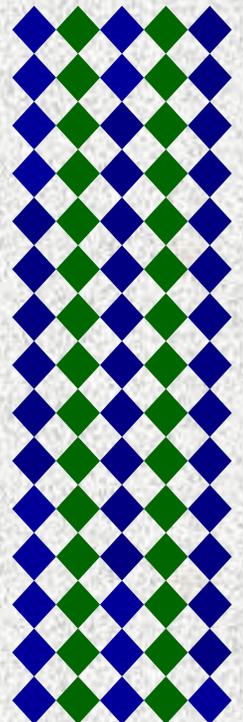
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*City of Lindsay*

*Tulare  
Irrigation  
District*

*Exeter  
Irrigation  
District*

*Lakeside  
Irrigation  
Water District*





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Visit our website at [www.kdwcd.com](http://www.kdwcd.com) for more information!

***We here at the Kaweah Delta Water Conservation District hope you have found the information in this issue of the KDWCD Water Report helpful. It is our goal to provide water resource information that is relevant and useful to those who live, work and farm in the District. As our District strives to protect and enhance the groundwater resources of the Kaweah River Basin, we also would like the landowners, water users and the general public to be informed and knowledgeable about our water resources, so that together we can make the best use of our water now and into the future.***

**Water/Weather Related Web Links**

- |  |   |
|--|---|
| California Irrigation Management Information System (CIMIS) - <a href="http://www.cimis.water.ca.gov">www.cimis.water.ca.gov</a> | Friant Water Authority (FWA) - <a href="http://www.friantwater.org">www.friantwater.org</a>           |
| National Oceanic Atmospheric Administration (NOAA) - <a href="http://www.noaa.gov">www.noaa.gov</a>                              | United States Bureau of Reclamation (USBR) - <a href="http://www.usbr.gov">www.usbr.gov</a>           |
| United States Army Corps of Engineers (USACE) - <a href="http://www.usace.army.mil">www.usace.army.mil</a>                       | Association of California Water Agencies (ACWA) - <a href="http://www.acwa.com">www.acwa.com</a>      |
| California Department of Water Resources (DWR) - <a href="http://www.water.ca.gov">www.water.ca.gov</a>                          | Water Education Foundation (WEF) - <a href="http://www.watereducation.org">www.watereducation.org</a> |

**Agricultural Water Management Resources**

- CA Agricultural Technology Institute** - A non-profit, educational institution dedicated to improving California agriculture
- Irrigation and Training Research Center** - An irrigation teaching program through outside activities specializing in training, research, and technical support
- National Weather Service** - Provides forecasts and warnings for the central U.S.
- CA Water Institute** - Offers seminars and classes dealing with Regional Water Issues, Irrigation Technology, and Research
- UC Ag Extension** - Includes farm, nutrition, family and consumer science advisors based in more than 50 county offices, reaching millions of farmers, businesses and residents every year
- Center for Irrigation Technology (CIT)** - As an independent research and testing facility, CIT assists designers, manufacturers and users of irrigation equipment to make the technological advances required for our growing and ever changing world. Provides pump efficiency testing
- USDA Farm Service Agency** - Provides contact information as well as a listing of the programs and offices that make up the Farm Service Agency
- USDA/ARS Water Management Research Laboratory** - The development of water and weed management technologies and practices for irrigated agriculture in water deficit areas that use water efficiently, improve agricultural productivity, sustainability and reduce negative environmental impacts
- Farm Advisors Office, Agricultural Commissioners' Offices, Tulare and Kings Counties**