

## 5.6 Water Use Efficiency



SAWPA's Demonstration Garden  
Riverside, CA

### Background

Of the many broad watershed management strategies proposed under One Water One Watershed (OWOW) 2.0, the highest priority strategy to meet future water demands, as well as the most cost efficient, is water use efficiency. The OWOW Pillars and OWOW Governance support the importance of this strategy and need for changing current irrigation behavior and move forward with implementation of water use efficiency measures necessary to meet future water resource needs. The Water Use Efficiency (WUE) Pillar has worked closely with the other OWOW Pillars to recognize WUE is an absolutely necessary and key integration component of the overall watershed portfolio of existing, and planned water supply strategies to ensure a sustainable watershed for future generations.

The WUE element of the Integrated Regional Water Management Plan (IRWMP) is the product of a growing regional effort to diversify our portfolio of water supplies, drought-proof the watershed, and ensure a reliable water supply into 2030. The terminology “water use efficiency” implies and supports efficient use of all water resources at all times. To begin identifying how to support existing water conservation strategies, enhance existing programs and measures, develop new WUE efforts, and be a model for others in this arena, a comprehensive long-term WUE plan needs to be envisioned and developed.

Assessing the current and existing WUE conditions and resources will identify opportunities for agencies in the Santa Ana River Watershed and partnering agencies outside the purview of the watershed to work together to maximize expertise, share resources, apply for various WUE program funding sources, collaborate on regional public awareness initiatives, and expand implementation of WUE programs.

The reader will notice that the term “water use efficiency” has been used in place of “water conservation” in this chapter. In the past, “water conservation” was used in many state and local water planning documents to mean the effective and appropriate use of water by consumers. However, it is the consensus of the WUE pillar that this effective and appropriate use of water is more accurately described by the term “water use efficiency.” Furthermore, the phrase “water conservation” usually is associated with water-saving programs that are implemented when water supplies are compromised due to drought or a water shortage brought on by an emergency situation, thereby implying a water “diet.” By using the phrase “water use efficiency” in future program implementation activities, and in educational and outreach efforts, the WUE team intends to convey and emphasize year-round, long-term improvements in how we use water while maintaining quality of life standards.



## Current Conditions

### Description of Resource Management

With pressures on available local groundwater, and imported water supplies in the watershed increasing due to continuing drought conditions, increasing population, climate change impacts, and mandated cutbacks in imported water, collaborative, and integrated water resource planning, is critical for a sustainable future. A study by the Pacific Institute, “Waste Not, Want Not: The Potential for Urban Water Conservation in California,” concludes that WUE is the most cost-effective way to maximize diminishing water supplies, which makes it one of the most important components for diversifying the region’s water portfolio in the coming years.

Over the past decade, significant WUE measures have been implemented by Southern California water agencies. These programs include the large-scale replacement of old inefficient water fixtures and the upgrade of building and plumbing codes in the State requiring low-flow toilets and showerheads in all new development. It is anticipated that these types of regulatory mandates will continue to be enhanced as emerging technologies become available. Through these programs, the amount of water imported into much of Southern California has remained fairly constant, sufficiently meeting demands despite significant development and population increases. However, with the water supply outlook continuing to worsen, WUE will be a critical resource management strategy that this region will need to embrace.

WUE measures can be categorized as “active” programs, such as rebates, or “passive” programs, such as the incorporation of WUE into standardized plumbing codes. Currently, the majority of WUE water savings is achieved through passive measures. Active WUE measures, however, will provide for a more

holistic approach to watershed planning, and help usher a social transformation in water consumption attitudes and standards among the public and water industry. Through a combination of active and passive measures, it is estimated that over 20% of forecasted water demand in the Santa Ana River Watershed can be met through the implementation of aggressive WUE programs.

This subsection describes the current urban water resources available to the Santa Ana River Watershed. It also describes resource management programs currently implemented or participated in by the Santa Ana Watershed Project Authority (SAWPA) member agencies, and other partners within the watershed. These programs include: the OWOW initiative, programs offered by the California Department of Water Resources (DWR) Office of Water Use Efficiency and Transfers, the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding Regarding Urban Water Conservation; Metropolitan Water District of Southern California (MWDSC) Conservation Measure Funding, the United States Bureau of Reclamation (USBR) programs, other current resource management programs; and trends in WUE legislation.

#### *DWR Office of Water Use Efficiency and Transfers*

The DWR Office of Water Use Efficiency and Transfers offers several WUE programs that are utilized by water agencies in the Santa Ana River Watershed. These programs include funding from the WUE Grant Program that was established by Propositions 50 and 84; The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002; providing and updating the State Model Local Water Efficient Landscape Ordinance; and consulting with the State Energy Commission to develop performance standards and labeling requirements for water-efficient landscape irrigation equipment.



The Office of Water Use Efficiency and Transfers also offers an urban planning assistance program to assist urban water suppliers in meeting the requirements of the Urban Water Management Planning (UWMP) Act by preparing comprehensive and useful water management plans, implementing water conservation programs, and understanding the requirements of the Act. DWR is required to evaluate all applications for WUE grant and loan financing on the applicant agency's compliance with, and implementation of, its UWMP.

#### *California Urban Water Conservation Council*

The CUWCC is a partnership of water suppliers, environmental groups, and others interested in conserving California's greatest natural resource – Water. The CUWCC was created in 1991 to increase efficient water use statewide through partnerships among urban water agencies, public interest organizations, and private entities. A significant number of agencies within the Santa Ana River Watershed are signatories to their "Memorandum of Understanding Regarding Urban Water Conservation in California" (MOU), which is the foundation of the CUWCC. The MOU created a negotiated framework between water agencies and environmental groups to facilitate expedited implementation of reasonable water conservation measures. The agencies that are signatories to the

MOU have agreed to implement comprehensive urban water conservation best management practices (BMPs) intended to reduce long-term urban water demands, and to consider water conservation on an equal basis with other water resource management options.

The BMPs established in the MOU are listed in **Table 5.6-1** below. Many of these BMPs are significant to the future success of WUE programs and planning efforts in the state of California. However, with close to 400 MOU signatories, differences exist between how each agency implements and tracks the BMPs. For instance, public outreach methods and marketing strategies vary among agencies in the SARW due to differences in each agency’s size and resources.

Some of the agencies within the SARW who are signatories to the CUWCC’s MOU are pursuing regional and collaborative WUE planning efforts and funding programs, yet because these agencies are geographically located outside of MWDSC’s service territory, they are finding it difficult to implement the CUWCC’s BMP programs in the same robust fashion as their MWDSC counterparts.

**Table 5.6-1 CUWCC's BMPs**

<b>Foundational BMP's</b>			
1	Utility Operations Programs		
	1.1 Operations Practices		
	1.2 Water Loss Control		
	1.3 Metering with Commodity Rates		
	1.4 Retail Conservation Pricing		
2	Education Programs		
	2.1 Public Information Programs		
	2.2 School Education Programs		
<b>Programmatic BMP's</b>			
3	Residential		
4	Commercial, Industrial, Institutional		
5	Landscape		

In addition to the BMP list, the CUWCC has developed two options: a Flex Track Options and a gallon per capita day Compliance Option. These options can be implemented by participating agencies to help them meet their savings goals for a particular BMP measure. Agencies choosing either of these options are responsible for achieving water savings greater than or equal to that which they would have achieved using only the BMP list items. Through this type of innovative approach, smaller agencies, as well as those that are implementing extraordinary conservation measures will be able to better demonstrate their efforts to achieve water savings.

### *MWDSC WUE Measure Funding*

Through a water conservation commitment to its member agencies, MWDSC provides incentive funding for a wide variety of WUE programs, devices, and measures throughout its service area. These programs are offered to residential, commercial and industrial, agricultural, and public sector entities.

In 2008, MWDSC issued a call for extraordinary conservation measures and outlined some of the tools that they would develop to help their member agencies achieve its call for increased water savings.



MWDSC launched a region-wide residential rebate program to help make it simpler for the over 18 million people in their service territory to take advantage of rebates through a one-stop shop concept. The program, known as SoCal Water\$mart, is proving to be very effective, and has increased the convenience factor for the average Southern California consumer.

To help defray the criticism of those that would point the finger at public agencies as some of the largest water wasters, MWDSC created the Accelerated Public Sector Program to provide funding opportunities to public agencies to help them implement WUE programs and practices. The program has proved to be a tremendous success, especially with cities and school districts across the southland.

MWDSC hosts a monthly WUE meeting for conservation coordinators to share information and learn about important changes in the field. Certain entities (including Pillar participants, San Bernardino Valley Municipal Water District (Valley District) and the City of Yucaipa), are within the SARW but lie outside of MWDSC's boundaries, and are therefore not eligible to participate in MWDSC's programs. It is crucial that watershed planners find ways to encourage the development of similar WUE programs and funding opportunities for these communities, especially since many of these areas fall within the auspices of the Disadvantaged and Tribal Communities Pillar and are home to disadvantaged stakeholders.

### *Resource Management Programs*

A variety of WUE management programs, pilot programs, and outreach efforts have been implemented by SAWPA member agencies, MWDSC, cities and counties, and other entities from within the watershed. These programs include:

- California Friendly Homes
- Targeted Water Conservation Programs
- Water-wise Ordinances and Design Guidelines for New and Existing Developments
- Green Building and LEED Standards
- Development Mitigation Credits for New WUE Programs
- Weather-Based Irrigation Controller (WBIC) Programs and rebates
- Agricultural and High Water Use Residential and Commercial Audits and Evaluations
- Landscape Irrigation Budgets
- Rotating Sprinkler Nozzles for Sprinkler Heads Rebates
- High-Efficiency Nozzles for Large Landscape Heads
- Turf Reduction Rebate Programs (Cash for Grass)

- Synthetic Turf Rebate Programs
- Residential and Professional Landscape Classes (California Friendly)
- Landscape Audit Programs
- Regional Landscape Alliances
- Variable Flow Pumping Systems for Homeowners Association (HOAs), Municipalities, etc.
- Custom-Sized, Pressure-Specific Pump and WBIC Packages
- US Environmental Protection Agency (EPA) WaterSense Certification Programs
- High-Efficiency Toilet (HET) Rebates, Direct-install and Distribution Programs
- Multi-Family High-Efficiency Toilet – Direct Install
- High-Efficiency Clothes Washer (HECW) Rebates and Added Incentives
- Industrial Water Use Reduction Audits and Incentive Programs
- Swimming Pool Cover and Rain Barrel Rebates
- Public Sector Incentive Programs
- CII Water Use Surveys & Rebate Program
- Hotel and Tourism Industry Programs
- HOA Outreach and Training Programs (Changes to CCRs)
- Industrial Process Performance Improvements Programs
- Allocated Budgeted (Tiered) Water Rates
- University Sponsored Water Institutes
- Fundraising Projects with Water-wise Plant Palettes
- Community Outreach Programs and Water Festivals
- Public Awareness and Communications Campaigns
- School Education Programs
- Water Conservation Demonstration Gardens
- Water-wise Landscape Contests, Gardening Guides and CDs

Various water agencies and other water related organizations in the watershed will implement WUE programs on a regional basis deemed to have a high probability of success and are cost-effective but will not duplicate MWDSC’s conservation efforts. SAWPA, on behalf of the OWOW stakeholders and participants, will apply for grant funding to complement and expand on existing efforts.

### *WUE Policy and Legislation*

The California Legislature has been active in creating and passing legislation regarding WUE. Legislation passed by the California Legislature, such as AB566, AB 662, AB 715, AB 1420, AB 1560, and AB 1881, are guiding and shaping the way for WUE. AB 566 requires, rather than permits, the model landscape ordinance (per the Water Conservation Act) to include climate information for irrigation scheduling based on the California Irrigation Management Information System (CIMIS) system. AB 662 requires the minimum standards for operating efficiency of water-using devices/appliances be based on those efficiencies that will reduce the energy and water consumption rates, and that do not result in any added total costs over the designed life of the appliances concerned. AB 715 requires that all toilets sold or installed in California use no more than an average of 1.6 gallons per flush, and that all urinals sold or installed in California use no more than an average of one gallon per flush. It also requires that, on and after January 1, 2014, all toilets and all urinals, other than blow-out urinals, sold or installed in California are high-efficiency toilets (1.28 gallons per flush or less) and urinals. AB 1420 requires eligibility for any

grant or loan to an urban water supplier awarded or administered by DWR, State Water Resources Control Board (State Board) or the Bay-Delta Authority to be conditioned on the implementation of the water demand management measures described in the UWMP. DWR is required to convene an independent panel to provide recommendations to the legislature relating to adoption, implementation, and reporting of demand management measures. The DWR also must identify demand management measures that achieve a standard of excellence. AB 1560 requires the Energy Commission to prescribe, by regulation, water conservation design standards for new residential and new nonresidential buildings. Additionally, the DWR prepared a Water Efficient Landscape Model Ordinance as part of the implementation of AB 1881.

On November 6, 2009, the State Legislature approved Senate Bill X7-7 – Statewide Water Conservation as part of the State Comprehensive Water Package. This legislation establishes one of the most progressive mandates to establish statewide water use efficiency standards in the State’s history. The bill includes the following:

SB X7-7 creates a framework for future planning and actions by urban and agricultural water suppliers to reduce California’s water use. This bill requires the development of agricultural water management plans and requires urban water agencies to reduce statewide per capita water consumption 20 percent by 2020. Specifically, this bill:

- Establishes multiple pathways for urban water suppliers to achieve the statewide goal of a 20 percent reduction in urban water use
- Specifically, urban water suppliers may:
  - Set a conservation target of 80 percent of their baseline daily per capita water use
  - Utilize performance standards for water uses that are specific to indoor, landscape, and commercial, industrial and institutional uses
  - Meet the per capita water use goal for their specific hydrologic region as identified by DWR and other state agencies in the 20 percent by 2020 Water Conservation Plan
  - Reduce from a 10-year or 15-year baseline daily per capita water use, a specific amount for different water sectors: indoor residential, unmetered uses, commercial, and landscape
- Requires urban water suppliers to set an interim urban water use target and meet that target by December 31, 2015 and meet the overall target by December 31, 2020
- Requires DWR to cooperatively work with the CUWCC to establish a task force that shall identify BMPs to assist the commercial, industrial, and institutional sector in meeting the water conservation goal
- Requires agricultural water suppliers to measure water deliveries and adopt a pricing structure for water customers based at least in part on quantity delivered, and, where technically and economically feasible, implement additional measures to improve efficiency
- Requires agricultural water suppliers to submit Agricultural Water Management Plans beginning December 31, 2012, and include in those plans information relating to the water efficiency measures they have undertaken and are planning to undertake

- Makes ineligible for State grant funding any urban or agricultural water supplier who is not in compliance with the requirements of this bill relating to water conservation and efficient water management
- Requires DWR to report to the Legislature in 2013, 2016 and 2021, on agricultural efficient water management practices being undertaken and reported in agricultural water management plans
- Requires the DWR, the State Board, and other state agencies to develop a standardized water information reporting system to streamline water reporting required under the law

## Regional WUE Strengths, Weaknesses, Opportunities and Threats

As part of the process of evaluating the region’s overall WUE performance and future WUE planning efforts, a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was conducted to determine best strategies and the most effective course of action. The identified Strengths, Weaknesses, Opportunities and Threats, which are further categorized as physical, institutional, and customer-related are summarized in the SWOT analysis described below.

### *Strengths*

The regional WUE strengths lie primarily in the activities and experience of the regional water agencies and their sub-agencies. SAWPA consists of five major water and wastewater agencies: Valley District, Inland Empire Utilities Agency, Western Municipal Water District, Eastern Municipal Water District, and Orange County Water District. Many of these agencies also serve as the primary wholesale water agency for sub-agencies within their service area.

Through SAWPA, multi-agency forums or roundtables are held among member agencies to provide interagency communication, communication with the public, and communication with regulating bodies. It is also through these forums that agencies can share their technical and practical expertise in WUE program implementation. By meeting together to discuss issues and concerns, a unified message and response is continually refined and implemented by agencies for important issues such as the water crisis and future policy initiatives. Additionally, other organizations including non-profit entities, coalitions, and environmental interest groups, as well as larger institutions such as MWDSC and USBR, have been instrumental in helping to create and maintain the region’s vision for a sustainable watershed.

### *Weaknesses*

The regional WUE weaknesses lie generally in the differences in implementation of WUE programs, available agency resources for those programs, and in customer awareness and attitudes toward WUE.

With so many water agencies participating in regional processes, there are sometimes conflicting goals or priorities that can hinder progress. There also seems to be a gap in the distribution and implementation of conservation programs in various portions of the region. One reason is the ineligibility for conservation funding of those agencies that do not fall within the MWDSC boundaries. Public outreach and marketing methods vary due to the differences in the size and resources of agencies, budgets, and number of agency staff dedicated to WUE programs. This variance translates into

customers within the same region not being similarly informed, and thereby not attuned to local water usage issues and regional water conservation measures.

Additionally, the Santa Ana River Watershed is limited in the number of landscaping professionals, contractors, and other trade staff members who are knowledgeable about WUE, water-efficient techniques, and technologies; and who can serve as resources for water customers looking to implement WUE measures. It will be important to forge partnerships with industry groups and large retailers to help bring about a transformation in the marketplace by making it easier for consumers to purchase new water efficient irrigation devices.

### *Opportunities*

One of the key opportunities that can be implemented is the use and reiteration of the term “water use efficiency” instead of “water conservation” in any education or outreach to the stakeholders and the community. As explained previously, the word “conservation” usually conjures negative image of a water “diet”, which is generally associated with times when water supplies are compromised due to drought. By using the phrase “water use efficiency,” agencies convey the importance of efficient use of water resources at all times and encourage water-wise behaviors as an integral part of customers’ lifestyles.

The weaknesses noted earlier are also opportunities to build new strengths. By using the OWOW WUE Pillar forum, agencies can collaborate on projects that will provide regional benefits by maximizing shared resources and developing new relationships and programs.

Other opportunities available to the regional WUE effort are mainly customer-oriented: changing expectations and behaviors; inspiring and motivating WUE; and providing information, training, and support programs regarding WUE and technologies. The opportunity for increased solution-oriented collaboration among water agencies and professionals is also a key opportunity.

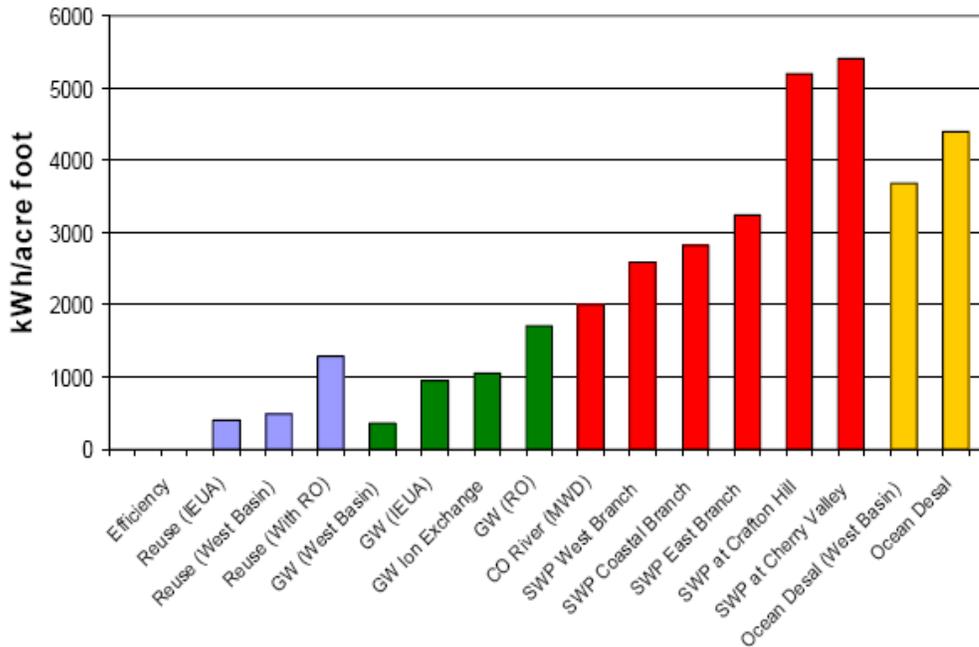
There are many opportunities for WUE measures in the region. With the continuation of regional marketing measures, WUE issues can reach a broader audience throughout the region. SAWPA and local agencies will have an enhanced role to advance WUE by embracing emerging technologies, and creating grant-funded technical assistance for the region. Other WUE opportunities include new programs such as EPA’s WaterSense, training classes for landscapers and the public, and the possibility of developing a contractor certification program. Better coordination with water agencies and cities will help promote new WUE ordinances based on AB 1881, the California Model.

Local Water Efficient Landscape Ordinance, such as the Riverside County Water Efficient Landscape Requirements Ordinance, County Ordinance 859; new water-efficient development; and the use of allocated tiered water rates. There also is an opportunity for SAWPA and local agencies to partner with the area’s energy utilities on marketing and incentive programs for California’s commercial, industrial, and institutional (CII) water users that target water use and water-related energy use. All of these opportunities will be designed to motivate customers to increase their WUE.

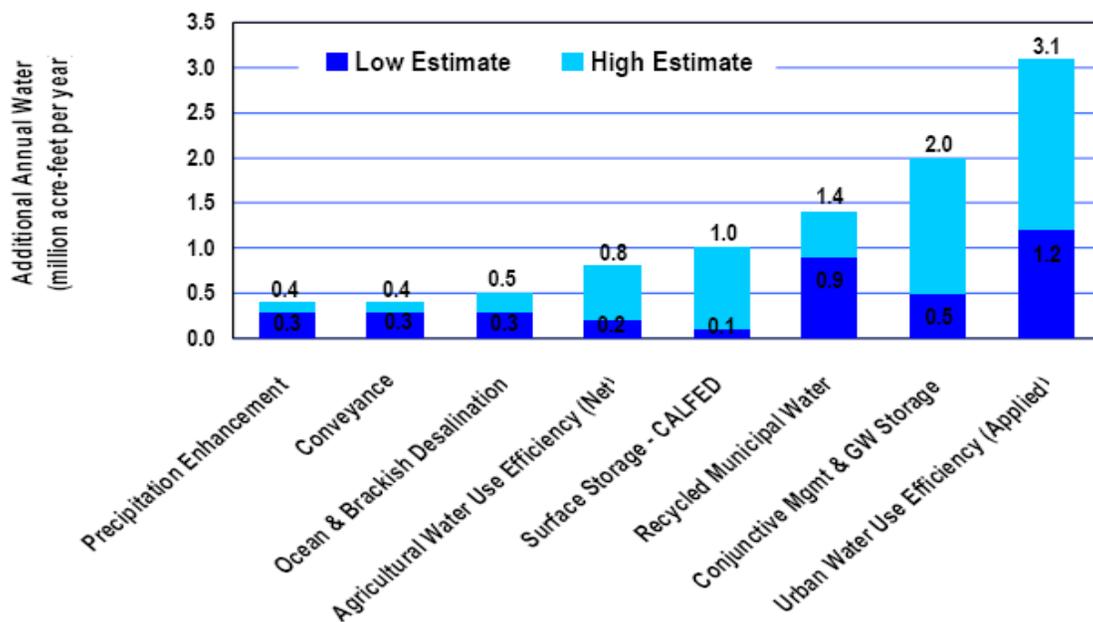
As implementation measures are enacted to comply with AB 32, California Global Water Solutions Act of 2006, to control greenhouse emissions, the advantages in reduced energy use of WUE applications become readily apparent. As indicated in **Figure 5.6-1**, on the following page, WUE is ranked as the most

energy efficient of water supply source per kWh/AF in Southern California based on research conducted by Dr. Robert Wilkinson, Director Water Policy Program, University of California, Santa Barbara.

**Figure 5.6-1 Energy Intensity of Selected Water Supply Sources in Southern California**



**Figure 5.6-2 California Water Supply**



Further, under **Figure 5.6-2**, of the many California water supply options available, urban WUE offers the largest supply available under low and high estimates statewide.

### *Threats*

Funding, population growth, water infrastructure maintenance, and legislation are several main issues that could inhibit the regional WUE programs. The region is in need of programs to promote efficient use of its water supply, while facing a possible cutback on grant funding. Other issues include political pressures, the need for agencies to remain cost-effective and recent legislation requiring compliance with UWMPs.

Several of these threats are embodied in AB 1420, a bill signed by Governor Schwarzenegger in October 2007 regarding water demand management measures and water management grant or loan funds. This legislation states that eligibility for any grant or loan to an urban water supplier awarded or administered by DWR, the State Board, or the Bay-Delta Authority is to be conditioned on the implementation of the water demand management measures (DMMs) described in the supplier's UWMP. If the supplier is not in compliance with any of the DMMs in its UWMP, it will not be eligible for state funding grants or loans.

Agencies will have to work together to examine these potential threats and create a plan for moving forward if faced with any of these challenges.

## **Identification & Implementation of Strategies to Improve Resources**

With their key goal to reduce demand for imported supplies received from the State Water Project and Colorado River, SAWPA, its member agencies, and other retail agencies in the watershed are developing water-efficient strategies to become more self-reliant and sustainable. To identify opportunities for using water more efficiently, existing conditions and regional resources were identified and analyzed by the Pillar members.

### **Water Use Efficiency Measures**

The WUE Pillar meetings gathered information and ideas on potential new conservation opportunities, programs, and emerging technologies that could be implemented in the SARW. The WUE team developed two primary points of agreement: 1) the main focus of WUE's current and future efforts should shift from indoor residential water use to landscape and CII water use, and 2) regionally standardized WUE programs should be implemented throughout the watershed.

To develop a plan and outline strategies to accomplish these items, the WUE Pillar members held quarterly meetings to exchange information and ideas, partner and support each other's efforts, and coordinate with SAWPA staff. Through these meetings, a comprehensive list was created to summarize existing and potential new opportunities for WUE efforts. The WUE list was created by the Pillar. It lists several conservation measures by the following categories: Regional Programs and Incentives,

Landscape, CII, Financial and Policy Initiatives (also refer to *Current Conditions* section), and Partnerships and Outreach. Pillar members were invited to check off the WUE measures they currently were implementing, and measures they wanted to pursue. Using this information, the Pillar was able to review everyone's efforts and validate their agreed vision to focus on landscape and CII water use, and regionally standardized WUE programs.

The following is the list of the WUE Pillar's list of programs determined to be the most effective in the categories listed above:

#### *Regional Programs and Incentives*

- ***Promulgate HETs and High Efficiency Clothes Washer (HECWs)***

Toilets and clothes washers typically account for 27% and 22%, respectively of residential indoor use, representing the most significant remaining savings potential for indoor use. (Note: Aggressive showerhead replacement programs in the early 1990's, in addition to plumbing code changes, have resulted in high saturation levels for low-flow showerheads). By replacing a toilet that uses 3.0 gallons or more per flush with one that uses 1.28 gallons per flush or less, a resident may receive \$100, depending on the toilet selected and the incentive offered by the local water provider.

Incentives also exist for residents who want to buy a new HECW that uses less water and energy than conventional washers. These incentives encourage residents to invest in and install WUE devices that will be used frequently in their households.

Building upon the success of indoor WUE programs provides the groundwork to now shift the focus to outdoor and landscape water conservation measures. Out of all of the topics in the WUE matrix, the landscape category had the most conservation measures identified by the Pillar. The irrigation system improvements (audits and equipment) and the CII large-scale and key account audits and Implementation measures were the ones that were ranked the highest in the landscape category, which reinforces the Pillar's focus on landscape and CII water use.

- ***Utilize MWD's Regional Support for WUE Rebate Incentive Programs***

MWDSC has implemented a program that allows water agencies to customize their rebates by adding additional incentives. The program also allows agencies to target markets, analyze data, and implement new approaches. MWDSC rolled out SoCal Water\$mart, a regional residential rebate program where any resident within MWDSC's general service area will be eligible to apply for rebates on water efficient purchases for the home directly from MWDSC, thereby eliminating the ineligibility of customers who live in non-participating MWDSC areas. The landscape water use efficiency statewide market survey conducted by the Water Resources Institute at California State University, San Bernardino, shows that rebates would provide motivation for a significant percentage of decision-makers for residential and managed properties to invest in landscape water efficiency technologies.

#### *Landscape*

- ***Irrigation System Improvements (Audits and Equipment)***

Irrigation of residential and certain types of commercial landscapes currently is one of the largest uses of water. Landscape water use can be reduced by up to 30% by simply repairing broken or damaged irrigation components, adjusting pressure, retrofitting with more efficient components, and scheduling irrigation properly. A simple system improvement is retrofitting spray head sprinkler nozzles with rotating sprinkler nozzles. The rotating sprinkler nozzles apply water at one-third the rate of spray heads, thereby allowing the sprinklers to run for longer periods of time before runoff occurs.

A significant system improvement that can be accomplished in combination with other irrigation improvements to reduce landscape water use by 20% or more is the installation of a “smart” irrigation controller. It estimates or measures depletion of available plant and soil moisture, and replenishes water as needed while minimizing excess water use. It adjusts water application throughout the irrigation season without human intervention. There are two types of smart controllers: 1) sensor-based controllers, which use historical weather data, plus temperature and precipitation monitoring, or information provided by an on-site weather station; and 2) signal-based controllers that use localized weather data provided by the California Irrigation Management Information System or an equivalent. The benefits of encouraging and promoting the use of smart controllers include reduction of outdoor water use, healthy and attractive landscaping, reduction of runoff and non-point source pollution, and improved water quality.

#### *Commercial, Industrial, Institutional*

- ***CII Large Scale and Key Account Audits and Implementation***

Large-scale CII customers use water in unique ways that must be examined for opportunities to save water on an industry-wide or individual basis. To assist with this, MWDSC has the Water Savings Performance Program that provides audits and retrofits to large industrial water users. Financial assistance is provided for documented water savings derived from projects implemented under the program that meet the qualifying criteria.

Equipment for the proposed improvements may be purchased or leased. Typical process improvements that qualify include installation of equipment to capture, treat, and reuse water that otherwise would be discharged to the sewer, and replacement of existing equipment with more efficient process improvements resulting in reduced water demand.

On a smaller scale, many local water agencies have obtained grant funding to implement local programs to assist commercial users in retrofitting to more efficient devices.

- ***SoCal WaterSmart Program***

MWDSC’s SoCal WaterSmart Rebate Program, in which three of the four eligible SAWPA member agencies participate, is tailored specifically for the CII and residential sectors. Rebates are available for numerous water efficient devices and technologies to help lower water and sewer bills, reduce energy costs, and address environmental impacts. The program also allows regional marketing to key strategic partners, including device vendors. The lifetime water savings for devices and

technologies installed to date in Southern California through the SoCal WaterSmart program is anticipated to be over 20 billion gallons.

The growing population in this semi-arid region puts an ever-increasing strain on the limited water supply. The dramatic anticipated water savings resulting from the SoCal WaterSmart program show that one of the best ways to meet this demand is for Metropolitan and its member agencies to help customers become more aware of water-saving technologies, and to provide the necessary financial incentives to encourage their implementation.

## Other Inferences from the WUE Matrix

The other categories of financial and policy initiatives, and partnerships and outreach, are important in strategizing, designing, and implementing WUE efforts. Each is a category that directly affects and influences the direction and development of future WUE programs.

### *Financial and Policy Initiatives*

Water budgets and allocated tiered water rates offers individualized allocated water budgets for each water customer. This creates a structure that encourages people to stay within their water budget, and may be used at the discretion of local retail water agencies to penalize those who are careless or excessive with their water use. The money generated from overuse penalties is used as a funding source to implement new local WUE programs. AB 2882 supports this strategy by allowing wholesale and retail water suppliers to adopt allocation-based conservation water pricing.

### *Partnerships and Outreach*

Partnering and outreach is an integral part in building consensus, sharing resources, and unifying the message for WUE efforts. There were numerous responses from WUE Pillar members on the ideas for how to partner with Resource Conservation Districts and Pollution Prevention/Water Quality efforts.

- ***Partner with Resource Conservation Districts***

Conservation districts emerged during the 1930s as a way to prevent the soil erosion problems of the Dust Bowl from recurring. Formed as independent local liaisons between the Federal government and landowners, conservation districts have worked closely with the USDA Natural Resources Conservation Service (formerly the Soil Conservation Service).

In California, conservation districts are called Resource Conservation Districts (RCD), and are independent "special districts" organized under the state Public Resources Code, Division 9. Each RCD has a volunteer Board of Directors made up of five to nine district landowners who are elected locally or appointed. Currently, 103 RCDs in California work to address a wide variety of conservation issues including forest fuel management, water and air quality, wildlife habitat restoration, soil erosion control, and conservation education.

Because RCDs are grassroots, nongovernmental organizations, they have no regulatory power and must meet their goals for the natural resources in their community through voluntary approaches, i.e., neighbors asking neighbors to cooperate. Opportunities exist for agencies in the watershed to

work with local RCDs on cooperative efforts to improve the natural environment, in this case, through WUE.

- ***Partner with Pollution Prevention/Water Quality Efforts and Vector Control***

A major source of water pollution is "non-point source" pollution, or pollution that comes from an indirect source. Storm runoff and excess irrigation are primary sources of non-point source water pollution. Irrigation runoff can contain fertilizers and pesticides that can harm habitat, flora, and fauna. Contamination of streams and rivers, as well as groundwater can result from storm and irrigation runoff if they carry pollution loads that are high. Reduction of non-point source water pollution is especially critical in areas that drain directly into the watershed. Reducing the use of irrigation and scheduling irrigation correctly to avoid runoff can accomplish this. Similarly, the majority of mosquito and vector activity is in and around storm drains, so reducing runoff will help alleviate this problem and reduce the threat of vector-based diseases such as West Nile Virus. There also are opportunities to share public outreach messaging among the various regulating agencies.

- ***Partnership and Collaboration***

Many agencies on their own have contributed to the current WUE programs and these efforts do not go unnoted. The existing programs are the foundation for our next steps, which include maintaining as well as expanding existing partnerships and collaborations with water wholesalers, sub-wholesalers, retailers, and municipalities.

Another potential opportunity is to create new and innovative partnerships with customers that are large water users, such as schools, parks, businesses, irrigation companies, HOAs/property managers, gardeners, landscape architects, and contractors. Some of these partnerships could correspond with other CII programs.

Collaborations with energy utilities could lead to improved outreach, cost-savings and opportunities for increased (combined) financial incentives that will further motivate participation. Energy utilities already are partnering with key water agencies, including MWDSC, on the pilot water-energy programs outlined in the California Public Utilities Commission's ruling regarding water-related energy use.

Other possible partnerships and collaboration efforts include co-marketing between water agencies and product vendors. Examples include the WUE device certification with the EPA's "WaterSense" certification and labeling program, or WUE device training sessions sponsored by water agencies and led by a representative from the device's manufacturer.

The WUE Pillar also can support partnerships and collaboration among water agencies by serving as a forum to share ideas on what works or does not work for an agency. Collaboration between SAWPA member agencies in and outside of the MWDSC service area on WUE programs will allow those agencies and their customers outside of the MWDSC Metropolitan area to participate.

- ***Public Outreach: Emphasis on Outdoor Landscaping and Irrigation Efficiency***

With up to 70% percent of household water consumption going toward outdoor use, there is a growing need to provide water efficient programs targeting outdoor landscaping. There are various ways to increase water efficiency of outdoor landscaping. The outdoor efficiency program topics identified by the WUE team include:

*Marketing programs:*

- Changing landscape design elements: increase pervious hard surfaces, pavers and bioswales
- Creating sample landscape plan templates
- Using captured rainwater, recycled wastewater, gray water, or treated water for non-potable uses including irrigation
- Positioning water-efficient gardens as in style and “hip”
- Utilizing marketing suggestions from the Water Resource Institute (WRI) Landscape Water Use Efficiency statewide market survey: positives of water smart landscapes, the cost of doing nothing, children’s involvement, and responsibility for the environment
- Targeting marketing efforts to various demographic communities

*Technology/training programs:*

- Advancing emerging technologies such as, smart irrigation controllers, high-efficiency nozzles, and new irrigation device technology
  - Creating a comprehensive package for consumers to promote use of smart irrigation controllers (e.g. rebates, stores, installers, training, and check-ups)
  - Advocating use of climate-appropriate plants and functional warm season turf throughout the region
  - Developing a “one-stop shop” that offers accessible and comprehensive water-efficient landscape planning programs
- **Public Outreach: Community-Based Social Marketing**  
Community-based social marketing is a behavior-change tool that can supplement traditional information-intensive marketing campaigns. Previously utilized as a strategy in health care initiatives such as smoking cessation, it now is being utilized for other causes, including natural resource management, to achieve the adoption of environmentally sustainable behaviors by the members of our communities.

Community-based social marketing involves four steps: 1) identifying the barriers and benefits to a sustainable behavior through a combination of literature reviews, focus groups, and survey research; 2) developing a strategy to promote the sustainable behavior that utilizes “tools” that have been shown to be effective in removing barriers and changing behavior; 3) piloting the strategy; and 4) evaluating the strategy once it has been implemented across a community. These steps result in a community outreach campaign that will successfully foster the desired sustainable behavior, which in the WUE Pillar’s case, is water-efficient behavior.

There are several typical reasons why people do not engage in a particular sustainable behavior. One reason is that people are unaware of the activity and/or its benefits. Another reason is that the

activity may be perceived as having significant difficulties and barriers associated with adopting it. For example, people may believe that switching their traditional garden to a California-friendly landscape is a daunting task that requires expertise and money. A third reason why people do not engage in a sustainable activity is that they feel that there are no significant barriers that discourage their current behavior. For example, irrigation schedules are left the same throughout the entire year because it is easier to leave it alone rather than have to adjust it due to weather conditions or the time of year.

To better influence what people do, community-based social marketing helps public outreach campaigns to identify perceived barriers and benefits to an action, and promote specific changes to overcome those obstacles. People naturally tend to gravitate to actions that have the most benefit and that have the fewest barriers to overcome. Additionally, perceived barriers and benefits vary from individuals and groups. What may work for one neighborhood may not work for another, or what may work for residents may not work for businesses. Behaviors also compete with each other; as one adopts a new behavior, the previous behavior is being rejected. For example, the behavior of capturing cold water in a bucket before the shower water gets warm replaces the behavior of letting the unused water run down the drain.

Because of this diversity of motivations, the perceived barriers and benefits to the desired sustainable behavior have to be understood so that the available behavior change tools can be prioritized by the benefits they offer and barriers they remove. From this analysis, effective community-based social marketing strategies can be developed. For future community-based social marketing efforts by the WUE Pillar, the WRI Landscape Water Use Efficiency Statewide Market Survey will be a good starting point as it identifies several residential and managed properties incentives and barriers to increased landscape WUE.

Once a sustainable behavior-specific marketing strategy has been developed, the piloting and post-pilot evaluation of the behavior change strategy ensure that a project is effective at achieving the desired result before it is implemented on a large scale. By careful research and planning, pilot testing, and pilot results evaluation, community-based social marketing strategies that promote sustainable behaviors, can successfully become and remain a part of people's lifestyles.

### Other WUE Strategies Discussed in WUE Meetings

The following is a brief summary of additional measures prioritized by the WUE Pillar that were not included in the Table of WUE Measures, but highly discussed in WUE meetings.

- ***UWMP***

In the area of WUE planning, water agencies in California must perform certain minimum planning processes required by the California Water Code. The most informative of these planning tools is the UWMP. Agencies that either have more than 3,000 service connections or deliver more than 3,000 acre-feet annually must complete a UWMP, at least every five years. The UWMP incorporates requirements for describing how the agency will implement WUE demand management measures, which are equivalent to the CUWCC BMPs. In the Santa Ana River Watershed, there are many

overlapping water agency jurisdictions and their respective UWMPs, creating a large amount of information about WUE. BMP implementation information is also available, much of it from the CUWCC.

- **20 x 2020**

The Water Conservation Bill of 2009 (SB X7-7) provides the regulatory framework to support the statewide reduction in urban per capita water use described in the *20 by 2020 Water Conservation Plan*. Consistent with the Bill, each urban water supplier must determine and report its existing baseline water consumption and establish future water use targets in gallons per capita per day. The first report began with the 2010 UWMP.

An urban water supplier must set a 2020 water use target and an interim target for 2015. There are four methods or options for compliance: 1.) establish a conservation target of 80% of their baseline daily per capita water use; 2.) utilize performance standards for water uses that are specific to indoor, landscape, commercial, industrial and institutional uses; 3.) meet the per capita water use goal for the appropriate hydrologic region; 4.) reduce from a 10 year or 15-year baseline daily per capita water use, a specific amount for different water sectors. Option 4 is subject to revision by the DWR prior to 2015.

- **Evaporation and Transpiration Correlation**

Significant water loss can be attributed to evaporation and transpiration. Evaporation accounts for surface water that enters the air as vapor due to the heat of the sun. Transpiration accounts for the use of water by plants. By promoting climate-appropriate plant species instead of turf grass, transpiration is reduced. By planting more trees, the amount of shade area is increased, which reduces evaporation and the heat island effect.

There will be opportunities for water agencies within a watershed to partner with other public and private entities that share the same goal of increasing the amount of climate-appropriate plants in the watershed. The goal of reducing evaporation and transpiration should be incorporated into the plant palette idea, where landscape contractors can recommend a palette of plants that are climate-appropriate to a resident, business, or industry. Additional evaporation reductions can be accomplished by providing incentives or voucher programs for swimming pool and spa covers, and banning outdoor misting systems.

## **Collaboration and Integration with other OWOW Pillars**

The nine other OWOW Pillars are developing programs, resources, and strategies for addressing challenges in their areas of expertise, similar to the WUE Pillar. By integrating strategies from multiple OWOW Pillars into planned water resource management programs, and by increasing program planning and implementation coordination among Pillars, efficiencies and benefits are generated that yield program results greater than those achieved through the efforts of a single agency or Pillar. Additionally, collaboration that produces consensus among the OWOW Pillars creates a stronger, more unified voice to communicate regional water management goals, strategies, and messages to stakeholders. Described

below are the three reasons that collaboration and planning integration with other OWOW Pillars is crucial to the fulfillment of the WUE vision.

### Leveraging Expertise

The WUE Pillar aims to maximize the benefits of the work of the other Pillars and water agencies by incorporating their expertise in future WUE programs. Among others, the Water Resource Optimization, Stormwater: Resource and Risk Management, Energy and Environmental Impact Response, and Land Use and Water Planning Pillars share common ground with the WUE Pillar. For example, WUE is a response to the region's dependence on imported water supplies, which is a water supply reliability and climate change concern, and WUE targets behaviors that create dry weather run-off that carries non-point source pollution. Collaboration and information sharing between these Pillars and the WUE Pillar will create consistency among programs and services, establishing a norm that is recognized within and beyond the region.

The more connections that can be made between Pillars in the design of a project, the more the project can be deemed valuable and successfully prioritized for funding and implementation due to its ability to provide multiple benefits. On another level, publicity and marketing strategies can be maximized through the dissemination and repetition of the message across different Pillars and diverse audiences.

Additionally, as WUE is a watershed-wide goal shared by many Pillar areas, the potential exists for the WUE Pillar to become a clearinghouse for WUE programs and resources, which could be made available through a Website for easy access. The WUE Pillar also could take on the role of a regional coordination planning body for WUE experts, including irrigation repair services, landscape design firms, and landscape contractors. Putting the public in touch with these experts through the clearinghouse would demonstrate a grassroots and social marketing approach to the implementation of WUE measures.

### Leveraging Resources

Water resources are vital to the Santa Ana River Watershed, and resources including time and funding are vital to the successful implementation of WUE projects and programs. As the Santa Ana River Watershed's water resources cannot meet unlimited demands, and the WUE Pillar members' time and funding do not allow an unlimited number of WUE programs to be implemented, leveraging available resources to achieve the most benefit is critical.

In terms of water resources, the water agencies in the Santa Ana River Watershed currently rely on varying degrees of imported water supply to meet customer needs. Through the identification of existing local resources such as groundwater and recycled water, water agencies will be able to better leverage water supply resources. One of those available local water supply resources is water saved through WUE measures.

Especially now, as the State Water Plan and the SB X7-7- Statewide Water Conservation is in full swing along with current legislative initiatives of AB 1420 (access to water conservation funding), AB 1881 (water efficient landscapes and land use planning), focus on water efficiency, increased engagement by, and resources from, the WUE Pillar will be necessary to meet these new requirements.

One way to leverage time and funding resources is to group together WUE projects and programs by similar geographic areas. By collaborating on work activities, timelines, and stakeholder outreach, the sponsors of these projects and programs can reduce project costs, lessen community impact by decreasing completion time for capital projects, and achieve greater success in community outreach and stakeholder behavior change for education and marketing programs.

Having multiple Pillars come together to combine various water management strategies within a single project or program, is another way to leverage time and funding resources. For example, the Water Resource Optimization, Stormwater: Resource and Risk Management, Energy and Environmental Impact Response, Disadvantaged and Tribal Communities, and Land Use and Water Planning Pillars could integrate WUE into all resource-based planning efforts (*i.e.*, treating WUE as a supply source and as a means to offset climate change impacts, while mitigating land use impacts). WUE provides opportunities to increase demand for recycled water use. Landscape water conservation programs have a secondary benefit of reducing runoff and non-point source water pollution, as well as reducing the proliferation of vector-based diseases.

As available staff and funding resources are not uniform among member agencies, leveraging resources and programs across geographical areas and Pillars can address equity and fair distribution of resources while maximizing results. WUE programs and WUE ads can be spread across geographic areas and Pillars to leverage resources and maximize benefits. Using region-wide communications outlets obtains the greatest benefit for the funding resources available by allowing the ads' messages to reach the widest audience possible, and can result in earned media, better ad rates, and extra airtime.

Employing WUE staff expertise and funding resources on a regional basis using the IRWMP process ensures that smaller agencies and agencies outside of the MWDSC service area have access to the available resources. Pursuing regional implementation of programs will help to both leverage and balance resources, as agencies already implementing WUE will impart their expertise in the design and implementation of new regional WUE programs. These programs will then be available to the customers of smaller agencies, and regional programs will be able to employ new implementation formats and access new funding. The region's water agencies will benefit from more consistent messaging and improved reliability of regional WUE programs.

Leveraging the available resources to implement WUE programs that benefit those with sufficient means and those in need of resources is a proactive approach that will maximize the WUE benefits throughout the region.

## Leveraging Funds

Integration of water management strategies across geographies, within the project implementation process, and through partnerships between agencies can result in significant financial efficiencies. Collaborative projects that are widely supported can be more far-reaching and implemented more quickly, effectively, and efficiently than could be accomplished by one agency focused on a single water management strategy.

Spreading WUE funding throughout a watershed results in cost benefits through the integration of multiple strategies or messages and through regional marketing efficiencies. For example, Valley District and the Yucaipa Valley Water District (YVWD) are within the SARW, but are not MWDSC member agencies, making them ineligible for MWDSC efficiency funding. However, collaborative projects with regional benefits facilitated by the OWOW effort, such as a regional conservation incentive funding program that would overlap with efforts by MWDSC Metropolitan member agencies, SAWPA agencies, and Pillars, would be a way to enable Valley District, YVWD, and other agencies outside of MWDSC's boundaries to receive funding and to maximize WUE benefits and results.

Funds also can be leveraged to achieve goals through regional partnerships and projects that use matching funds, such as MWDSC's conservation credits program. Created in 1988 and regularly updated, this conservation credits program provides funds to MWDSC's Metropolitan's member agencies to advance their individual demand management strategies. Additionally, Federal government funds could be used to leverage State and local funding.

Focusing in particular on the Water Resource Optimization, Energy and Environmental Impact Response, and Disadvantaged and Tribal Communities Pillars, Santa Ana River Watershed water agencies should incorporate WUE funding into their planning portfolios to ensure a constant funding stream for WUE programs and efficiency measure implementation.

## Description of Data Collection and Compilation Process

### Stakeholder Identification

The WUE Pillar is comprised of over 40 stakeholders from all three counties (Orange, Riverside, and San Bernardino), consisting of WUE experts, consultants, business leaders, and other industry leaders. Members were solicited during several outreach events held by SAWPA in the early stages of the planning process. A fish bowl type public involvement approach (participants placed their business card in a "fish bowl" for each Pillar group of interest to them) was used to gather interest and collect contact information from potential participants. SAWPA also sent numerous email outreach blasts that invited and encouraged involvement and participation. Some members volunteered and others were assigned by their respective agencies.

### Strategies Deployed to Involve and Motivate Stakeholders

Strategies used to involve and motivate the WUE members were establishing meeting dates early, creating an advisory committee within the larger pillar group, structuring meetings to constructively

gather input, committing attendance for half-day brainstorming sessions, providing refreshments and lunch at workshops, making chapter drafts available electronically for review and comment, and continually reaching out to potential new participants.

## Event Coordination

A chapter outline was developed by compiling input from a total of three large-scale meetings, PowerPoint presentations, and other resources, and organizing them into the categories developed by SAWPA. An interactive workshop was developed as a way to review the outline and gather more information. Participants were assigned to a group that worked on a particular section of this chapter. Within these groups, participants discussed and refined the key message of the section. Each group answered the question: “What should be the key message of this section of the WUE Chapter?” Participants were asked to develop key messages that relate to the mission statement of WUE discussed in the last meeting, and to determine if keywords, such as “future vision” and “proactive” needed to be part of the mission statement.

Another assignment for each group was to review a section of the WUE chapter. Participants read through their chapter section outline and discussed what information was missing or needed to be further developed. Each group thought about:

- What information is missing that is needed to support the section’s key message?
- Can this section be organized or structured differently?
- Are there examples that can be placed in this section?
- Is there a program or resource that needs to be described in more detail in this section?
- What resources can be researched and cited?
- What supporting graphics/photos can communicate ideas in this chapter section?
- Are there statistics that need to be included in this chapter section? If so, where can this information be extrapolated?



Each group then presented their ideas of their key message and chapter section to the rest of the team. Afterwards, each participant was able to comment and add information to other sections of the chapter. Additionally, two matrices were provided to the stakeholders: Table of WUE Measures, and Table of BMPs. These matrices will serve as comprehensive databases to summarize efforts in the SAWPA OWOW region. Participants were asked to fill out these matrices marking the existing and future efforts of their organization in terms of WUE and the CUWCC’s BMPs. With over 100 agencies listed in the matrix,

these working databases identify and track areas of overlap, areas of collaboration, areas in need of development or improvement, and levels of prioritization.

## Data Collection Methodology

Some of the SAWPA member agencies serve disadvantaged communities that have not yet had the opportunity to access grant funding to implement WUE programs. Other agencies have been promoting WUE for years, or have not begun at all. Thus, within the Santa Ana River Watershed, there are varying levels of familiarity with, and implementation of, WUE programs. It is this “uneven playing field” that the WUE Pillar has attempted to address by devising mechanisms to allow the Santa Ana River Watershed as a whole to achieve water demand reduction. Key questions regarding implementation of WUE programs in the Santa Ana River Watershed include:

- Should an approach to WUE be broad and non-specific so that agencies within the region have local flexibility, or should there be a list of specific measures and projects that have high potential for multiple regional benefits that are to be implemented by all agencies?
- If a conservation measure or project is locally cost-effective, should it be implemented regardless of the availability of grant funding?

Because each agency has its own set of ongoing circumstances, customers, and funding, agencies have differing preferences about the answers to these questions.

As a way to envision the greater picture of how to design a plan of action, the WUE Pillar members have expressed a desire to hold quarterly meetings to exchange information and ideas, partner by supporting each other’s efforts, and coordinate with SAWPA staff. By coming together regularly, members can prioritize next steps, coordinate grant funding opportunities, and continually evaluate each WUE strategy to confirm its cost-effectiveness and benefits to the region.

Under the OWOW Plan, comprehensive databases were compiled to summarize two large efforts in the SAWPA OWOW region: 1) List of WUE measures: existing and potential new opportunities for WUE efforts, and 2) Table of BMPs: implementation coverage of the CUWCC BMP. With over 100 agencies listed, these working databases identify and track:

- Areas of overlap
- Areas of collaboration
- Areas in need of development or improvement
- Levels of prioritization

The WUE “opportunities” matrix was developed under this Plan that identifies existing and potential new programs as a result of a Pillar brainstorming effort. The programs are categorized as Regional Programs and Incentives, Landscape, CII, Financial and Policy Initiatives, and Partnerships and Outreach. Each SAWPA member agency has indicated which programs are of most interest to their service area.

This Plan demonstrated that water efficiency measures could have significant beneficial impacts on future water supplies in the region and how they are managed. As the major regional wholesalers, MWDSC and Valley District have compiled water demand and supply data. MWDSC also has provided water conservation savings data. The data is based on the 2005 UWMPs and the OWOW 1.0 plan, as well as MWDSC's internal planning processes with data gathered from its member agencies. These datasets were discussed and analyzed in the WUE Pillar to determine the potential level of savings that will be targeted in the IRWMP.

One challenge is obtaining conservation savings data from those retail water suppliers within the Santa Ana River Watershed that are not MWDSC member agencies or sub-agencies, or that have not signed the urban CUWCC MOU. Most of them will likely have supply and demand data, but they may not necessarily have conservation savings data. Agencies that have this full set of information should be contacted to make sure the data is integrated into the data set.

## The Future of Water Use Efficiency

Agencies and their partnerships with each other and private industry will continue to collaborate and develop new programs promoting water use efficiency. The ultimate goal will be to get water customers to automatically base decisions on what is the most water efficient way to plan, implement, and maintain devices and landscapes. This will require customer education and continued incentives to promote water use efficiency. The sector that demonstrates the greatest potential for water savings is the landscape. Therefore, the WUE Pillar will move forward with collaborative projects that primarily emphasize outdoor efficient use of water.

## Customer Handbook for Using Water Efficiently Outdoors

When it comes to using water outdoors, particularly when using water to irrigate, most water customers do not know how to be efficient. The WUE pillar plans to create and promote an engaging customer handbook to promote the use of, and assist customers with, using landscape water efficiently. The handbook will be specific to the SARW, authored by University of California Cooperative Extension researchers and others, and will be available to anyone in the watershed. The handbook will inform the public about the importance of knowing some basic soil science, as well as landscape and irrigation design, implementation, and maintenance to prevent inefficient water use. Up to 30% of a landscape's water use can be eliminated by simply repairing and adjusting irrigation, and using an appropriate plant palette. However, most people do not know how to fix irrigation problems, properly schedule their irrigation, or select appropriate plants. This guide will entice people to educate themselves on specific methods and materials that will assist them in becoming water-efficient in their landscape.

## Inland Empire Garden Friendly

Most of the Santa Ana River Watershed lies within what is locally known as the Inland Empire. This area consists of the greater basin that lies within western San Bernardino and Riverside counties. Public agencies, California State University, San Bernardino, and Rancho Santa Ana Botanic Garden formed the Inland Empire Garden Friendly Program to expose the public to a recognizable branding that identifies with using water efficiently in the landscape. Agencies have partnered with The Home Depot and local nurseries to successfully promote climate-appropriate plants. The program has a website that contains information on local workshops, plant sales, botanical gardens, a plant list, and other related resources (<http://www.iegardenfriendly.com/>). Increased promotion, events, and a greatly expanded plant database are planned for the future.



### Agricultural Water Use

Within the watershed, there are over 157 million acres in production consisting of nursery stock, fruit and nut crops, field crops, and vegetable crops with a value of over \$388 million dollars. Almost all of these crops would not be possible without irrigation.

Resource conservation districts and water districts are expanding their role in conducting irrigation audits. MWDSC recently opened its water saving performance program to include agricultural customers. This program provides financial incentives, up to 50% of eligible project costs, for customized water efficiency improvements. The WUE Pillar will be working on irrigation management strategies, and making new technologies available to farmers.

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