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BACKGROUND

This report presents the results of a survey conducted in May 1992 of the water demand management measures being taken in the summer of 1992 by the member agencies of California Urban Water Agencies - the State’s largest urban water providers.

All of these agencies recognize that the importance of demand management remains in this year of some relief from a record-setting drought. Water supply circumstances vary among these agencies, so the nature and severity of their demand management programs also differ. All of them will continue aggressive water conservation programs; several will retain mandatory provisions. All are confident that their water savings goals will be met in 1992, based on the conscientious performance of their customers in the last several years of drought.

This survey of measures effective on May 1, 1992 (unless otherwise noted) provides an update of a 1991 survey of Drought Management Measures by CUWA. This report does not describe all of the agencies’ water conservation programs. It emphasizes the changes made since last year, and includes more discussion of why particular demand management programs were selected this year.

This survey was undertaken to provide CUWA member agencies with up-to-date information on what the other member agencies are doing; and to report these activities to water managers and planners for sharing ideas and strategies for responding to continuing difficult supply conditions.

DEFINITIONS OF TERMS USED IN SURVEY

A. Mandatory metered rationing
   Specified water allotments enforced by metering

B. Mandatory conservation
   Restrictions on water use for purposes such as landscape irrigation, washing cars, etc.

C. Extreme voluntary conservation
   Extraordinary requested measures with guidelines or rules set, but without penalty or other enforcement

D. Steeply inclined (increasing) commodity rates or surcharges
   Sharply increased rates or surcharges based on using increasing amounts of water above allotments

E. Direct economic incentives
   Payment directly to customers for installing retrofit devices or other water-saving measures that would not have been implemented otherwise

F. Water-saving device distribution
   Distribution of retrofit devices beyond existing pre-1992 program

G. Media public information
   Media information programs beyond those already in use prior to 1992 programs

H. Mailed public information
   Special mailings or bill stuffers that address increased need to save water in 1992.

I. Water-waste patrols and citations
   Enforcement by patrols and citations for violations of restrictions

J. Enforcement by fines or meter disks
   Fines or devices on meters to restrict water delivery to violators or rules or allotments
## 1992 Water Use Goals and Demand Management Measures

<table>
<thead>
<tr>
<th>Agency</th>
<th>Water Use Reduction Goals for 1992 Compared to Base Year, %</th>
<th>Demand Management Measures</th>
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<td>2. Contra Costa WD</td>
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<td>3. East Bay MUD</td>
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<tr>
<td>11. Santa Clara Valley WD</td>
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* Single Family/Multi-Family  
** Voluntary
ALAMEDA COUNTY WATER DISTRICT
ACWD serves a population of 267,000. Its normal water supply is 54 percent from State Water Project (SWP), 30 percent from San Francisco Water Department (SFWD) and 16 percent from local sources. In 1992, SWP will supply the District with 45 percent of its entitlement, and SFWD is expected to provide 75 percent of the annual contracted supply. To match supply in 1992, customer demands will have to achieve a 15 percent reduction below 1987 as opposed to 25 percent in 1991.

After careful consideration of the options available to the District, ACWD chose to continue its conservation program for 1992 with modifications based on an improved supply outlook. The Board enacted changes to its Drought Emergency Ordinance to be effective May 1, 1992. Restrictions on usage continue, with flow restrictors, and possible shutoff for flagrant water waste violations. Guidelines for use have been expanded to give customers a better understanding of conservation methods with special emphasis given to landscape uses. ACWD continues to use an inclining block rate structure for water used in excess of baseline allocations, which are set at 90 percent of 1990 use for multi-family and non-residential customer classes. Landscape-only accounts will receive 90 percent of 1990 usage, or may participate in a program that sets their allowance on the evaportranspiration rate of plant material in the District's microclimate. The Base Allocation for single family homes has been raised to 400 gallons per day for a household of four consumers. Single family customers may apply for a change in allocation amounting to fifty gallons per day for each additional person in the household. The rates above the Baseline use have been decreased, in consideration of more available supplies. Special exceptions for medical or other special needs are also accepted. Customers can bank their water allocation so that water use below the baseline allocation can be carried over, and applied in a subsequent billing period before additional charges apply. The District will maintain a strong public information program. Educational programs will be expanded where necessary, with greater emphasis on local conditions. The ACWD Landscape Advisory Committee plans to hold workshops to help the professional and home gardener to develop water saving techniques. The District has been a co-sponsor of Department of Water Resources Landscape Auditor classes to encourage large landscape managers to improve irrigation techniques. Two groups from the industrial sector will work with the District to establish water conservation programs that will meet the needs of this customer category.

An important part of the District's ongoing conservation plan is the Best Management Practices (BMP) established in the California Urban Water Conservation Council Memorandum of Understanding (MOU) signed by ACWD last fall. The District has incorporated all BMP's in its conservation program, and plans to continue development of the conservation ethic beyond this water crisis period.
CONTRA COSTA WATER DISTRICT
CCWD serves a population of 200,000 with treated water through 56,000 retail service connections, and another 200,000 people through 700 connections for delivering untreated (raw) water for wholesale service. CCWD’s normal water supply is from the Federal Central Valley Project (CVP). CCWD has received 75% of it’s normal allocation from the CVP for 1992. In addition we negotiated for and will receive 10,000 acre-feet of water from the state water bank. This year voluntary conservation is being used to reach our reduction goal of 15%. The CCWD Board approved this 15% voluntary plan in December. Mandatory measures will be applied only if necessary. The District still has in place prohibitions for a number of uses, including using water for decorative fountains or filling decorative lakes or ponds, washing paved areas, all but essential flushing of sewers or hydrants, gutter flooding and new irrigation, including landscaping irrigation. CCWD has a conservation program that offers single family residential audits, multi-family retrofit devices and large turf audits. CCWD’s customers continued to conserve an overall 27% even after mandatory rationing was lifted last summer.

EAST BAY MUNICIPAL UTILITY DISTRICT
EBMUD serves a population of 1.2 million, and gets its normal water supply from its own Mokelumne River reservoirs. The District’s 1992 Drought Management Program, adopted by the Board of Directors on April 14, targets a 15% reduction goal (1986 use is the base) and is a continuation of the 1991 program with some minor changes. Projected water shortage levels for September 1992 supported continuation of the 1991 effort. EBMUD has set residential single-family allocations at 250 gallons per day (gpd) per customer as the reasonable use for human needs. This allocation is based on the probability that use in excess of this amount is for exterior and discretionary uses, and reduction efforts focus on these uses. There is an inclining block rate structure for water consumed by single-family residential customers in excess of this amount. A separate inclining block rate structure applies to multi-family, irrigation, commercial and industrial customers.

For 1992, the District adopted an individual cap for single-family customers using more than 1200 gpd. The cap is 80% of average daily consumption for the comparable period in 1986 and greater than 1200 gpd. Usage exceeding the individual caps are enforced through a five-tiered enforcement procedure that includes warnings and flow restrictors. The details of the water supply situation, conservation goals by customer group, related rates and restrictions are communicated to District customers through a bill insert.

EBMUD also has a pilot program for irrigation system upgrades. Under this program, the District will pay one-third of the hardware costs of a District recommended upgrade. The District also offers a discount on the System Capacity charge paid for water meters as an incentive for installing drought-tolerant landscaping for public agencies.

CITY OF LOS ANGELES DEPARTMENT OF WATER AND POWER
LADWP serves a population of almost 3.5 million. Historically 70 percent of the
LADWP’s water supply has come from the Owens Valley and Mono Basin through the Los Angeles Aqueduct (LAA), 16 percent from local groundwater supplies, and the remaining 14 percent from MWD/SC. In 1991 the LAA supply was reduced to 26 percent of the normal total demand. The difference was made up with additional purchases from MWD/SC and a more intensive conservation program.

During 1991, LADWP customers were required to reduce their use by 15 percent below that of 1986. The customers responded with a conservation level of about 30 percent during the summer and 24 percent for the entire year.

Although the supply available in 1992 from the LAA remains at about the same low level as in 1991, sufficient supplies are available through MWD/SC to provide near normal deliveries to all customers. However as a result of all the hardware changes that have been made and the over one year of rationing that has changed habits, it is anticipated that a conservation level of at least 15 percent will be achieved.

During 1991, LADWP had a very aggressive demand management program, including extensive advertising and customer assistance. Programs including home water surveys, distribution of water conservation kits (over 1.5 million water saving showerheads have been distributed in the last 3 years), and $100 rebates for installation of ultra-low-flush toilets were offered to all customers. All lifeline and low income customers were given water conservation kits and installation was provided upon request. Commercial and industrial customers were assisted through audits for common commercial and industrial uses, an audit program for large turf customers, and coordination with an active Commercial and Industrial Conservation Committee. LADWP also prepared a proposed policy for water offsets at the request of Mayor Bradley. If implemented, this policy will provide funding for conservation and water recycling activities by requiring developers to provide an offset for their new water usage through making offset conservation improvements or paying into a fund which will be used to provide grants for conservation and water recycling.

While there is sufficient supply to meet LADWP’s needs for 1992, the LADWP Board of Commissioners recognizes that imported supplies will be less reliable and will be subject to substantial increases in cost in the future. They have responded to this situation by adopting a goal of meeting the city’s growth needs for the next one to two decades through demand management and water recycling. This has led to the adoption of long-term demand-side management programs and not just drought relief programs.

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
The Metropolitan Water District of Southern California is a wholesale water agency supplying water to 15 million consumers through 27 member public agencies. MWD/SC’s two sources of supply are the Colorado River and the State Water Project (SWP). The percentage of supplies from these sources varies from year to year. In 1990, when MWD/SC delivered more than 2.6 million acre-feet of water, 56 percent of the supplies came from the SWP and 44 percent from the Colorado River. In 1991
MWD/SC delivered 1.8 million acre-feet of water (32 percent less than the year before), the SWP accounted for 35 percent and the Colorado River for 65 percent of total deliveries. An acre-foot of water is 326,000 gallons, about the amount used by two average families in and around the home in one year.

As the largest wholesale water supplier for Southern California, MWD/SC provides all or part of the supplies for several CUWA member agencies. In response to the drought, MWD/SC developed a six-stage Incremental Interruption and Conservation Plan (IICP) that allows MWD/SC to adopt appropriate measures for allocating water under changing conditions of availability. In 1991, MWD/SC operated most of the year under Stage V of the IICP which called for a 31 percent overall reduction in deliveries to member agencies. Because of improved water supply conditions on the SWP watershed in 1992, MWD/SC has moved to Stage I of the IICP, a 10 percent reduction in deliveries.

The cost of the drought to MWD/SC in 1991 was considerable. Loss of revenue due to lack of sales, purchases from the State Water Bank, conservation incentive payments, and other related expenses and losses totaled about $191 million.

MWD/SC’s 1992 water management programs are a continuation of the previous year’s public information campaigns urging water conservation and wise water use. One notable activity, started in the latter half of 1991 and reaching maturity in 1992, is MWD/SC’s Commercial and Industrial Conservation Program. Business conferences, publications, technical workshops, training courses, water-use surveys, water management studies and a telephone hotline are components of this program that satisfy the commercial and industrial sectors’ conservation requirements that are part of the Best Management Practices (BMPs) statewide agreement monitored by the California Urban Water Conservation Council.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
Projected water supplies for 1992 appear to be sufficient to meet demands that have been reduced through five years of drought awareness programs. Accordingly, MWDOC’s board in April moved to Stage I of its conservation program, calling for a voluntary 10% reduction in water use from base year (1989-90) water use. Should supplies from the Metropolitan Water District of Southern California be reduced, the District retains the option of moving to higher stages, requiring mandatory reductions from its retailers, who would face economic penalties if they do not comply.

MWDOC continues to believe that conservation — meaning wise water use — is a component of water supply reliability. A signatory to the Memorandum of Understanding Regarding Water Conservation in California, MWDOC will work with its retailers to implement Best Management Practices (BMPs) throughout its service area, and will encourage those retailers to become involved in the BMP process as well.

To that end, the District in 1992 will continue its efforts to: 1) educate the public in the wise use of this precious natural resource; 2) develop and implement programs to provide assistance
to retailers and end-use customers for such things as water-fixture retrofits, landscape water management, and commercial and industrial water audits; and 3) promote increased development and use of reclaimed water. The District also will increase its participation in MWD/SC's innovative Conservation Credits Program, working with retail agencies in the MWDOC service area to develop demand-reduction programs that will qualify for partial funding by MWD/SC.

Emphasis also will be placed on continuing work to increase the water supply reliability within MWDOC and MWD/SC. On a local level, this includes work with Orange County's groundwater management agencies, the Orange County Water District and the San Juan Basin Authority.

ORANGE COUNTY WATER DISTRICT
OCWD is a groundwater management agency, managing 70 percent of the water needs of 2 million people that overlie the groundwater basin in the central and northern portion of Orange County. Effective April 1992, OCWD set the basin production percentage at 75% for most cities and retail agencies, down from 80% in 1991. This was done to begin recovering the groundwater basin from five years of overdraft from the drought. Additionally, because of wet conditions in February and March 1992, OCWD took full advantage of increasing flows of the Santa Ana River and successfully negotiated a three-party agreement for conservation of storm flows at Prado Dam upstream on the Santa Ana River. These actions resulted in an additional 60,000 acre-feet of local water recharged into the groundwater basin. OCWD also sells reclaimed water to cities and businesses. The District has a low-interest program to develop conjunctive use projects. OCWD has had an "In-Lieu" program to pay groundwater producers the difference in cost between imported and groundwater, to encourage them to buy extra imported water from MWD and save the groundwater supply. However, on May 1, 1992 this program was suspended.

As part of its District Act, Orange County Water District is required to set a Basin Production Percentage (BPP) in April of each year. This year the BPP was set at 75% for most agencies within OCWD, with the exception of five cities in the "forebay" section of the groundwater basin where water levels have had the least impact form the five-year drought. In these five cities the BPP was set at 85 to 90%. This means most agencies will now take 75% of their water from the groundwater basin, with the remaining 25% to be made up from imported water resources. OCWD is encouraging agencies to continue to emphasize the importance of water conservation and will continue to stress voluntary water conversation measures. In addition, the District is continuing to offer low interest loans for conjunctive use well construction and is working with retail agencies to develop wellhead treatment projects on wells that have water quality problems. This work is continuing with the goal to decrease reliance on imported water resources.

SAN DIEGO COUNTY WATER AUTHORITY
SDCWA receives most of its water from MWD/SC, with a small amount of its normal supply form local surface sources (less than 10%). SDCWA is a wholesale
provider which serves a population of 2.5 million people in most of San Diego County through a network of 23 member agencies.

To meet 1992 and future needs, SDCWA is also investigating additional opportunities for using reclaimed water. SDCWA has funded a number of demand management programs which include: (1) three irrigation audit programs for large turf sites and agriculture; (2) Cal Poly classes in large turf water management and Spanish irrigation training; (3) public facility and commercial/industrial assistance programs; (4) Ultra Low Flush Toilet (ULFT) rebate program; (5) residential xeriscape workshops; (6) bilingual, multi-media public information program; (7) 4th grade education program.

Following the examples of the energy utilities, the water supply community has now realized that simple conservation is insufficient to meet the long-term goals of water resource management. Programs which address the necessity of reducing long-term demand for limited water resources have been approved by the SDCWA Board of Directors and are currently being implemented. These programs address the broad range of needs of the different customer classes of our member agencies.

Residential water use in the SDCWA service area represents about 60% of total water use. A significant portion of that is used for toilet flushing. Our principal program for the residential sector is the ULFT Rebate program. Low-flow showerheads are also distributed with this program. This program is funded jointly by MWD/SC, SDCWA and member agencies. It is an expensive but highly effective program to achieve permanent water savings.

Commercial and industrial accounts represent about 20% of total water used in our service area. The top three categories and their respective water usage are: 1) Navy bases - 8 million gallons per day (mgd), 2) general industry - 6.9 mgd, and 3) government and schools - 4.1 mgd. Economic pressure has driven private industry to make conservation changes already. The other two categories usually do not have the "up-front" money to make needed changes. Towards this end, our programs have emphasized direct financial assistance to the public facilities and military communities during fiscal year 1992. Direct assistance is being used to install ULFT's in public buildings and to update industrial equipment and processes in military facilities.

Irrigation water used by the residential and commercial/industrial sectors is estimated to be about 13 mgd. Water used by agriculture is a separate category which accounts for about 20% of all water used in our service area. The SDCWA jointly supports a number of irrigation efficiency programs.

The Large Turf Water Management (LTWM) Program, supported by MWD/SC and SDCWA, performs audits on turf sites 2 acres and larger. The Mobile Lab Program, funded by DWR and SDCWA, performs audits on turf and agricultural sites. The Agricultural Audit program, funded by SDCWA, Valley Center MWD, Rainbow MWD and Fallbrook PUD, services groves and nurseries in North County. We also support a toll-free CIMIS information...
phone line for use by ag and turf irrigators. Additionally, Cal Poly teaches LTWM classes and Spanish language irrigation training classes at local parks and community colleges. In June, the Zoological Society of San Diego will begin teaching residential Xeriscape workshops sponsored by the SDCWA.

Many of these programs are funded in part by member agencies. The SDCWA is looking forward to expanded participation by member agencies in the future to ensure continued operation of the various programs and to fulfill obligations to implement Best Management Practices for water conservation. With joint participation, high-quality, effective programs can be supported and used by all member agencies.

SANTA CLARA VALLEY WATER DISTRICT
SCVWD is a wholesale water provider that serves a population of 1.5 million people through 12 major retail water suppliers. In addition to local sources, the SCVWD receives imported water from a combination of the State Water Project (SWP), the federal Central Valley Project (CVP), and Hetch Hetchy (SFWD). In 1991, SCVWD implemented a 25% mandatory water conservation program which yielded a reduction in base year demand of 28.4%. For calendar year 1992, SCVWD has adopted a demand reduction program which calls for 15% mandatory water conservation. This program includes a series of eleven water use prohibitions.

Additional demand reduction efforts will include continued public information activities to ensure public awareness. A number of special events and promotions are scheduled including continuation of the successful Drought Resource Center exhibit at the Santa Clara County Fair. SCVWD will also be encouraging continued conservation through implementation of programs required under the terms of the Memorandum of Understanding (MOU) regarding Urban Water Conservation Best Management Practices (BMPs). BMPs which the District plans to implement during 1992 include a showerhead retrofit kit distribution program and a ultra low flow toilet incentive program.

CITY OF SAN DIEGO WATER UTILITIES DEPARTMENT
San Diego Water Utilities Department (SDWUD) supplies water retail to 1.1 million city residents, and wholesale water to around 90,000 customers. Each day the SDWUD delivers an average of 200 million gallons of treated water to city residents. With an average rainfall of less than 10 inches a year, SDWUD purchases an average of 80 percent of its water from the SDCWA. Voluntary conservation continues to be the method used by the SDWUD to achieve its target of a 20 percent conservation goal. In 1991 the SDWUD implemented a citywide showerhead retrofit program which furnished 100,000 single family households with water-saving plumbing retrofit kits. This program will retrofit an additional 50,000 pre-1981 single family residences in 1992. More than 16,000 ultra-low flush toilets (ULFT’s) were installed in 1991 and 1992 through an ultra-low flush toilet rebate program. This program encourages the installation of ULFT’s by offering a financial incentive of up to $100 for each replaced fixture. A year round Public Information and Education Program encourages city residents to conserve...
water. A variety of written materials are made available for customers through information display; City branch libraries; community events; tours of water treatment facilities; and through the 24-hour Water Conservation Hotline. The SDWUD is embarking upon an ambitious program to replace existing toilets in city owned facilities with ULFT's. More than 800 ULFT's will be installed in 1992. In November 1992, the City Council adopted a Water Conservation Plumbing Retrofit Ordinance which requires that any building sold, or any building undergoing a bathroom alteration (remodel) after January 1, 1992, be retrofitted with water conserving plumbing fixtures. A multi-family showerhead replacement program and a single family interior and exterior program will be implemented during the summer of 1992.

SAN FRANCISCO PUBLIC UTILITIES COMMISSION, WATER DEPARTMENT
The San Francisco Water Department (SFWD) supplies retail water to 724,000 residents, and wholesale water to a population of 1.9 million. SFWD’s normal water supply is made up of 85% from the Hetch Hetchy reservoirs and 15% from local sources. While SFWD will be purchasing no supplemental water from the state water bank during 1992, it does anticipate using such water purchased last year and currently held in storage outside of its system.

The City of San Francisco’s Public Utilities Commission has approved the continuation of the existing mandatory rationing program to meet the demands of the sixth year of a drought. This program is applied system-wide to both in-City retail customers and suburban wholesale customers within SFWD’s service area, and is intended to achieve a 25% system-wide reduction.

This program includes mandatory use restrictions, utilization of excess use charges, mandatory conservation inspections for large water consumers and an allocation appeal process within the city limits. Each wholesale customer of SFWD establishes and enforces its own rationing program to achieve the reduction goals assigned by SFWD.

A public information program includes multi-lingual radio ads, TV public service spots, transit advertisements, and handouts in public transit vehicles. Public information packets are provided to new customers with information on the rationing program, how to read meters, and conservation tips for inside and outside water use. SFWD has also implemented a conservation retrofit program for city-owned facilities.