



# Groundwater Banking With Local Governance and Conflict Avoidance

*California – European Union  
Joint Workshop*

**June 24, 2019**



# Presentation Agenda

1. Introduction to Irvine Ranch Water District
2. IRWD's Water Banking Projects
3. Local Governance and Conflict Resolution Using Agreements
4. Compliance with Sustainable Groundwater Management Act





# Irvine Ranch Water District



## **A California Special District Serving Central Orange County**

Independent, non-profit, local government agency

Reliable high-quality water & sewer service

Industry leaders in recycled water

High level of customer satisfaction



# IRWD Service Area



**422,000**

Residential customers

**599,000**

District daytime population

**469 Square Kilometers**

20% of Orange County

**6 Cities**

Irvine, Tustin, Lake Forest,  
Orange, Newport Beach,  
Costa Mesa, unincorporated county



# IRWD Services



## **Drinking Water**

5 water treatment plants  
27 wells and 36 reservoirs  
2,830 km of water pipeline

## **Sewage Collection**

1,720 km of collection pipeline

## **Recycled Water**

2 recycled water plants  
845 km of recycled water pipeline

## **Urban Runoff Treatment**

IRWD San Joaquin Marsh  
27 wetland treatment sites

# Primary Water Systems to Southern California





# IRWD Water Banking Projects

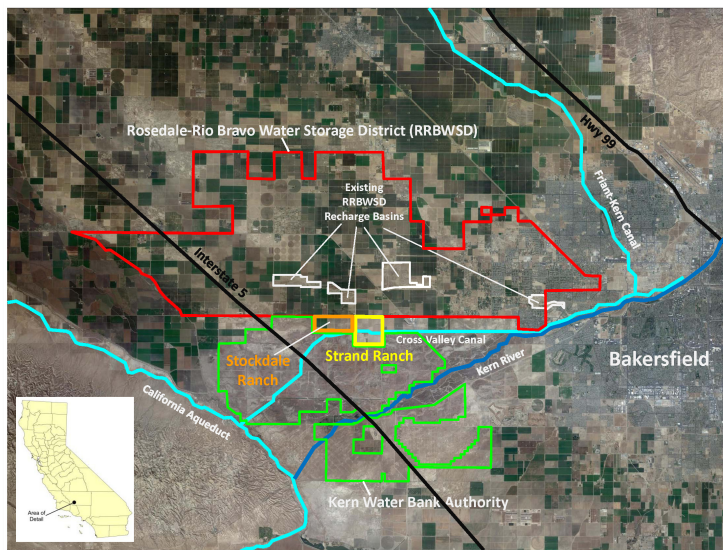


# IRWD Water Banking Projects Objective

## Water Banking Objective:

*Capture and store water available in wet years for use in droughts and periods of supply interruptions*

✓ *Emergency Supply*

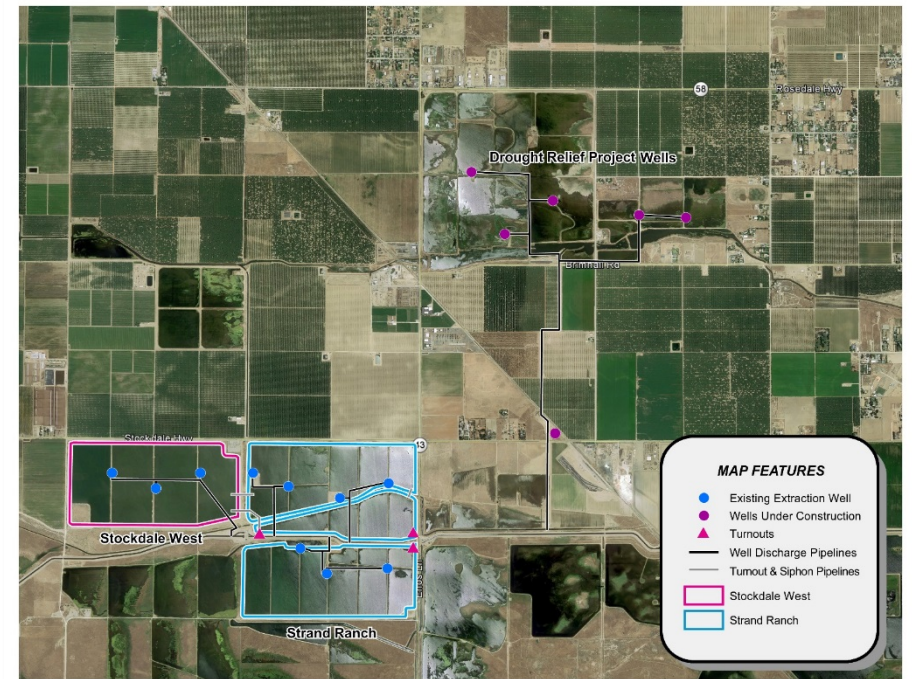




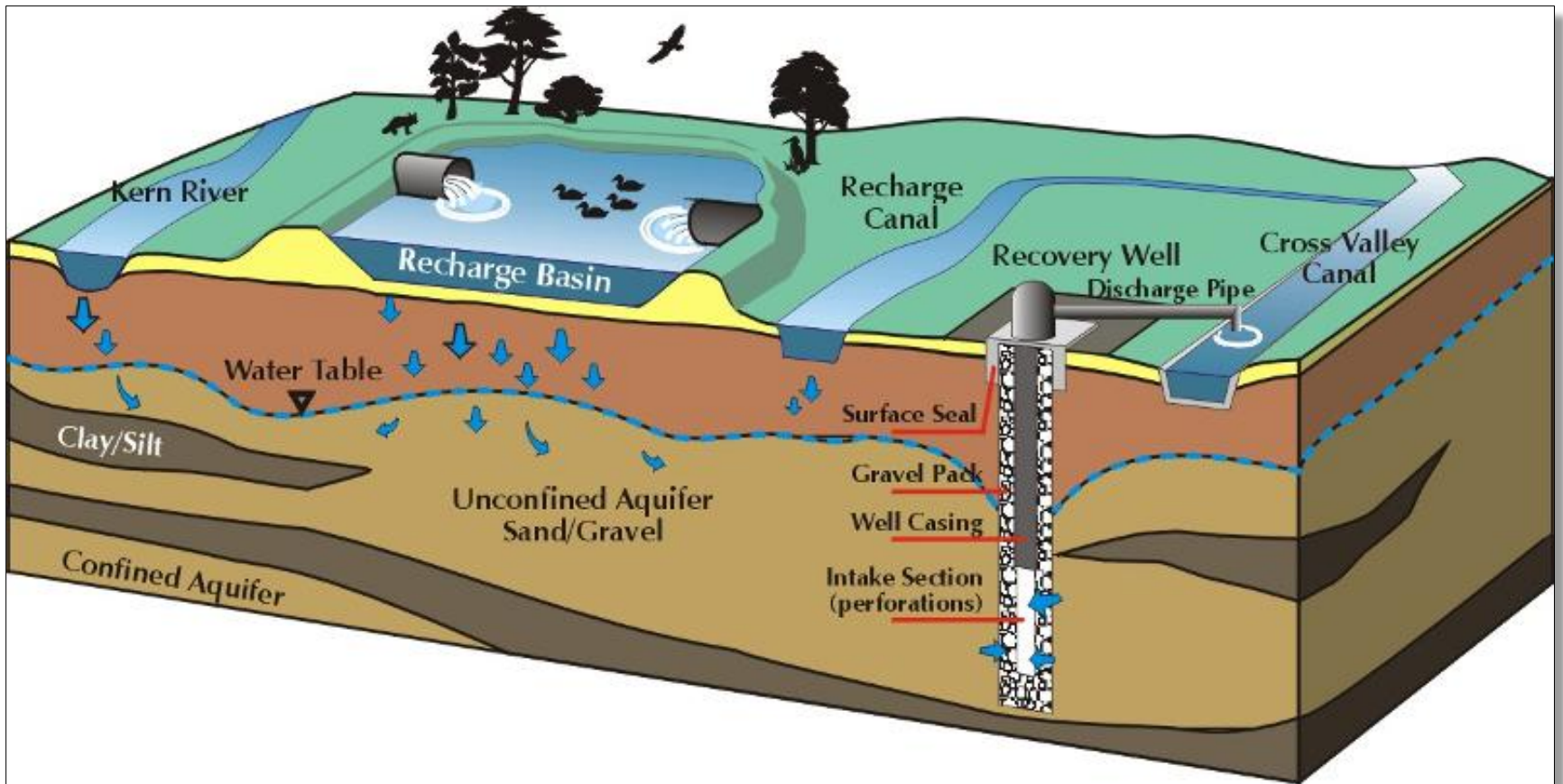
# IRWD Water Banking Projects

## Banking Components and Facilities:

- Aquifer
  - 155,400,000 m<sup>3</sup> of storage
- Land: 308 ha for recharge
  - 55,500,000 m<sup>3</sup> per year
- Water Supply
  - Unbalanced exchanges, etc.
- Recovery: 13 wells
  - 2 m<sup>3</sup>/s; 35,800,000 m<sup>3</sup> per year
- Conveyance: three turnouts
  - Access to major California water conveyance infrastructure



# Water Banking – How Does it Work?





# 2017 Recharge at IRWD Water Banks

[April 2017 Drone Video of Recharge at  
IRWD Water Banking Projects](#)

# What is Emergency Supply?

- During water supply shortages, MWD allows agencies less imported water
  - Penalties assessed for overuse
- Emergency Supply provides protection from MWD penalty rates
  - Improves water supply reliability
  - Cannot be a base loaded supply
  - Used only during major shortages or emergencies
  - Valuable source of supply



# Local Governance and Conflict Avoidance Using Agreements





# Long-Term Partnership Agreements Make it Work

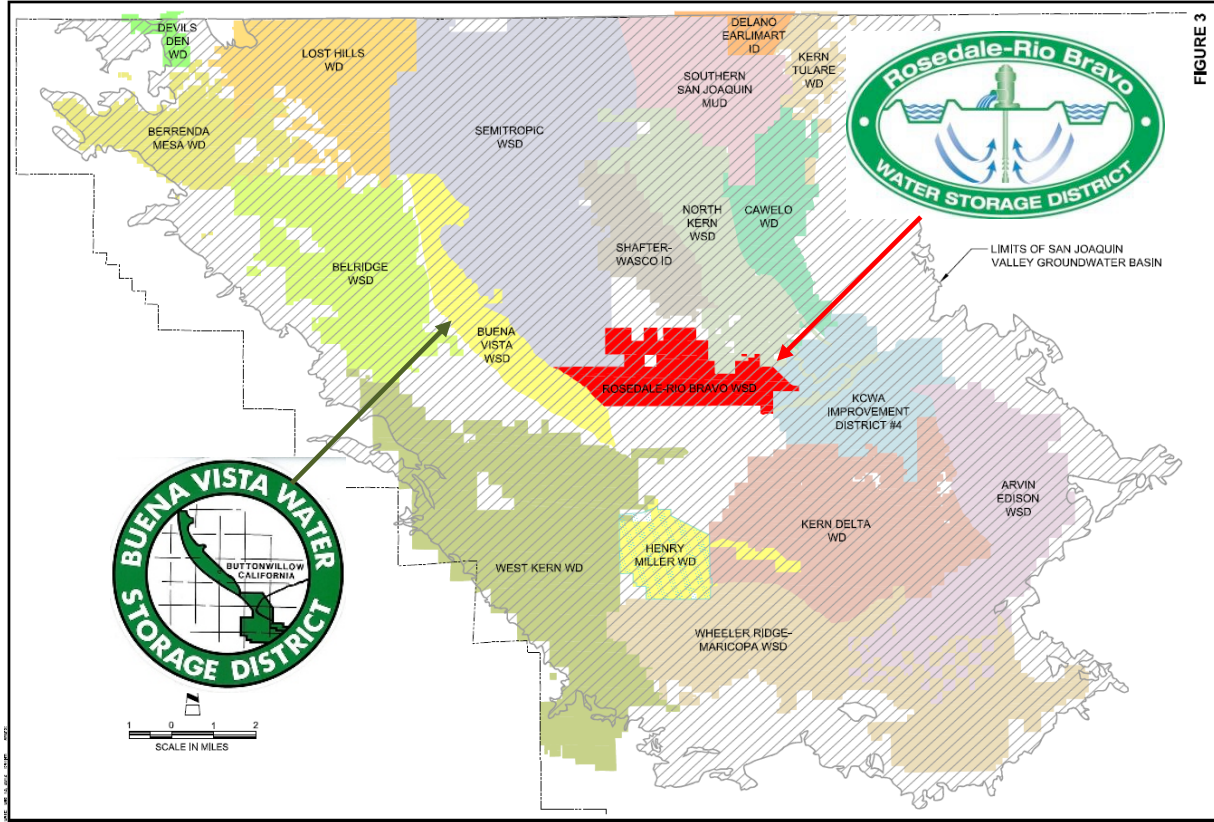


FIGURE 3



*Dudley Ridge Water District*

**Kern Water Bank Authority**



# Types of Agreements

- Securing sources of water
- Access to water conveyance facilities
- Facilitating operations
- Avoiding impacts to others
- Protecting the environment
- Compliance with Sustainable Groundwater Management Act (SGMA)



# Agreements for Securing Water

## Water from State Water Project Contractors:

- Unbalanced exchange agreements
  - IRWD retains 50%

## Water from Senior Water Right Holders:

- Agreement with Rosedale allowing Kern River flood flow diversion
  - IRWD retains up to 50%
- Agreement with Buena Vista for Kern River from water rights that pre-exist California law
  - IRWD retains 50%
- Other wet-year exportable supplies, as available





# Agreements with MWD for Conveying Water

## Coordinated Exchange Agreement:

- Allows IRWD to secure SWP water;
- MWD delivers water by Exchange;
- MWD can borrow water from IRWD; and
- Water qualifies as **Emergency Supply**.

## Template Wheeling Agreement:

- Allows IRWD access to MWD facilities to transport other water;
- Must be executed for each transaction; and
- Water qualifies water as **Emergency Supply**.



# Agreements to Facilitate Project Operations

## Project Operating Agreements:

- Executed with Rosedale
- Establish priorities for use of facilities
- Operations and maintenance
- Scheduling water deliveries
- Allocating costs
- Complying with agreements that avoid impacts to others



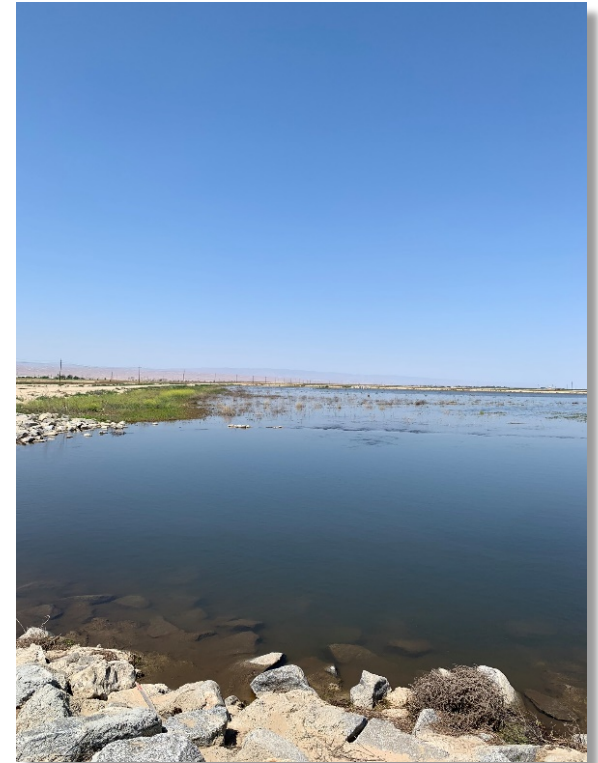
# Agreements to Avoid Impacts to Others

## Memorandums of Understanding:

- Established Monitoring Committee
  - Monitoring for impacts due to high water
  - Monitoring of groundwater levels
  - Monitoring water quality
- Establishing standards for losses
- Establishing leave behind requirements

## Groundwater Recovery Mitigation Agreement:

- Established Joint Operations Committee;
- Using groundwater models to predict impacts;
- Contributing mitigation funds = \$2 per 1,230 m<sup>3</sup>
  - Used to mitigate impacts to nearby wells





# Commitments to the Environment

## Mitigation, Monitoring and Reporting Plan:

- Prepared in compliance with California Environmental Quality Act (CEQA)
- Mitigates fish, wildlife and water supply impacts
  - During construction
  - While operating the projects



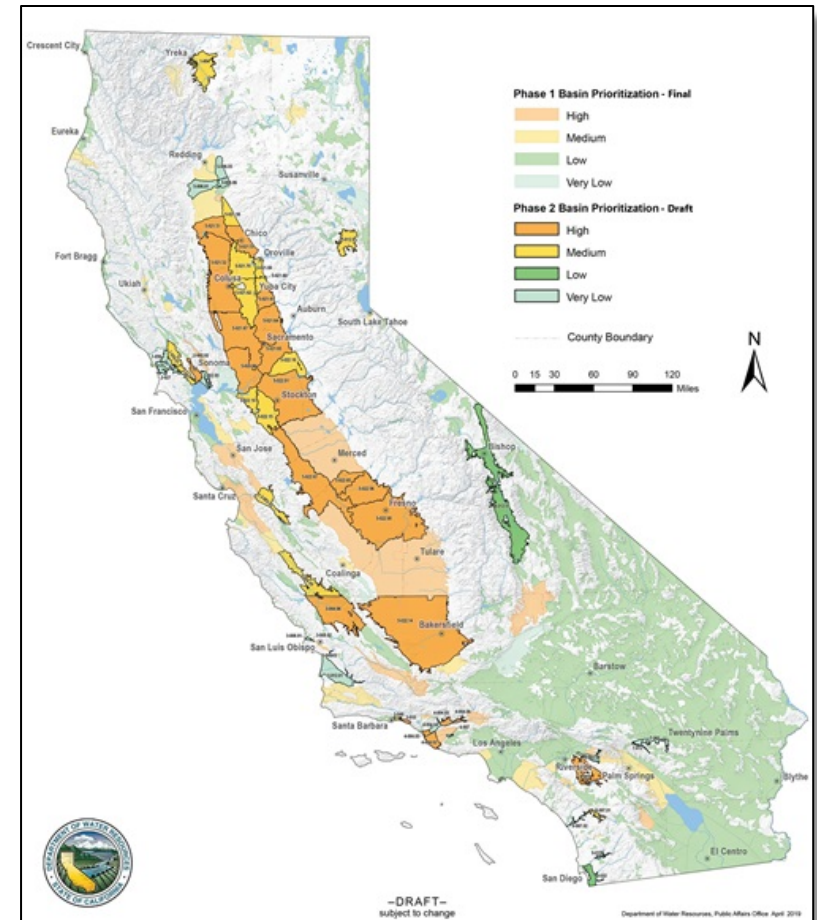
# Compliance with SGMA

## Landowner Agreement:

- Ensures IRWD water banking projects are included in the local Groundwater Sustainability Plan
  - Kern Groundwater Authority Groundwater Sustainability Agency
  - Recognizes that the water banking projects are neutral
  - No impact on native yield

## Other Agreement:

- Protects IRWD from restrictions and fees



# IRWD Contact Information

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