



SAN JOAQUIN COUNTY
**FLOOD CONTROL & WATER
CONSERVATION DISTRICT**

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KRIS BALAJI
DIRECTOR OF PUBLIC WORKS

ADVISORY WATER COMMISSION

November 20, 2019, 1:00 p.m.

Public Health Conference Room, 1601 E. Hazelton Avenue, Stockton, California

AGENDA

- I. Roll Call**
- II. Approve Minutes for the Meeting of September 18, 2019**
- III. Discussion/Action Items:**
 - A. Receive Fall 2018 Groundwater Report - Matt Zidar / Michael Callahan, San Joaquin County
 - B. Canal and Levee Maintenance (CALM) Assessment Recommendations to the Board of Supervisors – Alicia Connelly, San Joaquin County
 1. Flood Ordinances Revisions
 2. Notice of Intent
 - C. SJAFCA Updates – Chris Elias
 1. Smith Canal
 2. Lower San Joaquin Flood Risk response Project Phase 1
 - D. Sustainable Groundwater Management Act – SGMA – Matt Zidar / Michael Callahan, San Joaquin County
 1. Eastern San Joaquin Subbasin
 2. Tracy Subbasin
 - E. IRWM Update Project Initiation and Participation – Glenn Prasad, San Joaquin County
- IV. Informational Items (See Attached):**
 - A. September 25, 2019 – The Sacramento Bee “California farmers face ‘catastrophic’ water restrictions. Can they adapt to survive?”
 - B. Streamlined Processing for Standard Groundwater Recharge Water Rights.
https://www.waterboards.ca.gov/waterrights/water_issues/programs/applications/groundwater_recharge/streamlined_permits.html

(Continued on next page)

ADVISORY WATER COMMISSION

November 20, 2019, 1:00 p.m.

AGENDA

(Continued)

- V. Public Comment: *Please limit comments to three minutes.*
- VI. Commissioners' Comments:
- VII. December Agenda Items
- VIII. Adjournment:

Next Regular Meeting
December 18, 2019, 1:00 p.m.
Public Health Conference Room

Commission may make recommendations to the Board of Supervisors on any listed item.

If you need disability-related modification or accommodation in order to participate in this meeting, please contact the Water Resources Staff at (209) 468-3089 at least 48 hours prior to the start of the meeting. Any materials related to items on this agenda distributed to the Commissioners less than 72 hours before the public meeting are available for public inspection at Public Works Dept. Offices located at the following address: 1810 East Hazelton Ave., Stockton, CA 95205. These materials are also available at <http://www.sjwater.org>. Upon request these materials may be made available in an alternative format to persons with disabilities.

**REPORT FOR THE MEETING OF
THE ADVISORY WATER COMMISSION OF THE SAN JOAQUIN COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT
September 18, 2019**

The regular meeting of the Advisory Water Commission of the San Joaquin County Flood Control and Water Conservation District was held on Wednesday, September 18, 2019, beginning at 1:00 p.m., at Public Health Services, 1601 E. Hazelton Avenue, Stockton, California.

Chairman McGurk called the meeting to order. Chairman McGurk added an introduction agenda item to the meeting, giving Fritz Buchman with San Joaquin County the floor. Mr. Buchman introduced Matt Zidar as the new San Joaquin County Public Works Water Resources Manager.

I. Roll Call

Present were Commissioners Nomellini, Swimley, Starr, Winn, Herrick, Holbrook, Hartmann; Alternates Roberts, Houghton, Wright, Reyna-Hiestand, Henneberry-Schermesser; Interim Secretary Prasad and Chairman McGurk.

Others present are listed on the Attendance Sheet. The Commission had a quorum.

II. Approval of Minutes for the August 21, 2019 Meeting

Prior to approval of the August 21, 2019 minutes, an addition to the published minutes was made to reflect that Commissioner Price was in attendance at the August meeting and his name was inadvertently left from the minutes.

Motion and second to approve the minutes of August 21, 2019.

Commission approved. Commissioner Winn abstained.

SCHEDULED ITEMS

Mr. Tom McGurk, Chairman of the Advisory Water Commission (AWC), led the agenda.

III. Discussion / Action Items:

A.1 Integrated Regional Water Management - MOU / Governance – Katie Cole, Woodard Curran

Chairman McGurk introduced Katie Cole from Woodard & Curran to present the IRWM MOU Governance – Coordinating Committee and Draft Decision Making Charter. Katie distributed copies of her presentation slides as well as a copy of the Draft Decision Making Charter for the Greater San Joaquin County Integrated Regional Water Management Region. Ms. Cole discussed the newly formed RWMG, stating that five entities have already signed the MOU and another two were expected to sign soon. Ms. Cole advised that signed MOUs should be sent to Glenn Prasad and he will route them on. Ms. Cole discussed the Decision Making Charter, pointing out key elements, including the formation of a Stakeholder Committee and/or Workgroup that will provide recommendations to the Coordinating Committee. Ms. Cole allowed the

Commission and Public time to review the Draft Decision Making Charter before proceeding with the details of the draft. Ms. Cole continued her presentation, discussing consensus and how that will be defined. The Commission Members discussed the requirements for quorum as well as voting if required. It was decided that a quorum would occur if 50% or more of the total number of MOU signatories were present and that if consensus could not be reached then the item must be endorsed by at least 75% of the Coordinating Committee members present. Ms. Cole additionally explained verbiage in the Decision Making Charter addressing a member's governing body being able to reverse a member's decision, recommending that the verbiage be left as is and adjusted at a later time if needed.

Ms. Cole discussed the contracting and scope of work, advising that the County is contracting with GEI, Inc. for the Plan update and that Woodard & Curran will assist in the Governance finalization and support work scoped under the DAC Involvement Program grant agreement. Ms. Cole presented the next steps, stating that all comments or red lines on the Decision Making Charter should be submitted by Friday, October 4, 2019 allowing for Woodard & Curran to come back with a revised version at the next AWC meeting.

A.2 Integrated Regional Water Management – IRWMP Update to meet current guidelines – Mark Williamson, GEI Inc.

Chairman McGurk introduced Mark Williamson with GEI, Inc. to present the IRWMP updates to meet the current guidelines. Mr. Williamson discussed the IRWMP. Mr. Williamson discussed the new 2016 standards and the additional 2019 requirements. To receive Proposition 1 IRWM Funding, the IRWMP must comply with the 2016/2019 standards. Mr. Williamson further discussed the Proposition 1 Funding and the amounts available for implementation projects, disadvantaged communities, San Joaquin River Funding area, and monies allocated to the Eastern San Joaquin IRWM Region. Mr. Williamson presented mapping of the San Joaquin River Funding Area and explained the revised area boundary, suggesting to keep current boundary. Brandon Nakagawa from SSJID spoke in regards to previous meeting discussions to limit the plan scope to help expedite the plan, but include the plan for expansion at a later time. Fritz Buchman of San Joaquin County advised that timing for funds does not allow for expansion now, but expanding is in the future plans. Commission members questioned the expansion timeline. It was advised that the plan is on a schedule of 5 months and that expansion would be done shortly after that.

Mr. Williamson discussed the Disadvantaged Communities (DAC) outreach processes, the implementation projects and their priority and the review and incorporation of the Regional Flood Management Plan. Chairman McGurk questioned the list of contaminants on the plan standards update. Mr. Williamson advised that all water quality issues need to be looked at and those listed were additional to previous list. Mr. Williamson discussed the grant process scheduling, advising that round two applications are due mid 2020 so update to the IRWM plan needs to begin now. Mr. Buchman added, for clarity, that the round one deadline was missed as the plan was not complete and it was decided to complete the plan update before applying.

Mr. Williamson spoke about the DAC efforts and projects that have already been identified. Interim Secretary Prasad added that the state is putting emphasis on the completion of projects with the disadvantaged communities.

B. Effects of homeless encampments on waterways – Jim Stone, San Joaquin County Public Works and George Hartmann

Chairman McGurk introduced Jim Stone with San Joaquin County Public Works Department to present some slides and discuss the effects of the homeless encampments on the waterways. A copy of the slide presentation was provided to the Commission members and the members of the public. Mr. Stone went into detail about some of the issues his crews are finding, such as digging into levees, blocking patrol and access roads, burn barrels and fires under bridges. Mr. Stone discussed the County Homeless Response Team and what authority and services they can provide when removing homeless encampments from County property as well as the need for public and political support to handle the issue. Mr. Stone went into further detail on the legal authority needed, as well as funding required to move the homeless, explaining that funds delegated for other projects cannot be used for homeless removal. Discussion between Mr. Stone and the Commission members regarding the County's role and authority when the homeless encampments are causing litter and damage to levees. Mr. Stone advised that County Channel Maintenance crews do enforce removal of homeless that are causing damage to County levees, but trash removal is not part of requirement. Commissioner Nomellini suggested finding a way to incorporate the trash pickup into the Disadvantaged Communities projects.

Commissioner George Hartmann discussed the actions taken in Brookside to keep the homeless encampments off of their levees. Commissioner Hartmann discussed the concerns with the homeless digging into the levees, the trespassing and what enforcement procedures can be used.

Commissioner Winn spoke in regards to the issue, stating that resources are running out for San Joaquin County Public Works to handle the homeless encampments. Commissioner Winn discussed the City of Lodi and the homeless encampment and shopping cart cleanup program their community has and the need for a program of its kind in San Joaquin County. Commissioner Winn expressed the need for joint efforts to tackle the problem. Commissioner Nomellini expressed his opinion that the Flood Control District is able to enforce and clear channels as a flood control measures.

Commissioner Wright spoke further on the funding issue, explaining that the funding is not keeping pace with the increase in the homeless population. Commission members expressed concern as to where the homeless population is coming from and the need for more resources, services and shelters. Commissioner Wright advised that a large amount of the homeless population are members of the local community. Commissioner Hartmann suggested that the County's Response Team be a Task Force where all agencies can come together so more discussions can take place. Commissioner Hartmann advised that Brookside would be willing to contribute to the Task Force. Commissioner Winn agreed that further conversations need to be had and that he would work with the Public Works Department and Reclamations to get additional information to move forward. The Commission agreed that further agenda items on this topic would come at a later date.

C. Standing Updates

Not discussed due to time, would go well beyond scheduled meeting end time.

1. Sustainable Groundwater Management Act – SGMA

2. Flood Management and Water Resources Activities

IV. Informational Items:

Informational items were not discussed.

- A. **August 29, 2019 – The Press Article “State of California Proposes Plan for Delta Levees”**
- B. **August 19, 2019 – PPIC.ORG article “Preparing California’s Rivers for a Changing Climate”**
- C. **August 20, 2019 – abc30.com article “What You Need to Know About Blue-Green Algae Before Heading to CA Lakes”**

V. Public Comment: Public comments, adopted by the Advisory Water Commission on January 17, 2018, will be limited to 3-minutes, unless extended to the discretion of the Chair.

Mary Elizabeth from the Sierra Club commented on the Coastal Cleanup event occurring Saturday, September 21, 2019 and extended an invitation for volunteers to join in the efforts at a Calaveras River site, captained by the Sierra Club.

Ms. Elizabeth also commented on homeless encampments and boats in the Calaveras near Stagg High School and in the surrounding areas. Ms. Elizabeth expressed her concern with the homeless interacting with students and the nuisance it is causing. Ms. Elizabeth advised that she has contacted multiple agencies to remove the nuisance and the graffiti.

Additionally, Ms. Elizabeth commented on her addressing the Commission seven months ago regarding the lack of environmental representation on the Advisory Water Commission. Ms. Elizabeth addressed her application and letter of endorsement submitted for the seat and the fact that there is still not an Environmental Representative. Ms. Elizabeth commented that she believes that if not her, then someone needs to represent on the Advisory.

Ms. Elizabeth’s final comment was in regards to the homeless and water quality issues. Stating that she believes that is very important that the Commission be talking about the water quality and sanitation issues created by the homeless.

VI. Commissioner’s Comments:

No comments given.

Next Regular Meeting: October 16, 2019 at 1:00 p.m.
Public Health Conference Room

VII. Adjournment:

Chairman McGurk adjourned the meeting at 3:09 P.M.

**DECISION MAKING CHARTER
GREATER SAN JOAQUIN COUNTY
INTEGRATED REGIONAL WATER MANAGEMENT REGION**

The purpose of this charter is to outline the decision-making processes for the Greater San Joaquin Region Coordinating Committee, the Integrated Regional Water Management Group for the Region. All signatories to the Memorandum Of Understanding Of The Integrated Water Management Planning Coordinating Committee Members To Form A Regional Water Management Group will agree and adhere to this decision-making charter. Regional decision-making and management processes may be revised as the Region matures and the IRWM Plan is developed and implemented.

Consensus as the Fundamental Principle

The Coordinating Committee shall base its decision-making on consensus (agreement among all active members) in all of its decision-making. Representatives are encouraged to understand and make decisions that align with the values and interests of the organization they are representing. However, Coordinating Committee members understand that unless a vote of a member is either pre-approved or ratified by the members' governing body, namely its city council or board, the effect of the member's vote does not bind that member to the decision.

Definition of Consensus

The Coordinating Committee shall base its decision-making on consensus. In reaching consensus, some Coordinating Committee members may strongly endorse a particular proposal while others may accept it as "workable." Others may be only able to "live with it." Still others may choose to "stand aside" by verbally noting a disagreement, yet allowing the group to reach a consensus without them if the decision does not affect them or compromise their interests. Any of these actions still constitutes consensus.

Definition of Active Participation by Coordinating Committee Members

Active participation means regular attendance at Coordinating Committee meetings; and reviewing planning and other written documents before discussions or decisions will be made. It is understood that occasionally Coordinating Committee members may need to miss a Coordinating Committee meeting. If there is a question as to whether a Coordinating Committee member should be considered "active" for purposes of decision-making, the Coordinating Committee will make that determination by communicating with the member or determining whether the stakeholder is active or not based on recent participation.

Stakeholder Involvement and Workgroups

The Coordinating Committee may choose to form a Stakeholder Committee and/or Workgroups. A Stakeholder Committee could be responsible for day-to-day activities of the Plan update, including drafting chapters and providing recommendations to the Coordinating Committee. Workgroups could be formed around particular topic areas that

would provide input and recommendations to the Coordinating Committee. In these cases, all decisions will be approved by the Coordinating Committee as a whole.

Less than 100% Consensus Decision Making

The Coordinating Committee shall not limit itself to strict consensus if 100% agreement among all participants cannot be reached after all interests and options have been thoroughly identified, explored, discussed, and considered. Less-than-consensus decision-making shall not be undertaken lightly. If, after full exploration and discussion, the Coordinating Committee cannot come to consensus as defined above, it will use the less-than-consensus decision-making protocol as described in the below paragraph.

Any decision (not reached by consensus) must be endorsed by 75% of the total number of Coordinating Committee members present. In other words, the decision cannot be opposed by more than 25% of the total number of Coordinating Committee members present.

Adopting the GSJC IRWM Plan

Department of Water Resources Guidelines for IRWM Plan Adoption stipulate that the governing bodies of each Regional Water Management Group member must formally adopt the IRWM Plan. As the Regional Water Management Group for the Greater San Joaquin County IRWM Region, Coordinating Committee members agree to work in good faith towards an IRWM Plan that their respective governing Board would adopt. Should a Coordinating Committee member agency refuse to adopt the IRWMP, the reasons for refusal should be cited and attempts will be made to reconcile any differences. Should the differences remain irreconcilable, the dissenting member will be asked to withdraw from participation in the Coordinating Committee.



GREATER SAN JOAQUIN COUNTY IRWM

18 September 2019



Agenda

- MOU Update
- Decision Making Charter
- Contracting and Scope of Work
- Next Steps

MOU Update – We have a newly formed RWMG!

- To date, 5 entities have signed the MOU
 - SSJID
 - SEWD
 - *Reclamation District No. 2074 (Brookside)*
 - *South Delta Water Agency*
 - *Central Delta Water Agency*
- San Joaquin County and Lodi are expected to provide signed versions soon
- DWR confirmed that no letter or formal process is required to change the governance structure of a Region

Decision Making Charter

- Documenting the decision making process is a required element of the IRWM Plan
- MOU stated that a decision making charter would be developed once the RWMG is formed
- Included elements
 - *Consensus*
 - *Definition of Active Participation*
 - *Stakeholder Involvement*
 - *Adopting the Plan*

Decision Making Charter, cont.

- Answers the following questions
 - *How do we define consensus?*
 - *What happens if we don't reach consensus?*
 - *What if a member doesn't participate in meetings?*
 - *How do we involve stakeholders?*
 - *What happens if a member doesn't adopt the Plan?*

Decision Making Charter, cont.

- Consensus means:
 - *Strongly endorse*
 - *“Workable”*
 - *“Can live with it”*
 - *Stand aside by verbally noting disagreement but allowing group to reach consensus*
- Less Than Consensus Decision Making Protocol
 - *Endorsed by 75% of the total number of members present*



Contracting and Scope of Work

- County is contracting with GEI for Plan update
- Woodard & Curran will help finalize the Governance and support work scoped under the DAC Involvement Program grant agreement



Next Steps

- Submit written comments on the Decision Making Charter by Friday October 4
- Woodard & Curran will present revised version at October AWC Meeting



Greatness grows here.



Homeless Impacts on Channels

Advisory Water Commission

September 16, 2019













01/22/2018









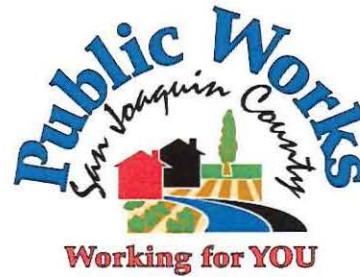












Homeless Impacts on Channels

Advisory Water Commission

September 16, 2019



SAN JOAQUIN COUNTY
 FLOOD CONTROL & WATER
 CONSERVATION DISTRICT

ADVISORY WATER COMMISSION
 MEETING OF SEPTEMBER 18, 2019

ATTENDANCE SHEET

INITIAL	NAME	AFFILIATION	E-MAIL ADDRESS	PHONE
<i>Present</i>	Nomellini, Dante J	CDWA		
	Nomellini, John Dante Jr	CDWA		
<i>ryl</i>	Roberts, Reid	CSJWCD		
	Thompson, Grant	CSJWCD		
	Murken, Walter	City of Escalon		
	Alves, Edward B	City of Escalon		
	Torres-O'Callaghan, Jennifer	City of Lathrop		
	Lazard, Diane	City of Lathrop		
<i>CD</i>	Swimley, Charlie Jr	City of Lodi		
	Richle, Andrew	City of Lodi		
	Breitenbucher, David	City of Manteca		
<i>MH</i>	Houghton, Mark	City of Manteca		
	De Graff, Daniel	City of Ripon		
	Uecker, Dean	City of Ripon		
	Andrade, Jesus	City of Stockton		

Present	Wright, Dan	City of Stockton	DLW	
	Sharma, Kuldeep	City of Tracy		
SA CZ	Reyna-Hiestand, Stephanie	City of Tracy		
	Starr, Charlie	NSJWCD		
	Valente, Joe	NSJWCD		
	Doornenbal, Herman	OID		
Present	Sup. Winn, Chuck	BOS		
	Sup. Miller, Kathy	BOS		
JH CZ	Herrick, John	SDWA		
	Holbrook, John	SSJID		
	Weststeyn, Mike	SSJID		
	Weisenberger, David	SW County		
	Christensen, Anders	WID		
	Heberle, Douglas	WID		
		Enviro/Fish/Wildlife Org		
Present	Hartmann, George	Urban Flood Control RD		
		Urban Flood Control RD		
	Price, Willard	General Bus Com		
	Neudeck, Christopher	Building & Construction Industry		
Present	Prasad, Glenn	Interim Secretary		
	Wells-Brown, Terry	At Large Rep		
MAK	Henneberry-Schermesser, Annette	At Large Alternate		
Present	Chairman McGurk, Thomas	SEWD		



SAN JOAQUIN COUNTY
 FLOOD CONTROL & WATER
 CONSERVATION DISTRICT

ADVISORY WATER COMMISSION
 MEETING OF SEPTEMBER 18, 2019

ATTENDANCE SHEET

NAME	AFFILIATION	E-MAIL ADDRESS	PHONE
Kristy Smith	SJC		
Danny Trejo	COS		
Mel Lytle	COS		
JACK BOND	S.J.C.O.		
Maria Williamson	GR		916/431-4559
Matt Lipke	SJ PW		916.703.2447
John G. Nelbrock	SSJID		
Fritz Buchanan			
Michael Callahan	SJCDW		
TOM MCGURK	SEWD		
MEGAN PORTER	KLEINFELDER		
Mary Elizabeth	Sierra Club		
Jane Wagner Tyack	Consultant		
Jim Stone	SJC Public Works		
Larry Meyers	SJC		

Advisory Water Commission

PUBLIC COMMENT FORM

PLEASE PRESS CLEARLY & PRESS FIRMLY

DATE _____

If you wish to address the Advisory Water Commission, please complete this form and return to the meeting recorder before the start of the Advisory Water Commission meeting. Completion of this form is voluntary. Public comments are limited to three (3) minutes.

NAME: Mary Elizabeth PHONE: _____

ADDRESS: 624 W Vine Stockton CA

AGENDA ITEM NO: ✓

OTHER: _____

Please, No Personal Attacks.

Adopted by the Advisory Water Commission 1/17/18

ATTACHMENT
IV. A

California farmers face 'catastrophic' water restrictions. Can they adapt to survive?

The Sacramento Bee, 09/25/19

It was 2015 and, as far as John Konda knew, farming still had a viable future in the San Joaquin Valley.

So he expanded.

The Tulare County grower planted 75 acres of pistachios, adding to a farm he's owned since 2003. Two years later, in order to augment his water supply, he drilled two new groundwater wells.

Now he wonders whether the investments, totaling more than \$1.5 million, will turn out to be a costly mistake.

Stoking his anxiety is California's Sustainable Groundwater Management Act, or SGMA. Starting next January, the law will require farmers to gradually rein in the amount of groundwater they can pump from their wells.

It could devastate the economy of the entire San Joaquin Valley.

In a region where agriculture is king — and the ability to extract the water beneath one's soil has been practically a birthright — a difficult reckoning is coming. Farmers will have to start throttling back their pumps, dramatically altering how they cultivate one of the world's most fertile valleys. Some land probably won't survive as farms at all.

Although the law will take 20 years to fully take effect, the impact on the San Joaquin Valley will be considerable. Water is in chronically short supply around the Valley to begin with, and the region's groundwater basins — over-pumped for decades, especially during the drought — are in worse shape than anywhere else in California.

To bring the Valley's aquifers into balance, the Public Policy Institute of California says anywhere between 535,000 and 750,000 acres of Valley farmland will have to be retired eventually.

That will mean a lot fewer pistachios, grapes, almonds and tomatoes — and tremendous upheaval in a region that already under-performs the rest of the state on a host of socioeconomic measures.

In Tulare County, where unemployment is already 9.2 percent, the anxiety is growing week by week. Some growers are already curtailing planting, and land prices are tumbling as farmers unload their properties.

"The stakes are dire," said Bryce McAteer, who runs the groundwater sustainability agency that will enforce pumping restrictions in the 160,000-acre Eastern Tule region of Tulare County. McAteer said as much as one-third of Eastern Tule's land could go out of production eventually, and already the region's farming industry is beginning to wither.

"We're hearing tales of folks having trouble getting their operating loans," he said. "We've heard growers say they've not been planting wall to wall."

The SGMA law (pronounced "sigma") says groundwater basins must be brought into "sustainability" — defined as cutting consumption to the point that they're no longer causing "chronic lowering of groundwater levels" or other "undesirable results." To implement the law, dozens of regional groundwater agencies have been set up. The January launch has managers scrambling to figure out just how much less water their farmers will have in the future.

Eric Limas, who runs a groundwater agency in the Pixley area of Tulare County, says his water allotment will be downright frightening: Farmers on his turf will have to curtail their groundwater usage by 40 percent eventually.

"You're talking devastation here, in the catastrophe spectrum," Limas said.

WATER SHORTAGES

California's Sustainable Groundwater Management Act will require farmers to pump less groundwater. The restrictions will be stricter in the groundwater basins designated as critically overdrafted," including most of the San Joaquin Valley.

It could get worse. The Public Policy Institute's main water expert, Ellen Hanak, said climate change could lead to even more land retirement.

Here's why: Historically, the Sierra Nevada snowpack acts as a second set of reservoirs. When it melts, the runoff replenishes the reservoirs, providing enough water for the dry months. But as winters get warmer, more of the precipitation will fall as rain instead of snow. The runoff will come too quickly for the reservoirs, and much of the water will wind up in the ocean. That will leave less water for agriculture in the decades to come.

In Terra Bella, Konda is simply wondering how he can get through the next few years.

Konda, who relies entirely on groundwater to supply his 460 acres of pistachio and citrus trees, fears he could be forced to retrench. In a few years he might have to yank some of trees out of the ground — the less valuable navel oranges would probably go first — to save enough water to keep the remaining orchards going.

Konda was vaguely aware of the groundwater law before he planted his pistachios — it was enacted in 2014 — but says he didn't grasp the implications of the law until later.

"It's been a long learning curve," he said.

HOW GROUNDWATER LAW WILL HIT THE VALLEY

California's groundwater law is expected to force the retirement of at least 534,760 acres of San Joaquin Valley farmland by 2040. It will also eliminate at least 12,700 jobs. The annual financial cost to Valley agriculture:

Industry	Minimal trading
Crops	\$ 956.000 m
Dairy and livestock	\$ 1.662 b
Food processing	\$ 1.784 b

FARMLAND IS SINKING

Agriculture accounts for 20 percent of the Valley's entire economic output and 18 percent of its jobs, according to the Public Policy Institute. At the same time, agriculture's water supply in the Valley has long been tenuous, even in rainy years.

It's telling that when former Gov. Jerry Brown officially declared the end of the drought in 2017, he kept emergency conditions in place in three Valley counties — Fresno, Tulare and Kings — as well as Tuolumne. That's still in effect, and those counties remain eligible for drought-related state assistance.

The arrival of the state's groundwater law has reignited a debate over state water policies and who's to blame for the desperate condition of the Valley's aquifers.

During the drought, farmers were criticized for pumping so much groundwater that portions of the Valley floor literally sank. That phenomenon, known as subsidence, can compact the layers of soil and make it impossible for aquifers to fully "recharge" in wet years, scientists say.

Farmers also took heat for planting crops such as almonds, whose footprint more than doubled over the past 20 years to more than 900,000 acres. The problem: Almond trees are comparatively thirsty and, unlike row crops such as tomatoes, can't be fallowed during dry years. They have to be watered, no matter what.

For their part, farmers said planting almond trees was a rational economic decision; it made perfect sense to devote a scarce resource to a high-value commodity. And they refused to apologize for pumping groundwater. Instead, they blame the state for environmental restrictions that have curtailed their access to "surface" water from the Sacramento-San Joaquin Delta, leaving them no choice but to use groundwater to keep their farms alive.

They don't dispute the idea that groundwater basins must become sustainable. But they're furious that their livelihoods are being threatened, along with the heart of the state's \$50 billion-a-year farm output.

"The areas that are being impacted the most are the counties that the most prolific food growers in the United States," said Joey Airoso, a dairy farmer in Pixley. "Who gets to feed 40 million people? Do they have a plan for that?"

Mary-Ann Warmerdam, a lobbyist with Rural County Representatives of California, said most members of the Legislature haven't grasped the enormity of the potential economic harm that could befall the region.

"I don't sense that members, outside of that small circle of San Joaquin Valley representatives, are really focusing on it," she said.

Top state officials insist they're on top of the issue. Wade Crowfoot, secretary of the state Natural Resources Agency, said Gov. Gavin Newsom's administration is formulating plans for economic assistance to help the Valley cope with a transition that promises to be difficult.

"I'm not suggesting there are any silver bullet solutions here," Crowfoot said. "Everybody acknowledges two things about SGMA: One, it's absolutely necessary. And two, it's going to have substantial economic impacts."

PRESSURE ON A WEAK ECONOMY

California's groundwater law won't affect all parts of the Valley equally. A sad truth is that it will hit hardest in places that are most reliant on groundwater and most fragile economically.

"The further south you go into the Valley, the higher degree of agriculture dependence you have. And you also hit the more severely over-drafted basins as well," said economist Jeff Michael of the University of the Pacific.

John Corkins lives and works in one of those ground-zero areas — near Porterville in southern Tulare County, where the aquifers are in terrible shape and the fear factor is growing.

"We're scared to death down here," Corkins said, pulling out of his desk drawer an economic report predicting billions of dollars in crop losses.

Corkins runs an ag-consulting firm called Research for Hire. He also grows grapefruit and olives on 300 acres in Tulare and Kern counties. Some of the land gets water via canals from the area irrigation district; about 40 percent is dependent on groundwater, and Corkins believes the state law will bring economic misery to an area where the unemployment rate sits at 10 percent.

In a few years, “we’re going to be starting to ratchet things down,” he said as he inspected a groundwater well and his grapefruit trees — a sweet variety called Melogold. “There will probably be fewer of us sitting around the coffee shops in 2040.

“The number of jobs that are going to be lost in this area is going to be dramatic. People that don’t have a second skill are going to be losing their jobs.”

Consuelo Andrade, 41, is not an expert in California’s arcane groundwater law — but she understands that her livelihood would be threatened if some of the farmland in Tulare County starts going idle.

“Where are we going to get money? How are we going to survive?” she said through a translator.

Life is hard enough as it is. Andrade, who came to the United States nine years ago, picks oranges, lemons, grapes and olives from November to April. She gets paid by the number of bins she fills; it works out to \$40 to \$60 a day, but she’s on food stamps now because it’s off season and she’s been caring for her 13-month-old daughter Guadalupe Ruby.

Her husband, Manuel Cisneros, 55, also works in the fields but he’s been reduced to part-time labor because of diabetes and other health problems. They live in a \$200-a-month rental in Strathmore.

What if the farms dry up and their incomes vanish? Unable to speak English, they doubt they’d be able to find much work in Tulare County. One possibility is moving to Oregon, where they’ve picked cherries before and there don’t seem to be any water shortages.

“There’s going to be an epidemic of people moving,” Andrade said.

Farmland won’t go out of production overnight. Outside experts say Valley farmers will have time to find alternative water supplies and make SGMA more palatable.

“You’re not tearing out all your trees in 2020,” Hanak said. “They have this 20-year horizon.”

Some farm leaders are cobbling together groundwater trading markets that would allow growers to buy and sell pumping rights. No new water would be created, but a market would likely move more water to high-value crops like almonds, helping prop up overall farm income even as land is idled.

“You’re farming almonds and I’m farming carrots. Your ability and willingness to pay for water is greater than mine. That’s the economics,” said Eric Averett, general manager of the Rosedale Rio Bravo Water Storage District in Kern County, which is building a web-based trading system.

There could be drawbacks. Shifting more water to high-income commodities could “harden” water demand because trees must be watered every year.

And some worry about who wins and loses in any market-oriented scheme. The water could end up “flowing to the guys with the deepest pocketbooks,” said Dan Vink, executive director of the South Valley Water Association, which represents several water districts in Tulare and Kern counties. “When you start matching up the corporate farms with the mom and pops, that’s not a fair fight.”

Other districts are studying construction projects that could allow them to import more water.

Westlands Water District is looking at spending millions of dollars on pipes and ditches to capture more flood flows off the Kings River. It also might build “recharge basins” to store supplies in new shallow reservoirs. The projects could cost millions and are in their early planning stages, but Westlands is adamant about trying to navigate the groundwater law without retiring any land.

It’s an attitude rooted in a painful history. In the early 1980s, hundreds of waterfowl turned up dead and deformed at the nearby Kesterson wildlife refuge, one of the most notorious environmental disasters in California history. The birds were poisoned by irrigation water runoff that was tainted with salt and selenium, the result of improper soil drainage. The ensuing litigation spawned a settlement in the early 2000s that resulted in 85,000 acres of contaminated Westlands land taken out of commission.

No more of that, Westlands says. “I’m optimistic that we wouldn’t face any additional land fallowing in Westlands,” said Jose Gutierrez, chief operating officer. “Maybe we’ve already experienced the amount of fallowing we need to do.”

In Kerman, a farming region of Fresno County between I-5 and Highway 99, the McMullin area groundwater agency is angling to buy water from neighboring irrigation districts.

Because the McMullin area has no irrigation canals, it would have to invest heavily in infrastructure to import the water. But the alternative could be much worse. Without new water, the 250 farmers covered by the McMullin agency will have to reduce their groundwater use by one third over the next 20 years, raising the prospect of substantial land retirement.

“There’s water, and probably enough water to satisfy a large part of the need,” said general manager Matt Hurley. “It’s not sloshing, but there is water available.”

WILL NEWSOM HELP FARMERS?

A few miles west of John Konda’s farm in Terra Bella lies the Friant-Kern Canal, one of the most important arteries in California’s water-delivery network. In recent years it’s become a vivid symbol of the Valley’s groundwater woes.

Years of over-pumping has caused portions of the Valley to sink. Some of the worst damage has occurred at a spot near Terra Bella. The ground has fallen so far that the Friant-Kern has sunk with it, creating a choke point. The problem feeds on itself: The

canal has lost so much of its capacity to deliver water south that farmers say they're under even more pressure to tap their groundwater.

Valley leaders have asked the state for help with the canal, so far without success. Last fall California voters defeated Proposition 3, which would have raised \$350 million to fix the canal as well as funding for other water projects. This year farm groups rallied behind SB 559, which would have allocated \$400 million for the Friant-Kern's repairs. But the legislation was converted into a "two-year bill" at the end of August, which means lawmakers won't take any action until next year.

Undaunted, Valley leaders are still pressing Sacramento for assistance with navigating SGMA. If the state would help bring more water to the Valley, they argue, the region could curtail its groundwater consumption without unraveling its economy.

"The Valley deserves the opportunity to try to control, help steer its destiny and minimize the impacts that might occur," said Austin Ewell III, a Fresno attorney and land-use consultant. Ewell is chairing an effort called the Water Blueprint for the San Joaquin Valley, a suite of proposals aimed at augmenting the Valley's water supplies.

Some of the ideas are certain to arouse controversy.

Among other things, Ewell — who served for a time as deputy Interior secretary for water and science in President Donald Trump's administration — is trying to enlist state support for Trump's plan to move more river water to Valley farmers via the Sacramento-San Joaquin Delta, the hub of the state's elaborate water delivery network.

More water from the Delta could save as many as 200,000 acres of Valley land, by one estimate. But the state has already signaled its opposition to the Trump plan. Environmentalists say shipping more water to farmers would harm salmon and other endangered species that ply the fragile Delta.

On the other hand, Newsom has said he wants to find common ground between agriculture and environmentalists on water issues. Farmers cheered when he announced he would veto SB 1, a bill that would have essentially blocked the impact of every environmental rule proposed by Trump since he took office. Crowfoot said the governor is eager to listen to what Ewell's Blueprint consortium has to say about finding new water for agriculture.

"It advances the discussion," said Newsom's natural resources secretary.

Many farmers, however, remain skeptical that Sacramento will lift a finger to help them. Madera farmer Denis Prosperi is so fed up with Sacramento, he's partially bailed out of the state.

Two years ago, prompted in part by the groundwater law, Prosperi sold 400 acres of almond trees. He put the cash into commercial real estate — in Idaho.

"I don't like the politics of California," said Prosperi, who still owns 330 acres of vineyards in the Madera area. "They're going to legislate a lot of crops out of business."

WAKING UP ON GROUNDWATER

It's not as if farmers were unaware of the significance of groundwater. It accounts for 38 percent of the state's total supply in a normal year, close to 50 percent or more in a dry year.

Nor was it any secret that Californians have been using too much of it. The Public Policy Institute says the Valley has been "overdrafting" its aquifers to the tune of 1.8 million acre-feet a year — enough to fill Millerton Lake, the giant Central Valley Project reservoir northeast of Fresno, more than three times over. In the drought, the overdraft reached 8 million acre-feet a year, according to the Public Policy Institute. An acre-foot is 326,000 gallons.

Still, even when Brown signed the sustainable groundwater bill into law in 2014, there was a sense of disbelief around the Valley.

"I said, 'They can't enforce this thing,'" said Corkins, the Porterville grapefruit grower.

Now he knows better. He sits on the board of a local groundwater agency and is watching water allocation plans come into focus. In his area, farmers will eventually have to cut their groundwater use by as much as 90,000 acre-feet, or one third.

"It's not going to go away," Corkins said. "You can't put your head in the sand."

Corkins and his neighbors are in a particularly difficult spot. Much of their land is "white area," meaning it isn't served by an irrigation district and depends solely on groundwater.

Now some of that land is becoming expendable. Michael Ming, a land broker and consultant in Bakersfield, said farmers are selling out and "white area" land that sold for \$15,000 an acre just four years ago has dropped to \$7,500.

"The values are coming down dramatically," said Ming, owner of Alliance Ag Services. "It's a matter of coming to the realization that SGMA is real and SGMA is going to affect everybody."

For John Konda, the alarm bells started ringing two years ago. He'd already spent a fortune drilling new wells and planting more pistachios and was negotiating to buy 200 acres of land from a neighbor. The cost: \$4 million.

"Then," Konda said, "I found out why they were selling it."

The reason was the groundwater law. Konda walked away from the land purchase and began brushing up on SGMA. He joined the board of his local groundwater agency as the representative of "white area" growers like himself. Then he crunched the water numbers and realized he might have to abandon some of his 460 acres some day.

Unless he can find replacement supplies.

Konda and several of his neighbors are trying to do something audacious: They're reviving the Hope Water District, an irrigation agency that went dormant decades ago, in hopes of turning it into a legal structure for bringing more water to the Terra Bella area.

How that would work, Konda isn't actually sure. Water would have to be purchased from somewhere and canals would have to be constructed. He's hoping to craft a solution that would somehow stave off the day when "the water goes down to the point that it doesn't make sense to keep farming," he said.

He thinks that day is still several years off. But in the meantime, he's willing to explore some alternatives.

Just south of his property, he said a neighboring farmer has just made a deal to build a solar energy farm on 320 acres. The development has given him ideas about his own future.

"If we were to take some property out, and put it into solar, sure, why not? I'm open. some kind of income is better than no kind of income."