

# DRAFT Review of Selected AWMPs Relative to Executive Order B-37-16

Agricultural Advisory Group  
Madera, CA

Prepared by  
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## Executive Order (EO) B-37-16

*“The Department shall work with the California Department of Food and Agriculture to update existing requirements for Agricultural Water Management Plans (AWMPs) to ensure that these plans identify and quantify measures to increase water efficiency in their service area and to adequately plan for periods of limited water supply.”*



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## Objectives

- Review Selected AWMPs relative to Executive Order (EO) B-37-16
- To what extent do AWMPs:
  1. ***Identify*** measures to increase water efficiency?
  2. ***Quantify*** measures to increase water efficiency?
  3. ***Adequately plan*** for periods of limited water supply?



## AWMP Selection

- Eleven AWMPs Selected
- Selections Made by DWR Staff
- Considerations:
  - Select plans across hydrologic regions,
  - Include plans from suppliers of varying size,
  - Include plans prepared under both SBx7-7 and Reclamation criteria, and
  - Select plans from suppliers with a range of water supply sources (i.e. surface water and groundwater)



<b>Selected AWMPs</b>			
<b>Supplier</b>	<b>Hydrologic Region</b>	<b>Irrigated Area Served (Acres)</b>	<b>AWMP Requirements</b>
Rancho California WD	South Coast	10,400	SBx7-7 2016 Initial Plan <sup>2</sup>
Semitropic WSD	Tulare Lake	136,000	SBx7-7 2015 Update
South San Joaquin ID	San Joaquin River	53,000	SBx7-7 2015 Update
South Sutter WD	Sacramento River	42,000	SBx7-7 2015 Update
Turlock ID	San Joaquin River	136,900	SBx7-7 2015 Update
Woodbridge ID	San Joaquin River	13,000	SBx7-7 2016 Initial Plan <sup>2</sup>
Arvin-Edison WSD	Tulare Lake	111,600	2011 USBR Criteria (Update of 2012 Plan)
Fresno ID	Tulare Lake	133,600	2011 USBR Criteria SBx7-7 2015 Supplemental Report
San Benito County WD	Central Coast	30,700	2011 USBR Criteria (Update of 2012 Plan; Includes SBx7-7 Tables)
Glenn-Colusa ID	Sacramento River	135,000	2010/2011 RWMP Annual Update (USBR Regional Criteria)
Coachella Valley WD	Colorado River	50,600	Voluntarily Submitted Plan (Party to the QSA)



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## What is “Water Efficiency”?

- **For Purposes of AWMP Review:**
  - Considered synonymous with Water Use Efficiency (WUE)
  - Defined as “One or more metrics to quantify achievement of specific water management objectives.”
- **Things to Consider:**
  - Spatial Scale: Field, District, Basin, etc.
  - Temporal Scale: Months, Years, Decades, etc.
  - Recoverable and Irrecoverable Losses
  - Downstream Uses and Consequential Effects



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## Water Use Efficiency Metrics

- **Fractions or “Efficiencies”**
  - Classical Irrigation Efficiency
  - 2012 DWR Proposed Methods
  - 2012 DWR Supplemental Indicators
- **Changes in Water Quantities**
  - Volume Changes in Targeted Flow Paths
  - Percent Changes in Targeted Flow Paths
- **Others (Indirect Metrics)**
  - Number of sites, total acres, miles of canal improved
  - Dollars spent
  - Reduced energy consumption



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## Identifying Measures to Increase WUE

- **Do AWMPs Evaluate Implementation of All SBx7-7 Efficient Water Management Practices (EWMPs)?**
- **How Many of the EWMPs are:**
  1. Implemented (including both mandatory and conditional)?
  2. Not locally cost-effective?
  3. Not technically feasible?



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Identification of EWMPs					
Supplier	SBx7-7 EWMPs/ USBR BMPs Identified	SBx7-7 Mandatory EWMPs Implemented	SBx7-7 Conditional EWMPs Implemented	SBx7-7 EWMPs Not Locally Cost-Effective	SBx7-7 EWMPs Not Technically Feasible
Rancho California WD	16	2	10	0	4
Semitropic WSD	16	2	14	0	0
South San Joaquin ID	16	2	13	0	1
South Sutter WD	16	2	13	0	1
Turlock ID	16	2	13	0	1
Woodbridge ID	16	2	10	3	1
Arvin-Edison WSD	16	2	12	0	2
Fresno ID	16	2	13	0	1
San Benito County WD	16	2	12	0	2
Glenn-Colusa ID	16	2	14	0	0
Coachella Valley WD	Not subject to requirements. Describes 7 on-farm management programs to conserve water.				



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## Quantifying Measures to Increase WUE

- Do AWMPs describe EWMPs implemented and planned?
- Do AWMPs include direct quantification of increases in WUE?
  - In aggregate?
  - For individual EWMPs?
- Do AWMPs include additional information to support quantification of WUE?
  - Water balance information?
  - Indirect metrics?



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## Quantification of Measures

- **All** AWMPs include descriptions of EWMPs implemented and planned
- **Many** AWMPs include direct WUE metrics
- **All** AWMPs include indirect metrics and additional information to support application of direct WUE metrics



## Quantification of EWMPs (1 of 2)

Supplier	Descriptions of Measures	Methods to Quantify Increases in Water Use Efficiency	
		Aggregate Methods <sup>2</sup>	EWMP-Specific Methods <sup>2</sup>
Rancho California WD	✓	None noted.	Percent increase in DU from on-farm improvements. Volume of recycled water use.
Semitropic WSD	✓	None noted.	None noted.
South San Joaquin ID	✓	WMF, CCUF, DF, and SWSF.	See note.
South Sutter WD	✓	None noted.	None noted.
Turlock ID	✓	WMF, CCUF, DF, and SWSF.	Volume of recycled water used. Volume of spillage intercepted. Volume of drainwater recovery. See note.
Woodbridge ID	✓	None noted.	Volume of in-lieu recharge from conjunctive management.
Arvin-Edison WSD	✓	None noted.	None noted.
Fresno ID	✓	None noted.	Volumes of recycled water use and spillage recovery.
San Benito County WD	✓	None noted.	None noted.
Glenn-Colusa ID	✓	WUE	Volumes of recovered and recirculated drainwater.
Coachella Valley WD	✓	Aggregate on-farm conserved water volume and percent reduction in irrigation demand.	None noted.

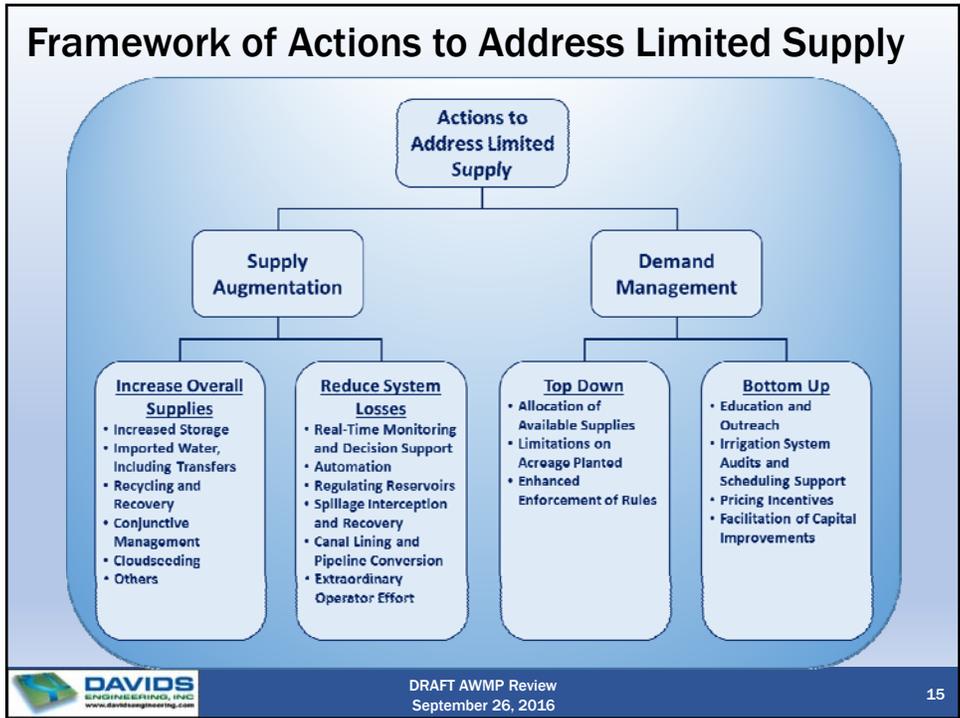
Quantification of EWMPs (2 of 2)			
Supplier	Additional Information to Support Quantification		
	Water Budget	Dollars Spent/ Budgeted	Quantity of Improvements
Rancho California WD	Partial		✓
Semitropic WSD	Partial	✓	✓
South San Joaquin ID	Complete	✓	✓
South Sutter WD	Partial	✓	✓
Turlock ID	Complete	✓	✓
Woodbridge ID	Partial		✓
Arvin-Edison WSD	Complete	✓	✓
Fresno ID	Complete	✓	✓
San Benito County WD	Partial	✓	✓
Glenn-Colusa ID	Complete	✓	✓
Coachella Valley WD	Partial	✓	✓


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## *Adequately Planning* for Limited Supply

- All suppliers experience periods of limited supply with varying frequency and severity
- AWMPs contain information describing planned actions for limited supply in different sections:
  - Descriptions of water management objectives
  - Shortage allocation policies
  - Drought management plans
  - Climate change adaptation strategies
  - Descriptions of EWMP implementation


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### Identified Actions to Address Limited Supply

Supplier	Supply Augmentation		Demand Management	
	Increase Overall Supplies	Reduce System Losses	Top Down (Delivery Limitations)	Bottom Up (Outreach, Incentives, and Support)
Rancho California WD	✓	✓	✓	✓
Semitropic WSD	✓	✓	✓	✓
South San Joaquin ID	✓	✓	✓	✓
South Sutter WD	✓	✓	✓	✓
Turlock ID	✓	✓	✓	✓
Woodbridge ID	✓	✓	✓	✓
Arvin-Edison WSD	✓	✓	✓	✓
Fresno ID	✓	✓	✓	✓
San Benito County WD	✓	✓	✓	✓
Glenn-Colusa ID	✓	✓	✓	
Coachella Valley WD	✓	✓	✓	✓

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## Key Findings and Observations

(1 of 2)

- Selected AWMPs cover a representative range of agricultural water suppliers
- All AWMPs identify implementation status of EWMPs as required
  - Mandatory EWMPs being implemented
  - Most conditional EWMPs being implemented



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## Key Findings and Observations

(2 of 2)

- All AWMPs include information to quantify WUE increases
  - Many AWMPs include direct WUE metrics
  - All AWMPs include indirect WUE metrics and additional information to support direct WUE metrics
- All AWMPs identify both supply augmentation and demand management actions for periods of limited supply



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# Discussion

