

# Sharing Groundwater: Policy Considerations for Facilitating Groundwater Markets with SGMA

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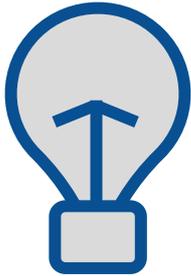
Presentation

South Valley SGMA Practitioners Roundtable

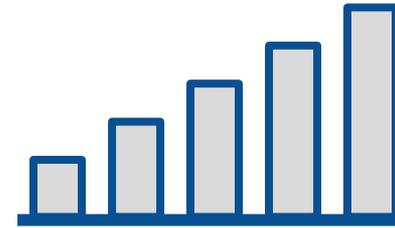
December 18, 2019



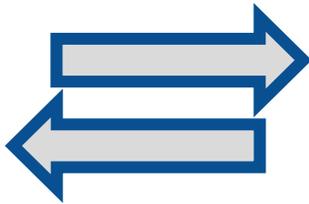
# Why Markets?



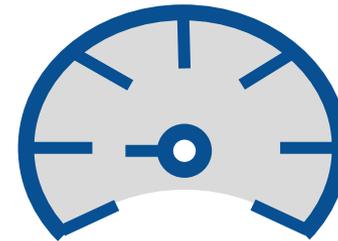
Incentivize Innovation



Create New Value



Compensate Mutually &  
Beneficially



Recognize Scarcity

# Markets & Public Policy

## Goal of Markets

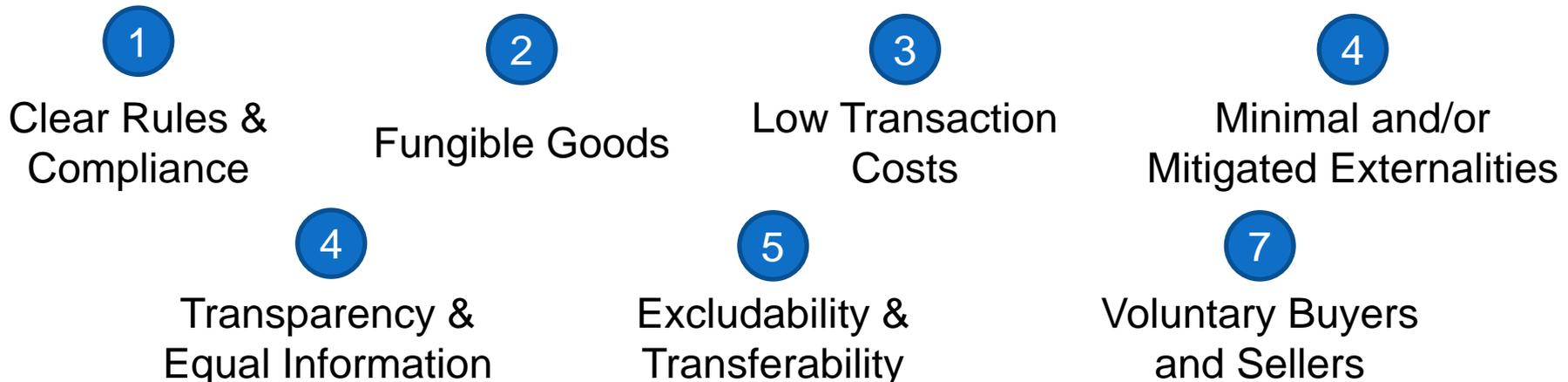
To create value through the recognition of scarcity and to increase social welfare through the incentivization and facilitation of mutually beneficial exchanges

## Role of Public Policy

To provide a framework that allows for efficient and respected markets to emerge

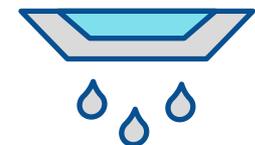
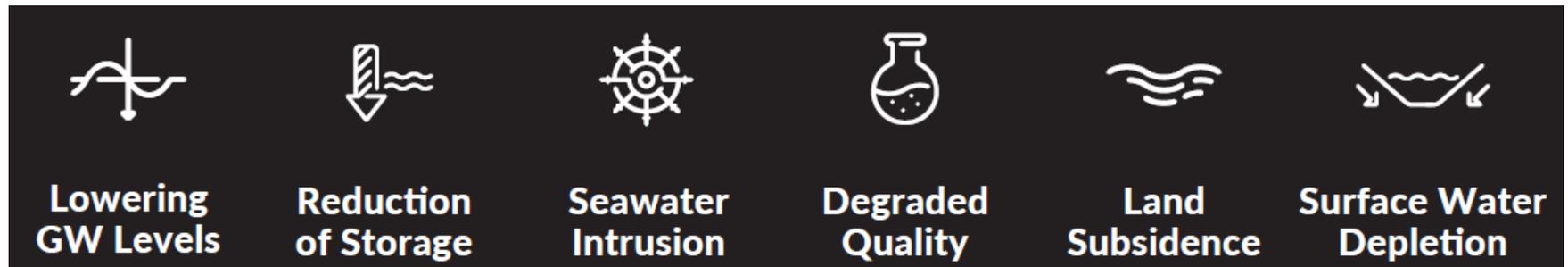
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## Key Components of an Efficient Market



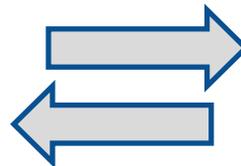
# Sustainable Groundwater Management Act

Passed in 2014 to provide local solutions for managing “significant and unreasonable...”



Groundwater  
Recharge

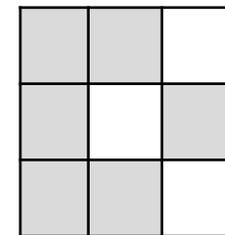
## Potential Tools



Allocations &  
Transfers  
(Markets)



Pumping Fees



Land Retirement/  
Fallowing

# Facilitating Adaptive Groundwater Markets

## Five Key Questions

## Five Places to Start

**What is the asset?**

**Groundwater**

**Is it tradeable?**

**Yes (subject to rules)**

**What are the rules?**

**Use is accounted for and limited, there are mechanisms to adjust, and penalties apply**

**What are the externalities (and how are they managed)?**

**Localized impacts and undesirable results, managed through adjustment and exchange mechanisms**

**Where do we begin?**

**With a lot of stakeholder outreach, input, and discussion**

# What is a Sharing System?

**A Sharing System is the underlying framework that shares access to a basin's available groundwater resources to eligible users and allows for markets to arise.**

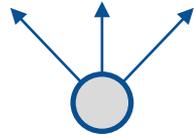
- There are rules to grant access.
- Supply (inflow) and demand (outflow) is well accounted for.
- There are mechanisms for adjustment.
- Contingencies protect against or mitigate undesirable results.
- Transfers are facilitated to optimize sharing.
- Limits are real and enforced.

*Remember – You can't create markets unless you have first put in place the policies, systems, and rules that allow for them to arise.*

# Policy Considerations for GW Sharing



A. Sharing System



B. Sustainable Yield



C. Allocation Decisions



D. Transitional Allocations & Period



E. Transferability



F. Wells & Monitoring of Use



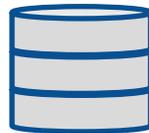
G. Penalties for Overuse



H. Pre-Implementation Recharge



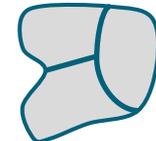
I. Post-Implementation Recharge



J. Banking Allocations of Groundwater



K. Groundwater Quality



L. Management Areas & Local Impacts



M. Funding Mechanisms

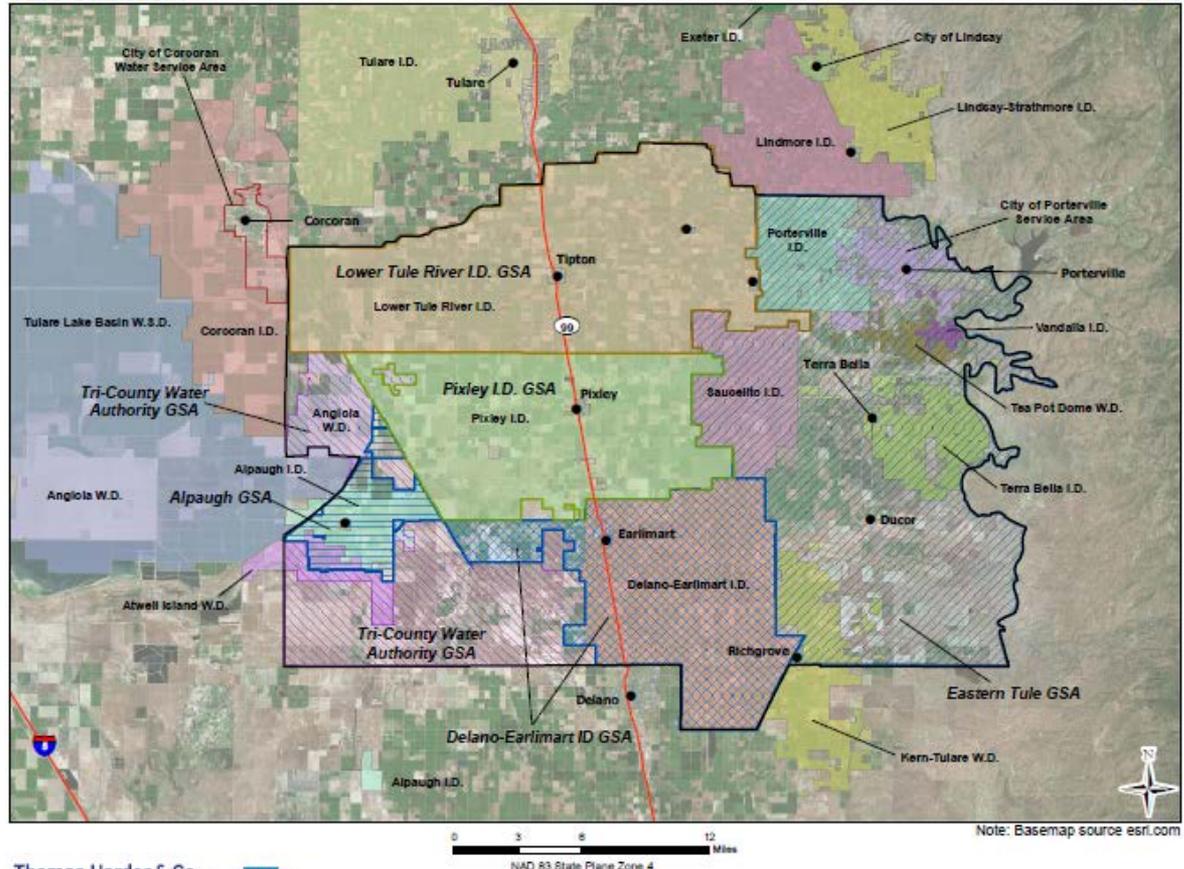


N. Governance

# Example - Tule Subbasin, Considerations

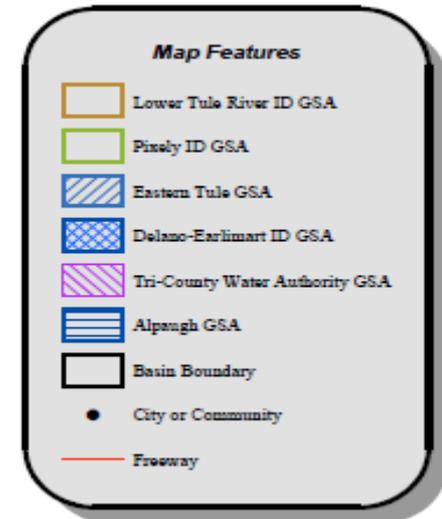
Tule Subbasin

16-Nov-18



## General Statistics

- Total Area: ~475,000 acres
- Urban/Industrial: ~30,000 acres
- Agricultural: ~320,000 acres
- Native/Rural Area: ~125,000 acres
- Population: ~95,000 persons
- DACs/SDACs: 14 Communities



# Example - Usable GW in a Sharing System

(EXAMPLE)

Mechanism	Volume	Price	Carry-Over Policy into Next 5 Year Period	Marketable/ Tradeable
<b>Recharge Project Credits</b>	Share of Project Participation	No Additional Charge	Eligible for Carry-Over	Yes
<b>Tier 2 TVO</b>	% of Avg. Status Quo Overdraft	\$ High/af	% into Next 5-Year Period (for \$) then Exhausted	Limited
<b>Tier 1 TVO</b>	% of Avg. Status Quo Overdraft	\$ Low/af	Next 5-Year Period (for \$) then Exhausted	Yes
<b>Sustainable Yield Allocations</b>	Share of SY	No Additional Charge	Next 5-Year Period, then Exhausted	Yes

Recharge Project Credits: Credits received as a result of participating in a validated recharge projects; Incentivizes managed aquifer recharge

Transitional Volume Option (TVO): Option to use a limited volume of overdraft water; Exercise of the option incurs a fee to disincentivize overdraft but also to mitigate for undesirable results

Sustainable Yield Allocations: Usable allocations received from shares; Core of the sharing system

# Ex. - GW Transfer & Accounting Mechanics

## User 1 Account

### Sustainable Yield Allocations (AF)

50 \$0/ea

### Validated Recharge Projected Credits

50 \$0/ea

### Tier 1 TVOs (AF)

100 \$150/ea

### Tier 2 TVOs (AF)

100 \$300/ea

## User 2 Account

### Sustainable Yield Allocations (AF)

100 \$0/ea

Event	Debit	Withdrawal from Accounts	Balance	Cost	Payee
Groundwater Used to Irrigate Orchard	-350 af		-350 af		
Use of Sustainable Yield Allocation		50 af	-300 af	\$0	n/a
Use of Recharge Project Credits		50 af	-250 af	\$0	n/a
Allocation Transfer and Use of 100af (From User 2 to User 1 for \$100/af)		100 af	-150 af	\$10,000 (\$100/af)	User 2
Use of T1 TVOs		100 af	-50 af	\$15,000	GSA
Use of T2 TVOs		50 af	0 af	\$15,000	GSA

User 2 has 100 AF available to transfer because they fallowed their field

# Final Thoughts

## Sharing Systems allow for GSAs to:

- Achieve Sustainable Groundwater Management
- Maximize Certainty for Business and Community Planning
- Provide Water Use Flexibility
- Incentivize Efficiency, Innovation, and New Projects
- Facilitate Adaptability, Transfers, and Stakeholder-initiated Solutions

# Questions?

# Contact Information



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