PHILIP A. WILLIAMS, State Bar No. 296683
Deputy General Counsel
WESTLANDS WATER DISTRICT
400 Capitol Mall, 28th Floor
Sacramento, California 95814
Telephone: (916) 321-4500
Facsimile: (559) 241-6277

Attorney for WESTLANDS WATER DISTRICT

BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

In re State Water Resources Control Board Petition Requesting Changes in Water Rights of the Department of Water Resources and U.S. Bureau of Reclamation for the California WaterFix Project.	**TESTIMONY OF JOSE GUTIERREZ**

I, Jose Gutierrez, do hereby declare:

I am the Deputy General Manager of Resources at Westlands Water District ("Westlands"). A Statement of my Qualifications is submitted concurrently with my written testimony as Exhibit WWD-2. My responsibilities include planning, organizing, and directing Westlands' water resource activities including its Federal contract water supply and acquired supplemental water supplies; administering and scheduling water deliveries; managing Westlands' power programs; directing groundwater management and conservation activities; implementing State regulatory mandates; managing Westlands' land lease and sales activities; and implementing Westlands' capital improvement projects to enhance water supply reliability. I have been employed by Westlands since November 1, 2012. Prior to my employment with Westlands, my professional experience included approximately three years serving as an engineer with the U.S. Environmental Protection Agency, and 17 years as a consulting engineer working on water-related projects throughout California. I am a registered Professional Engineer in Civil Engineering in the State of California, and have held my license continuously since 1997. I received a Bachelors and Masters of Science degree from the University of California at Berkeley in 1992 and 1994, respectively. My coursework focused on groundwater and surface water supply and treatment. I was born and raised in the San Joaquin Valley and worked in agriculture and related industries prior to college.

In this testimony, I will provide background information regarding Westlands and describe Westlands' water supply, the role of Central Valley Project operations in delivering Westlands' supply, and how Westlands puts its water to use. In addition, I will discuss the need for California WaterFix existing in Westlands, and both the likely benefits to Westlands if California WaterFix moves forward and likely adverse impacts to Westlands if California WaterFix does not move forward, or moves forward in a way with more significant operational limitations than exist today.

I. <u>Introduction to Westlands Water District</u>

Westlands is a California water district formed pursuant to California Water Code sections 34000 et seq. Westlands' main office is in Fresno, California. Westlands' service area is in western Fresno and Kings counties, and encompasses approximately 600,000 acres, and includes some of the most highly productive agricultural lands in the world. Westlands provides water primarily for irrigation of farms, but provides water for some municipal and industrial uses as well. Westlands is a member agency of the San Luis & Delta-Mendota Water Authority.

Historically, the demand for irrigation water in Westlands has been about 1.4 million acre feet per year. That demand has been satisfied primarily through water provided to Westlands from the Central Valley Project ("CVP") under contracts with the United States Bureau of Reclamation ("Reclamation"). The CVP is a federal water project that stores water in large reservoirs for use by cities and farms throughout California, including areas served by Westlands. Water rights for operation of the CVP are held by the United States, and water from the CVP is made available under terms and conditions of contracts between the United States and water agencies or, with respect to settlement contracts, individuals and other entities. Reclamation operates the CVP as an integrated project. This means that Reclamation uses water from all CVP facilities subject to the consolidated place of use approved by Water Rights Decision 1641 to meet the United States' contractual obligations and does not make allocation decisions based on geographical regions. It is my understanding that Reclamation, the Water Board, and courts have consistently declined to give priority to contractors based on "area of origin" principles. Rather, Reclamation makes allocation decisions based on the terms of the CVP contracts and other policies. Different allocations are made to contractors in one region versus another only in circumstances where Reclamation is unable because of regulatory constraints to move CVP water from one region to another. The California WaterFix is intended, in part, to address these regulatory constraints and to restore Reclamation's ability to supply CVP water to south-of-Delta CVP contractors.

Unlike water agencies with more abundant supplies, Westlands must allocate (ration) water to its farmers, even in the wettest years. Westlands' water supplies are not increasing, but instead have declined in recent years. Once water supplies leave the CVP facilities, Westlands, and its distribution districts, delivers water to farmers through approximately 1,034 miles of underground pipe and over 3,300 metered delivery outlets. In this manner, Westlands serves more than 600 family-owned farms that produce more than 60 different high quality commercial food and fiber crops sold for the fresh, dry, canned and frozen food markets, both domestic and export. The distribution system and associated infrastructure that deliver Westlands' water have been in operation more than 50 years.

II. Westlands' Sources of Water

A. Water Service Contracts

Reclamation has delivered Westlands' full contractual entitlement to CVP water in only two of the past twenty-seven years. Indeed, in over half of those years Westlands has received fifty percent or less of its full contractual allotment, all across a broad range of water year types. In water contract year 2015—and for the second consecutive year—Westlands received a zero percent allocation under its CVP contracts. Westlands' current allocation for water contract year 2016 is merely five percent, even though the North Sierra 8-Station Precipitation Index is 118% of average. Although Reclamation announced that the 2016 allocation is five percent, Westlands has not received approval to use this water.

1. 1963 Long-Term Water Service Contract

In 1963, Westlands entered a contact with Reclamation for water service, Contract No. 14-06-

200-495-A, which provided for delivery of up to 1,008,000 acre-feet of water per year through CVP facilities. (Exh. WWD-3.) On June 25, 1965, the California Legislature enacted the Westlands Water District Merger Law, which merged the West Plains Water Storage District into Westlands. (Wat. Code, § 37800 *et seq*.) As a consequence of the Judgment entered on December 30, 1986, in *Barcellos and Wolfsen, Inc., et al., v. Westlands Water District, et al.*, No. CV 79-106-EDP (E.D. Calif. Dec. 30, 1986), Westlands' contractual entitlement to CVP water increased to 1,150,000 acre-feet of CVP water per year. To extend the term of the original contracts, Westlands entered renewal agreements with Reclamation; Contract No. 14-06-200-495A-IR1, which ended on February 28, 2010; Contract No. 14-06-200-495A-IR2 which ended on February 29, 2012; Contract No. 14-06-200-495A-IR3 which ended on February 28, 2014; Contract No. 14-06-200-495A-IR4, which ended on February 29, 2016; and Contract No. 14-06-200-495A-IR5, which will end on February 28, 2018. A copy of the current renewal agreement is submitted as Exhibit WWD-4.

2. Contract Assignments

Broadview Water District

In 1959, Broadview Water District ("BWD") entered a contract with the United States for water service, Contract No. 14-06-200-8092, which provided for delivery of up to 27,000 acre-feet of water per year through CVP facilities. To extend the term of the original contract, BWD entered nine successive renewal contracts with the United States, including Contract No. 14-06-200-8092-IR9, ending on February 28, 2007. In 2007, Westlands' Distribution District No. 1 entered an agreement with Reclamation for assignment of BWD's water service contract. Since that time, Westlands' Distribution District No. 1 has entered into successive interim renewal contracts with Reclamation for continued water service, including Contract Nos. 14-06-200-8092-IR10, 14-06-200-8092-IR11, 14-06-200-8092-IR12, 14-06-200-8092-IR13, 14-06-200-8092-IR14, and 14-06-200-8092-IR15 ending February 28, 2018.

Widren Water District

In 1959, Widren Water District ("Widren") entered a contract with the United States for water service, Contract No. 14-06-200-8018, which provided for delivery of up to 2,990 acre-feet of water per year through CVP facilities. To extend the term of the original contract, Widren entered eight successive renewal contracts with the United States, including Contract No. 14-06-200-8018-IR8, ending on February 28, 2006. In 2005, Westlands' Distribution District No. 1 entered an agreement for assignment (2,990 acre-feet) of Widren's water service contract. Since that time, Westlands' Distribution District No. 1 has entered into successive interim renewal contracts with Reclamation for continued water service, including Contract Nos. 14-06-200-8018-IR9-B, 14-06-200-8018-IR10, 14-06-200-8018-IR11-B, 14-06-200-8018-IR12-B, 14-06-200-8018-IR13-B, 14-06-200-8018-IR14-B, and 14-06-200-8018-IR15-B ending February 28, 2018.

<u>Centinella Water District</u>

In 1977, Centinella Water District ("CWD") entered a contract with the United States, Contract No. 7-07-20-W0055, which provided for delivery of up to 2,500 acre-feet of water per year through CVP facilities. To extend the term of the original contract, CWD entered eight successive renewal contracts with the United States, including Contract No. 7-07-20-W0055-IR8, which ended on February 28, 2006. In 2004, Westlands' Distribution District No. 1 entered into agreements for assignment (2,500 acre-feet) of CWD's water service contract. Since that time, Westlands' Distribution District No. 1 has entered into successive interim renewal contracts with Reclamation for continued water service, including Contract Nos. 7-07-20-W0055-IR9-B, 7-07-20-W0055-IR10-B, 7-07-20-W0055-IR11-B, 7-07-20-W0055-IR12-B, 7-07-20-W0055-IR13-B, 7-07-20-W0055-IR14-B, and 7-07-20-W0055-IR15-B ending February 28, 2018.

<u>Mercy Springs Water District</u>

In 1959, Mercy Springs Water District ("MSWD") entered a contract with the United States for water service, Contract No. 14-06-200-3365, which provided for delivery of up to 13,300 acre-feet of water through CVP facilities. To extend the term of the original contract, MSWD entered into successive renewal contracts with the United States.

In May 1999, Westlands Distribution District No. 1, Santa Clara Valley Water District ("SCVWD"), Pajaro Valley Water Management Agency ("PVWMA") and the United States through the Bureau of Reclamation entered into an agreement for partial assignment (6,260 acre-feet) of MSWD's water service contract. Under this Assignment Contract, MSWD assigned its right, title and interest to 6,260 acre-feet of its water service contract to Distribution District No. 1, SCVWD, and

PVWMA. Since February 29, 2000, Distribution District No. 1, SCVWD and PVWMA have entered into successive interim renewal contracts (Contract Nos. 14-06-200-3365A-IR3-B through 14-06-200-3365A-IR15-B) with the United States for continued water service through February 28, 2018.

In 2003, Westlands' Distribution District No. 2 entered into agreements for partial assignment (4,198 acre-feet) of MSWD's water service contract. In February 2006, Westlands' Distribution District No. 2 entered into a successive interim renewal contract with Reclamation for continued water service, Contract No. 14-06-200-3365A-IR9 C ending on February 28, 2007. Westlands' Distribution District No. 2 subsequently entered six more successive renewal contracts with Reclamation, including Contract Nos. 14-06-200-3365A-IR10-C, 14-06-200-3365A-IR11-C, 14-06-200-3365-IR12-C, 14-06-200-3365-IR13-C, 14-06-200-3365-IR14-C, and 14-06-200-3365-IR15-C ending February 28, 2018.

B. <u>Water Transfers</u>

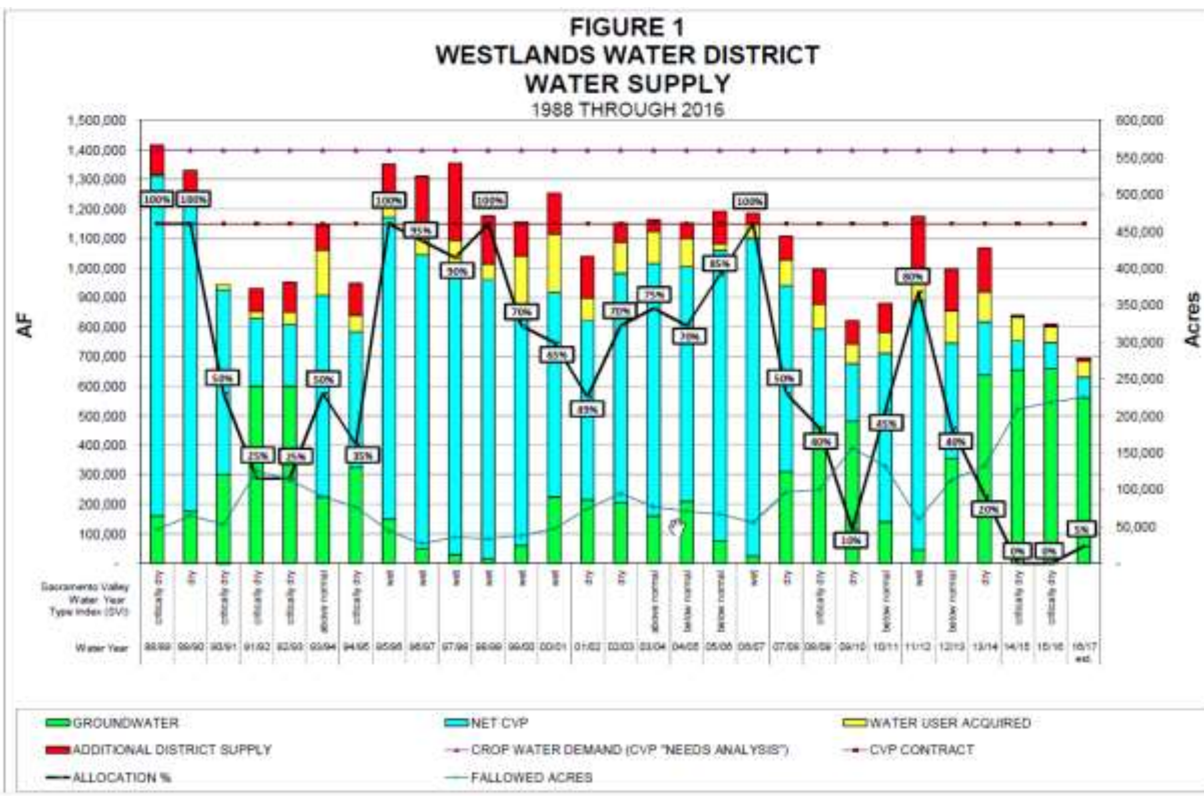
Westlands acquires supplemental water on behalf of its water users, and facilitates water user transfers from other districts. Supplemental water is water other than from Westlands' water service contracts. Below is a summary of the supplemental water and water user transfers facilitated by Westlands from 2006 through the present. Supplemental water is typically acquired through the San Luis and Delta Mendota Water Authority ("SLDMWA") or through annual procurement from willing sellers. Supplemental water is typically more expensive than water service contract supplies. For example, in 2015, the supplemental water rate was $1,219 per acre-foot, and the 2016 supplemental water rate is estimated at $749 per acre-foot. In comparison, Westlands CVP Agricultural Water Rate (which includes Reclamation, SLDMWA, and Westlands' costs) was $86.29 per acre-foot in 2011 and $300.21 per acre-foot in 2016. In addition to the higher costs, supplemental water is unreliable, receives lower conveyance and storage priority, requires annual approvals, is exposed to greater risk of loss.

Year	CVP Allocation (%)	Supplemental Water (acre-feet)	Water User Transfers (acre-feet)
2006	100	38,298	45,936
2007	50	61,646	87,554
2008	40	112,986	85,421
2009	10	159,810	68,070
2010	45	70,533	71,296

2011	80	49,010	60,380
2012	40	123,636	111,154
2013	20	158,793	101,413
2014	0	118,301	81,005
2015	0	110,166	52,909
2016	5	125,000	55,000

C. <u>Groundwater</u>

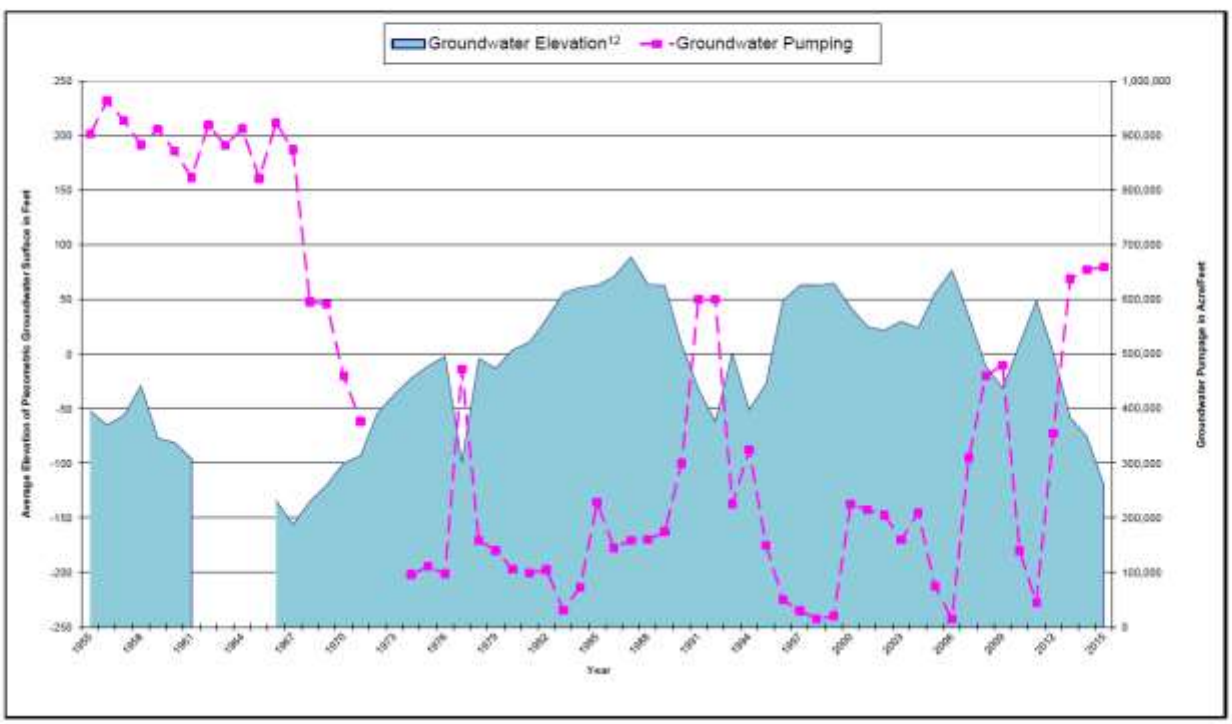
The figure titled "Westlands Water District Water Supply, 1988 through 2016" demonstrates how Westlands' water users conjunctively optimize the use of surface water when it is available and shift to groundwater when necessary. Groundwater pumping in Westlands fluctuates annually and the variation depends primarily on the CVP allocation. In the 2016/17 water contract year, Westlands' CVP allocation is only 5 percent and staff forecast that approximately 560,000 acre-feet of groundwater could be pumped in 2016-17 water contract year.



In 2006, the last year that Westlands received a CVP allocation of 100 percent, groundwater pumping equaled 25,000 acre-feet. Annual groundwater pumping has averaged about 269,500 acre-feet from 1988 through 2015. On a 10-year rolling average, District-wide groundwater pumping exceeded 250,000 acre-feet four times from 1988 through 2015. However, three of the four times occurred in 2013, 2014 and 2015, and the current 10-year average (2006-2015) is 378,800 acre-feet. Groundwater levels have not reached the historical low measured in 1967. However, if the average piezometric groundwater surface elevation continues to decline, the elevation could reach 1967 levels in the 2016/17 water contract year. Conjunctive use of surface water and groundwater ensures that the District and its water users are optimizing the water demand and supply balance.

The figure titled "Historical Groundwater Pumping Rate (1955-2015)" illustrates historical groundwater pumping rates and the average piezometric groundwater surface elevation throughout the District.

Figure 3: Historical Groundwater Pumping Rate (1955-2015)



[1] Elevation Data from 1955-1961 and 1977 from Bill Coor, USBR, on 4/20/1978 for WWD
[2] Elevation Data from 1966-1976 from Plate 5 of "Project Effecrs on Sub-Corcoran Water Layers" (April 1977)

As presented in the table titled "District-Wide Groundwater Pumping", groundwater pumping exceeded 250,000 acre-feet from 2012 through 2015, and will likely exceed it 2016. Although the amount of groundwater pumped over the last four years raises concerns, based on historic data it is anticipated that the groundwater surface elevation should recover or stabilize with the implementation of the Sustainable Groundwater Management Act ("SGMA").

District-Wide Groundwater Pumping

Year	Groundwater Pumping (acre-feet)	SOD CVP Allocation	Northern Sierra Precip. 8-Station Index (inches)
2007/08	310,000	50%	37.1
2008/09	460,000	40%	34.9
2009/10	480,000	10%	46.8
2010/11	140,000	45%	54.2
2011/12	45,000	80%	72.7
2012/13	355,000	40%	41.6
2013/14	638,000	20%	44.3
2014/15	655,000	0%	31.3
2015/16	660,000	0%	37.2
2016/17	560,000 (est.)	5%	57.8 to date

III. Central Valley Project Operations and Westlands' Water Supply

Water is delivered to Westlands through the CVP. The CVP stores water in large reservoirs in Northern California for use by cities and farms throughout California. After it is released from CVP reservoirs, the water is pumped from the Sacramento-San Joaquin Delta ("Delta") and delivered 70 miles through the Delta-Mendota Canal to San Luis Reservoir. Under typical operating conditions during the spring and summer, the water is released from San Luis Reservoir and delivered to Westlands through the San Luis Canal and the Coalinga Canal. Once it leaves the federal project canals, water is delivered to farms through 1,034 miles of underground pipe and more than 3,300 water meters. However, 2016 was not a typical operating year, but provides a realistic example of how the CVP could be operated going forward.

Reclamation did not pump sufficient water from the Delta, even though excess water was flowing through the Delta during certain periods. An insufficient amount of water was pumped and stored in San Luis Reservoir to supply Reclamation's core demands. Therefore, Reclamation appropriated water purchased by agricultural service contractors to meet its core demands and announced that federal water deliveries would be shut off to Westlands. Even though Westlands water users invested millions of dollars to acquire supplemental water to offset the lack of CVP water supply, the water was not available during peak irrigation season and farmers were forced to access other supplies, such as pumping more groundwater from an over drafted basin.

IV. How Westlands Puts its Water to Use

The San Joaquin Valley ranks as one of the highest agricultural producers in the world. As the largest agricultural region in the state, Westlands growers produce a wide variety of crops. (See Exh. WWD-5, Map of Westlands' Service Area.) These agricultural contributions significantly impact the economies of local communities, the San Joaquin Valley, the State of California, and the nation.

A. Crops Grown

Westlands growers produce an average of more than $1 billion worth of food and fiber every year, generating approximately $3.5 billion in farm-related economic activities for surrounding communities. Growers in Westlands produce more than sixty high-quality food and fiber crops, including row crops, grapes and nut crops. Westlands farms lead the state in the production of six of California's top ten valued commodities. Over a third of the country's vegetables and two-thirds of the country's fruits and nuts are grown in California, and millions of dollars of agricultural products produced in Westlands are exported to more than 150 countries around the world. Below is Westlands' 2015 Crop Acreage Report, which summarizes the different crop types grown and corresponding acreage within Westlands' service area.

///

///

///

///

///

///

///

///

///

WESTLANDS WATER DISTRICT
2015
Crop Acreage Report

Crop	Acres1/	Crop	Acres1/
Alfalfa-Hay	4,823	Nectarines	332
Alfalfa-Seed	1,806	Nursery	256
Almonds	82,278		
Apples	110	Oats	875
Apricots	678	Onions-Dehy	3,489
Asparagus	785	Onions-Fresh	4,860
		Oranges	1,601
Barley	17,487		
Beans-Dry	150	Parsley	1,199
Beans-Garbanzo	2,439	Pasture	449
Beans-Green	165	Peaches	1,048
Beans-Jojoba	11	Peppers-Misc	223
Blueberries	171	Pistachios	35,048
Broccoli	1,594	Plums	266
		Pluots	151
Cantaloupes	10,795	Pomegranates	2,325
Carrots-Bulk	80	Prunes	148
Cherries	749	Pumpkins	12
Corn-Field	30		
Corn-Sweet	2,562	Safflower	561
Cotton-Lint-Acala/Upland	1,027	Seed Crop-Misc	398
Cotton-Lint-Pima	16,770	Squash	20
Flowers	76	Tangerines	2,107
		Tomatoes-Fresh	4,949
Garlic	10,534	Tomatoes-Proc.	61,555
Grain/Sorgham	15		
Grapefruit	127	Walnuts	525
Grapes-Raisin	1,145	Watermelons	2,010
Grapes-Table	1,180	Wheat	14,045
Grapes-Wine	14,493		
		NB Trees & Vines	31,473
Honeydew Melons	2,665	Fallow	212,846
		Non-Harvested	5,266
Lemons	535		
Lettuce-Fall	3,234		
Lettuce-Spring	3,523		
Mustard	187	Subtotal	570,261
		Double Crop	2,211
		Total	568,050

1/ USDA-CFSA net cropped acreages

B. Application/Conservation of Water/Sustainability

Water conservation and sustainability have been at the core of the Westlands Water District comprehensive water delivery system. The closed pipeline system—over 1,000 miles of underground pipe–and metered deliveries enables the delivery of water with virtually no losses to seepage, evaporation, or spills. Laser leveling, computer-aided drip irrigation and the extensive use of global positioning systems help Westlands growers achieve water use efficiencies of 85 percent or more. By 2010, more than two-thirds of Westlands' irrigated lands were served by drip irrigation systems, representing an investment of more than $500 million.

Westlands provides growers with information and assistance directed at achieving higher irrigation efficiencies and reducing deep percolation. From 1987-91, Westlands provided nearly $1 million to Westlands growers to obtain the services of irrigation consultants. Under this program, consultants evaluated the growers' irrigation systems and management and made recommendations directed at increasing irrigation effectiveness and reducing deep percolation.

Westlands responds to the needs of growers and addresses critical conservation issues, such as soil salinity, by implementing grower information and assistance programs to achieve the following goals:

- Increase seasonal application efficiency
- Increase distribution uniformity
- Increase crop yields
- Decrease deep percolation
- Decrease the effects of soil salinity

Overall, water conservation and increased irrigation efficiencies have resulted in improved stabilization of shallow groundwater depths, substantial increases in the number of drip irrigation systems, and intensified irrigation management due to the utilization of irrigation specialists and scientific technology. The increased efficiency, groundwater stabilization, and advanced irrigation practices exist due to a multifaceted sustainability program that has been studied, modified and improved for over 40 years. Results are achieved through the following practices:

- Providing individually-tailored satellite imagery to growers on a bimonthly basis, allowing them to adjust irrigation accordingly based on visual, accurate imagery of each of their fields.

- Providing growers with current Irrigation Guides detailing water requirements for crops based on actual weather and computer modeling. A separate weekly guide is sent to growers providing detailed information on the three climatic regions throughout Westlands.
- Providing growers with The Water Conservation and Management Handbook, containing specific water management information on Westlands' farming conditions.
- Providing technical assistance and conservation computer programs to growers, allowing growers to personally study irrigation management issues and solutions.
- Maintaining an aggressive program to install, upgrade and repair water meters.
- Monitoring groundwater to provide growers with up-to-date information on the quality and depth of groundwater.
- Ongoing efficiency testing for Westlands' pumps, preventing potentially catastrophic system downtime and reducing electrical consumption and costs.
- Improving overall water supply reliability through the efficient use of surface and groundwater to extract maximum benefit and preserve environmental resources.
- Offering opportunities to growers to lease or own innovative equipment such as drip, micro-spray, sprinkler, and aluminum piping to encourage conversion to more efficient irrigation technology.

<u>Expanded Irrigation System Improvement Program</u>

Westlands' Expanded Irrigation System Improvement Program ("EISIP") offers low interest loans to water users for the lease-purchase of irrigation system equipment. EISIP funds up to $130,000 towards the purchase of irrigation system equipment, and purchase of portable aluminum irrigation pipe, micro irrigation, linear move and center pivots. The EISIP lease may be executed for up to $130,000. Each lease requires a 20% deposit and repayment of the remaining balance over a maximum, four-year term, to include interest charges of 3.1% annually. The lease may be used to pay for equipment, but installation costs are excluded.

C. <u>Drainage Water Migration within Westlands</u>

To address drainage issues, Westlands employs intense irrigation management techniques restricting leaching to the absolute minimum needed to maintain a salt balance, thereby limiting deep percolation and choosing a crop rotation and cultural management regime to minimize the required leaching.

Over the years, Westlands farmers have become highly proficient at implementing water and soil testing for data and solutions related to ground salinity. We have developed expertise in sustainable methods for managing the salt load from irrigation drainage, including innovative cultivation techniques—sometimes called "precision agriculture"—that keep farms operating at peak water-efficiency and cut dust pollution. Local farmers have also mastered field elevation, slope(grade), and topography assessment techniques which also impacts drainage. Farmers are using scientific data and technology to better pinpoint when, where and how much to irrigate.

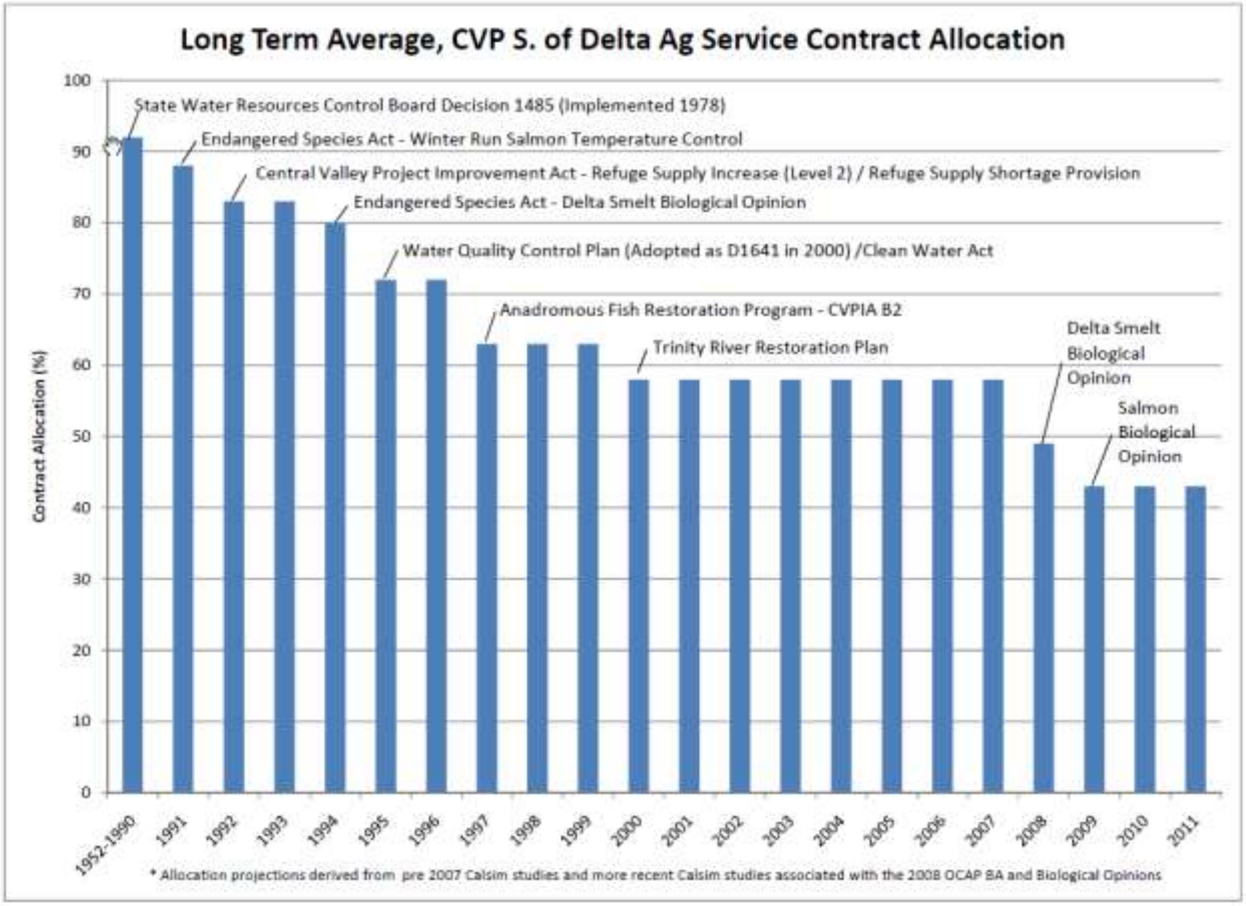
Westlands is a leader in water conservation; transitioning to drip irrigation; using cover crops and no-tillage for better soil health and reduced water usage; employing GPS and possibly drones to pinpoint inefficiencies in irrigation; and funding plant science where genetic engineering could help crops withstand drought.

Since 1985, Westlands has studied a number of available or emerging drainage technologies, at a cost of over $8 million, including land application, evaporation and solar ponds, biological selenium removal, a deep injection well, cogeneration, agroforestry, and upper zone pumping. Advanced water management techniques implemented by Westlands growers have reduced deep percolation below the crops' root zone and lessened the immediate impacts of the lack of drainage.

V. Need for California WaterFix to Protect and Restore Reliable Water Supply

A. Allocation History

Westlands' allocation has declined considerably since 1991. The figure titled "Long Term Average, CVP South of Delta Agriculture Service Contract Allocation" developed by SLDMWA illustrates the anticipated reduction in CVP allocation resulting from successive regulatory decisions implemented since 1978. As shown in the illustration, the anticipated allocation going forward, following implementation of the 2008 Delta Smelt and 2009 Salmon Biological Opinions, is about 40%. However, as experienced since 2012, when we endure below normal hydrology, the allocation will be significantly less than 40%.



T. Boardman, SLDMWA
10/25/2013

The table below summarizes the final CVP South of Delta Agriculture Service Contract Allocation from 1968 through the 2016 water contract year. Note that 2006 is the last year that Westlands received 100% allocation. In water contract year 2015—and for the second consecutive year—Westlands received a zero percent allocation under its CVP contracts. Westlands' current allocation for water contract year 2016 is merely five percent, even though the North Sierra 8-Station Precipitation Index is 118% of average. Despite the allocation and above normal precipitation, Reclamation notified its contractors that the CVP water is not available for delivery (as of August 2016). Westlands and other south of Delta agricultural water service contractors have not received any information or forecast of when this water would be available for delivery. Reclamation announced an allocation on April 1, 2016, but without access to the water, for all practical purposes the 2016/17 water contract year is a third zero allocation year.

///

///

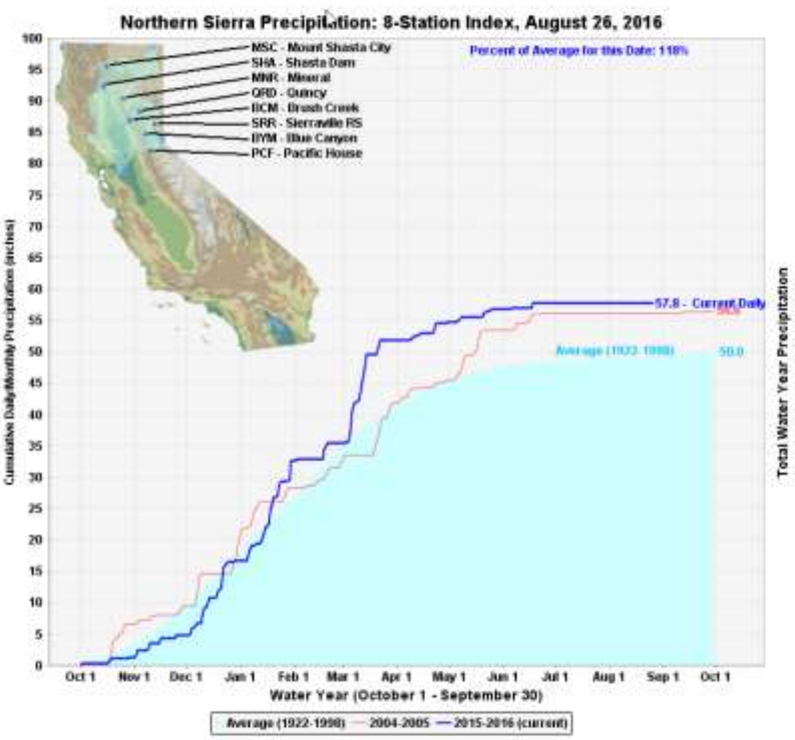
Year	Final CVP South of Delta Agriculture Service Contract Allocation
1968/69	100%
1969/70	100%
1970/71	100%
1971/72	100%
1972/73	100%
1973/74	100%
1974/75	100%
1975/76	100%
1976/77	100%
1977/78	25%
1978/79	100%
1979/80	100%
1980/81	100%
1981/82	100%
1982/83	100%
1983/84	100%
1984/85	100%
1985/86	100%
1986/87	100%
1987/88	100%
1988/89	100%
1989/90	100%
1990/91	50%
1991/92	25%
1992/93	25%
1993/94	50%
1994/95	42.51%
1995/96	100%
1996/97	95%
1997/98	90%
1998/99	100%
1999/00	70%
2000/01	65%
2001/02	49%
2002/03	70%
2003/04	75%
2004/05	70%
2005/06	85%
2006/07	100%
2007/08	50%
2008/09	40%
2009/10	10%

2010/11	45%
2011/12	80%
2012/13	40%
2013/14	20%
2014/15	0%
2015/16	0%
2016/17	5%

B. Precipitation/Water Year Type History

The Sacramento Valley 2016 Water Year could end with an Above Normal classification. The last Above Normal classification year was 2005, and the 2005/06 CVP South of Delta Agriculture Service Allocation was 85%. The Northern Sierra 8-Station Precipitation Index total for Water Year 2005 was 57.51 inches. In comparison, the rainfall total for the current 2016 Water Year, which will end on September 30, is 57.80 inches. Below is a figure that illustrates the similarities of the two water year types, even though the CVP allocations are completely different.

The table following the illustration summarizes the Water Year Northern Sierra 8-Station Index and San Joaquin Valley Tributary 5-Station Index precipitation totals. In addition, the table presents the calculated Sacramento Valley and San Joaquin Valley Water Year hydrologic classification index from 1968 through 2016; and Westlands' allocation for those years.



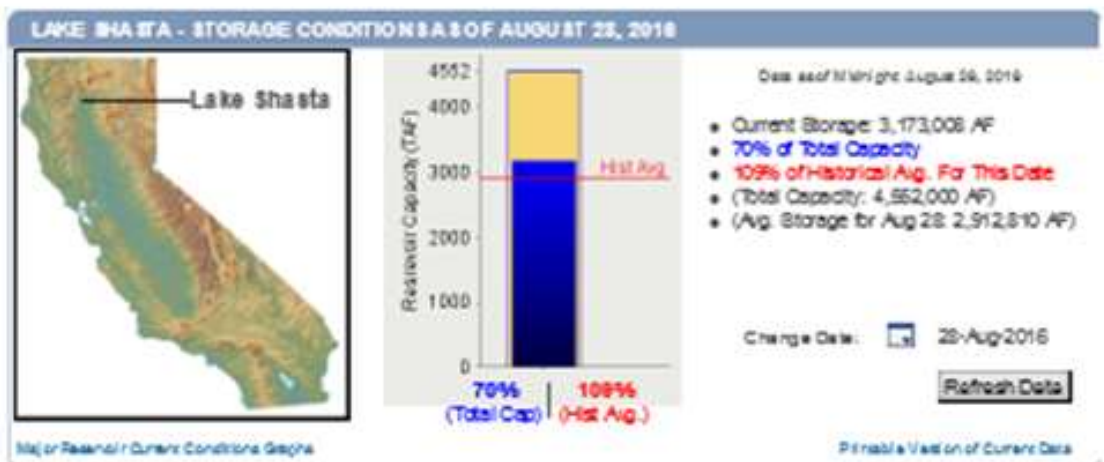
Water Year	Northern Sierra 8 Station Precipitation (in)	Sacramento Valley Water Year Hydrologic Classification Index	San Joaquin Tributary 5 Station Precipitation (in)	San Joaquin Valley Water Year Hydrologic Classification Index	Westlands Allocation
1968	39.94	AN	23.60	D	100%
1969	66.25	W	67.93	W	100%
1970	59.97	W	40.03	AN	100%
1971	57.46	W	32.98	BN	100%
1972	36.25	BN	28.11	D	100%
1973	51.65	AN	38.89	AN	100%
1974	78.55	W	47.30	W	100%
1975	48.79	W	43.62	W	100%
1976	28.30	C	24.95	C	100%
1977	19.04	C	15.37	C	25%
1978	71.56	AN	65.10	W	100%
1979	39.09	BN	38.41	AN	100%
1980	59.56	AN	56.00	W	100%
1981	37.63	D	26.62	D	100%
1982	84.82	W	67.49	W	100%
1983	88.49	W	77.41	W	100%
1984	58.07	W	43.39	AN	100%
1985	37.82	D	31.24	D	100%
1986	72.07	W	58.64	W	100%
1987	28.56	D	20.40	C	100%
1988	34.86	C	26.78	C	100%
1989	50.13	D	32.88	C	100%
1990	35.97	C	27.75	C	50%
1991	32.17	C	30.53	C	25%
1992	36.01	C	29.56	C	25%
1993	65.32	AN	53.00	W	50%
1994	31.83	C	24.05	C	42.51%
1995	85.39	W	70.01	W	100%
1996	61.31	W	43.46	W	95%
1997	68.76	W	54.68	W	90%
1998	82.40	W	65.23	W	100%
1999	54.75	W	36.63	AN	70%
2000	56.70	AN	41.99	AN	65%
2001	32.97	D	29.34	D	49%
2002	46.34	D	33.25	D	70%
2003	59.77	AN	39.17	BN	75%
2004	47.29	BN	28.30	D	70%
2005	57.51	AN	54.41	W	85%
2006	80.15	W	56.25	W	100%
2007	37.21	D	24.94	C	50%
2008	34.99	C	27.95	C	40%
2009	46.85	D	38.91	BN	10%
2010	53.59	BN	44.66	AN	45%
2011	72.70	W	65.37	W	80%
2012	41.61	BN	24.92	D	40%
2013	44.26	D	26.46	C	20%
2014	31.34	C	20.37	C	0%
2015	37.20	C	19.00	C	0%
2016 *	57.80	AN	40.00	BN	5%

Water Year Types: W-Wet, AN-Above Normal, BN-Below Normal, D-Dry, C-Critical
Notes:
Water Year 2016 not complete. Precipitation totals represent current accumulation and hydrologic classification index is an estimate.

C. Historic Federal Reservoir Levels

The amount of water in storage is no longer a reliable indicator of whether south of Delta agricultural water service contractors will receive an allocation. For example, using the 2005 water year again, Lake Shasta reached about 4,500,000 acre-feet of storage in May 2005, and had about

3,250,000 acre-feet of storage by the end of August as illustrated below. In comparison, Lake Shasta reached about 4,250,000 acre-feet in May 2016 and currently has about 3,160,000 acre-feet in storage. Although the water year hydrology and storage in Lake Shasta are nearly equal, Westlands' CVP allocation was 85% in 2005 and 5% in 2016. One principal difference between these two years is the manner in which exports were managed, in particular, how Jones Pumping Plant operated and the amount of water conveyed into San Luis Reservoir storage. Delta exports is the primary variable for determining south of Delta agricultural service contractor allocation, not northern California storage. The regulatory limits placed on Delta exports essentially guarantees that Jones Pumping Plant will seldom operate at its maximum permitted capacity.



///

///

///

///

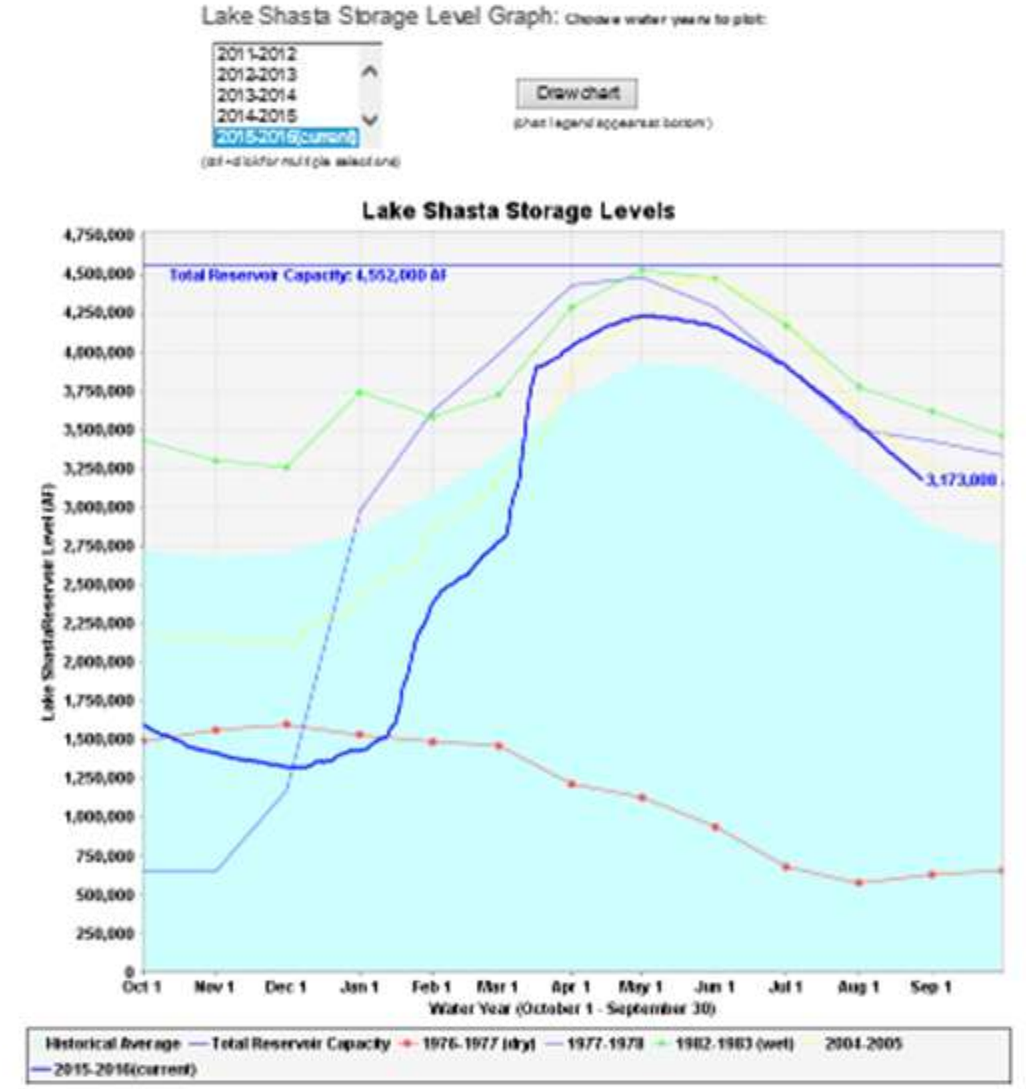
///

///

///

///

///



D. Potential Impacts to Westlands from Approval or Rejection of California WaterFix Change Petition

Westlands' support for the California WaterFix dates back to 2006, when Westlands, along with other federal, state, and local agencies, and non-governmental organizations, executed the planning agreement for the Bay Delta Conservation Plan ("BDCP"). (Exh. WWD-6.) The Planning Agreement identified the planning goals for BDCP as including "[a]llow[ing] from projects to proceed that restore and protect water supply, water quality, and ecosystem health within a stable regulatory framework." (Planning Agreement, § 3.) I understand that the Partially Recirculated Draft Environmental Impact Report / Supplemental Draft Environmental Impact Statement

("RDEIR/SDEIS") for California WaterFix likewise recognizes a goal of restoring water supply. The objectives for California WaterFix include making changes to the State Water Project ("SWP") and CVP necessary to restore water supplies of the SWP and CVP south of the Delta. (SWRCB Exh. 3, p. 1-8.)

The potential benefits to Westlands' farmers from restoring CVP water supply are tremendous. Going forward, Westlands anticipates that its CVP water supply reliability is 30% to 40% under the current regulatory restrictions; the reliability could drop below 30% if fisheries re-consultation and Delta water quality objectives further reduce Reclamation's ability to export water at Jones Pumping Plant. If California WaterFix can restore Westlands' CVP allocation to an average of 70% (~840,000 acre-feet), then, when combined with groundwater resources and supplemental water, there should be sufficient supply to harvest the remaining irrigable acres in Westlands. Groundwater pumping would be limited to the sustainable yield of the groundwater subbasin, which avoids the negative effects associated with over-drafting an aquifer (e.g. subsidence). Less ground will be fallowed and the communities that depend on the agricultural jobs will experience lower unemployment rates.

Conversely, if the Hearing Officers deny the water right change petition jointly submitted by Reclamation and the California Department of Water Resources, and the California WaterFix does not move forward, or if the Hearing Officers approve the change petition but impose significant operational limitations, there is a significant risk of adverse impacts to Westlands' water supply above and beyond those adverse impacts already described from existing water shortages.

The consequences of reduced water supplies and water shortages within Westlands include land fallowing, increased groundwater pumping (with increased overdraft and potential for subsidence, and lower crop yields), increased soil salinity, increased energy use, increased water costs for disadvantaged communities, permanent crop damage, unemployment and reduced air quality. Below I describe these consequences in more detail.

<u>Land Fallowing</u>

At some point the high costs and low availability of supplemental surface water, combined with increasing cost to pump salty groundwater, forces farmers within Westlands to fallow their land. In the years 2013, 2014, and 2015, Westlands' farmers fallowed 132,000, 220,000, and 220,000 acres, respectively, due to reduced or no CVP allocations and limited transfer water. Given these considerations and based on the announced 5% initial CVP contract allocation in 2016, Westlands expects that the farmers in Westlands will fallow at least 220,000 acres in water contract year (2016-2017).

Loss Of Permanent Crops

A shift to permanent and higher value crops has occurred in response to Westlands' existing chronic shortage of water, in an effort to keep farms profitable with less acreage in production. While the average quantity of water needed to produce a crop on land within Westlands is approximately 2.3 acre-feet per acre per year, permanent crops such as almond trees require 4.0 to 4.5 acre-feet per acre per year. The shift to permanent crops has hardened the demands in Westlands because permanent crops cannot be fallowed and represent a long-term investment for the farmers and without sufficient and reliable water, the farmers will lose their investment.

Increased Groundwater Pumping

While increased groundwater pumping can help mitigate the loss of CVP supply temporarily, it also poses significant problems, and is not sustainable for the long term. The sustainable yield of the aquifer beneath Westlands' service area is about 200,000 to 250,000 acre-feet per year. There is not enough groundwater to meet water demand within Westlands, nor is the water quality appropriate to serve as the primary irrigation supply for certain crops. Pumping in excess of the sustainable yield creates a condition of overdraft.

Due to well capacity limitations and no groundwater in some areas of Westlands, farmers cannot make up for an entire CVP shortfall, even in the short term. In a scenario where the CVP allocation falls to zero, there is a shortfall. Westlands' distribution system cannot accomplish the required redistribution of groundwater completely. There are about 25,000 acres west of Interstate 5 in Westlands that do not have access to groundwater due to the terrain and aquifer conditions.

In addition, increases in groundwater extraction will lower the level of usable groundwater and may make it necessary to substantially modify wells in the area or chemically treat the water prior to use. The necessary modifications may result in a substantial cost to the water user if wells need to be re-drilled and deepened, and larger pumps are installed to extract water from deeper depths. The availability of well drilling companies that provide these services is limited due to the demand and current backlog, which could interrupt a farmer's only source of water supply for several months. In addition, pumping power costs will increase as a result of the modifications.

<u>Groundwater Overdraft And Subsidence</u>

Groundwater overdraft occurs when groundwater pumping exceeds the sustainable yield of an aquifer. Even short term periods of overdraft can have lasting negative impacts. The groundwater beneath the west side of the San Joaquin Valley is contained in the spaces between the particles and the sediment, which includes silts and clays. When the water is removed from the spaces, particularly the silt and clay materials where "water of compaction" can be squeezed out, the soils compact. The volume that the previously saturated soil has occupied is reduced and, as a result, the ground surface and the area where the water was extracted subsides.

There has been severe subsidence on the west side of the San Joaquin Valley. Reductions in the CVP water supply will likely cause increased groundwater pumping, which could increase subsidence, potentially damaging CVP and SWP conveyance facilities. In fact, the lining of the San Luis Canal has already been raised in parts of Westlands to compensate for subsidence. A recent study released by the California Department of Water Resources reported that the rate of subsidence has increased in the San Joaquin Valley due to excessive groundwater pumping. Groundwater wells also may be damaged or destroyed. Subsidence occurs unevenly and creates enormous stress on well casings, which often extend 1,000 to 2,000 feet below the ground surface. These uneven stressors will sometimes collapse or break the casing. If such an impact results, the well must be abandoned and a new one drilled and equipped. Further, land subsidence permanently reduces the water holding capacity of the underground materials, harming future groundwater supplies.

<u>Increased Soil Salinity</u>

Increased groundwater pumping will reduce the quality of water applied to the soil. In most areas of Westlands, the groundwater has significantly higher salinity and boron concentration than CVP supplies. As compared to water available from the CVP, groundwater in Westlands has concentrations that are several times higher for constituents of concern for growers. For example, boron concentrations for water from the CVP range from 0.1 to 0.2 ppm, while groundwater wells in

Westlands typically range from 0.5 to 2.0 ppm. Similar differentials in concentrations exist for several constituents of concern, including sodium, sulfate and total dissolved solids. Application of poor quality water increases soil salinity and reduces the yields of salt intolerant crops. Further, certain permanent crops, such as almonds, would be irreparably harmed if irrigated only with groundwater.

Increased Energy Use

Increased groundwater pumping will result in an increase in demand for energy. A study prepared by Westlands in 2006 showed that wells in Westlands required an average of 740 kWh to produce 1 acre-foot of water. More recent analysis (Summer 2016) indicates that wells in Westlands require, depending on water table height, an average of 1,000 kWh to produce 1 acre-foot of water. There are environmental impacts associated with this level of increased (35%) energy use.

Impacts To Air Quality

As described above, water supply constraints are expected to lead to significant land fallowing. Fallowed fields negatively impact the air quality of the San Joaquin Valley and impair major transportation routes through the valley, including Interstate 5. Fugitive dust emissions from fallowed fields have contributed to exceedances of ambient air quality standards for particulate matter. Best management practices exist to mitigate the air quality impacts of fallowed fields, but the best management practices are not expected to eliminate those impacts.

Unemployment And Socio-Economic Impacts

The labor required to manage agricultural land within Westlands is estimated at 1 permanent worker for every 60 acres in production. For example, the removal of up to 250,000 acres from production will result in approximately 4,200 permanent worker positions being lost. Jobs lost in agriculture-related businesses, like packing sheds and processing plants, and other services, would be additional losses. These lost jobs have resulting socio-economic impacts in the communities served by Westlands, such as increased burdens on community food banks and other community services.

Executed on September 1st, 2016 in Fresno, California.

Jose L Gutierrez

Jose Gutierrez