CALIFORNIA URBAN WATER AGENCIES

Public Investment White Paper – Phase 2

Executive Summary

As the voice for the largest urban water purveyors in California, CUWA has developed a Public Investment White Paper to provide a technical basis to inform any new approaches for public financing of water-related projects or programs and to promote a "beneficiary pays" system.

CUWA has developed the white paper in two phases. The Phase 1 White Paper aims to inform the discussion on public financing options for water and to develop a conceptual framework that explores the distinctions between the various options.

The Phase 2 White Paper continues the discussion by reiterating and further clarifying key points and providing greater detail on how a beneficiary pays system could be implemented.

CUWA's position, which has been discussed in detail in the phase 1 and 2 white papers, is summarized below as a concise set of policy principles.

The beneficiary pays principle offers the best basis for establishing reliable funding for essential water-related investments. Many precedents exist that demonstrate the success of financing water infrastructure by direct beneficiaries, and ample potential exists to apply this method to more complex multi-beneficiary projects. CUWA defines the beneficiary pays principle as requiring those receiving a benefit from a given project or program to pay a proportional share of the cost.

A functional beneficiary pays system should:

- Identify all beneficiaries (including the public) and limit "free riders"
- Establish a clear nexus between charges and benefits received
- Provide specificity, such that charges are based on defined projects with defined costs
- Provide for a joint powers forum in which beneficiaries collaborate on the integrated design of given water projects.
- Be transparent in cost allocation and investment decisions
- Dedicate funds strictly to water-related projects and programs, with no redirection of funds to other purposes
- Reasonably assure that benefits will be proportional to charges assessed
- Allow for special situations, e.g., disadvantaged communities, in which a beneficiary might not pay in proportion to benefits received

A beneficiary pays system should be comprehensively defined to include other proposed concepts such as "stressor pays" and "polluter pays." Entities that are purported stressors or polluters derive a benefit from continuing their activity, and any current or proposed payments should be directed to fund related projects or programs.

A beneficiary pays system should generally be applied prospectively to assess future benefits, and not seek to allocate responsibility for legacy issues and "who's to blame" for past stresses and damage. Establishing a baseline to account for such stresses, or to credit voluntary restoration investments, is inherently arbitrary and subject to political influence.

Funding the public benefits of a given project or program is best accomplished with public money, whether from bonds, the state's General Fund, or federal appropriations. CUWA believes that general obligation bonds will continue to play an important long-term role in financing public benefits. Other proposals, such as a public goods charge on water use, unfairly single out water users to finance benefits that accrue to the broader public.

Public benefits should be carefully and appropriately defined so as to avoid incurring costs that should be apportioned to other beneficiaries. By including all beneficiaries, a fair beneficiary pays system would generate more funds to finance critical projects and reduce the burden on increasingly limited public funding.

For ecosystem and habitat projects, mitigation should be strictly distinguished from enhancement. Project proponents should be obligated to fund all mitigation as defined under CEQA. The beneficiaries of enhancement activities may not be the same as the beneficiaries of mitigation activities and may include the general public.

An entity (or entities) could be authorized to implement a beneficiary pays system to finance water-related projects and programs. For a given project, the entity would be responsible for identifying beneficiaries, analyzing benefits, preparing a finance plan, allocating costs to each beneficiary or class of beneficiaries, and creating an enforceable mechanism to ensure cost recovery. This entity should prepare the cost allocation plan in a public transparent process, and, where appropriate, hold public hearings in which identified beneficiaries might present evidence on the record regarding the proposed cost allocations.

Section 1 | Introduction and Background

Overview

As noted in the Phase 1 white paper, CUWA supports a **beneficiary pays system** as an equitable, workable approach to pay for projects with multiple beneficiaries. To be fair, a beneficiary pays system **include** all beneficiaries while apportioning charges to those who benefit from funded projects or programs and disallowing free riders. There must be a **clear nexus** between benefits and charges allocated to beneficiaries. And, the method to identify beneficiaries and allocate costs among them must be **transparent and fully understandable**.

This paper clarifies the applicability of a beneficiary pays system and provides more detail on how it might be implemented, and includes potential beneficiaries and possible methods to allocate and recover costs. A few examples are also provided to demonstrate how beneficiary pays principles have already been successfully applied.

Applicability of a Beneficiary Pays System

A beneficiary pays system can be applied to fund a wide range of major water-related programs and/or projects. It can provide funds to cover full life-cycle costs—from planning, design and environmental documentation, to construction and mitigation, through operation, maintenance and

repair/replacement. To date, CUWA has primarily focused on how a beneficiary pays system can be applied to pay for private/local benefits that directly benefit specific communities or entities, identified as "excludable" beneficiaries. CUWA acknowledges that funding mechanisms must also be provided to support the public benefits that often are part of major projects and benefit a broad, "non-excludable" group (i.e., they have access to the benefits regardless of whether they pay for them). Below, we provide further clarification on the distinction between project mitigation, which provides private benefits associated with project implementation, and enhancement, which provides additional public benefits. Finally, CUWA suggests that beneficiary pays should be prospectively applied.

Mitigation vs. Enhancement

A question often arises with regard to potential beneficiaries and responsibility for environmental and ecosystem components of projects. CUWA supports the concept that the defined beneficiaries of a project are responsible for the required environmental mitigation associated with the project's identified environmental impacts. The California Environmental Quality Act (CEQA) defines mitigation as:

- Avoiding the impact altogether by not taking a certain action or parts of an action
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation
- Rectifying the impact by repairing, rehabilitating or restoring the impacted environment
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
- Compensating for the impact by replacing or providing substitute resources or environments.

Additional voluntary or discretionary actions to enhance environmental conditions are distinct from mitigation activities. It may be that enhancement activities are being done in conjunction with mitigation activities due to efficiencies or enhanced value created in implementing both activities together. An analysis should be conducted to separate the enhancement activities from the project and its mitigations and should include its own beneficiary analysis separate and apart from the mitigation activities. The beneficiaries of enhancement activities may not be the same as the beneficiaries of mitigation activities and may include the general public.

Prospective vs. Retrospective Application

CUWA recommends applying the beneficiary pays principle prospectively rather than retrospectively. This means that costs would only be allocated going forward commensurate with future benefits, instead of attempting to assess benefits received (or stresses imposed) in the past. While some entities could certainly be identified as "responsible parties" or stressors that caused historic damage to the ecosystem, there is no way to assess such costs to all responsible parties (e.g., hydraulic miners of the 19th century). A related complication is that a number of entities have made past voluntary investments in ecosystem restoration, and a retrospective application would necessitate crediting such efforts.

Establishing a baseline to account for such stresses, or to credit restoration investments, is inherently arbitrary and politically driven; therefore, as a practical matter, CUWA suggests that ecosystem degradation from multiple causes be considered a legacy issue, such that any enhancement or restoration is deemed a public benefit.

A prospective application of the principle offers significant advantages by:

- Avoiding a politically fraught "blame game" of identifying historically responsible parties and assessing their respective responsibility
- Bypassing the issue of choosing a baseline from which to measure ecosystem degradation
- Encouraging maximum voluntary financial participation from beneficiaries

Distinction of Financing vs. Cost Recovery Mechanisms

Often, a project moves ahead with self-initiated financing from a group of project proponents (e.g., individual agencies or partnerships), and cost recovery mechanisms are implemented to collect funds to offset project costs over the life of the project (e.g., recreation fees). Several mechanisms exist to fund such partnerships, including:

- Memorandum of Understanding (MOU)
- Joint Powers Authority (JPA)
- Formation of a new Authority (such as a water wholesaler)
- Contract for Services (such as with a public-private partnership)

CUWA agencies have successfully applied some of these mechanisms to fund large projects over the last decade or more. Examples are described in the next section. Other mechanisms will be required to bring other beneficiaries to the table for cost allocation and recovery discussions, as described in a later section.

Section 2 | Implementation of a Beneficiary Pays System

This paper provides further detail on two critical aspects of a beneficiary pays system—identifying beneficiaries and allocating costs among the beneficiaries. It is important to note that these are two separate steps, meaning that identification as a beneficiary does not immediately imply apportionment of costs. In fact, in some cases there may be some beneficiaries that are not apportioned costs, such as certain disadvantaged communities.

Identification of Beneficiaries

CUWA's Phase 1 White Paper identified several categories of potential beneficiaries that could be included in a beneficiary pays system. The paper also briefly described approaches that have been applied by others, such as "polluter pays" or "stressor pays", which separate out some beneficiaries for other cost allocation and recovery programs. Rather than operating multiple, parallel approaches to recover costs for projects, CUWA's approach would be to create one comprehensive, coherent system that would be inclusive of all beneficiaries.

To date, funding discussions by others have focused largely on water users and have not fully acknowledged many other beneficiaries of water-related projects. In the absence of a beneficiary pays system, numerous entities could be free riders (i.e., receive a quantifiable benefit for which others pay). A beneficiary pays system would aim to encourage more of these beneficiaries to the table for discussion. An independent authority would likely be the best source to assess a given project or program to define benefit categories and specific beneficiaries. For illustrative purposes, more detailed discussion is presented below for a few of the categories of beneficiaries presented in the initial CUWA Phase I White Paper.

Water Users

There are many types of water users that could be associated with varying levels of benefit (or stress) to the system, including both urban and agricultural users as described below.

Urban (Municipal and Industrial) Water Users

- Surface water diverters who divert water out of a given watershed.
- Surface water diverters who divert water and return flows, discharges or runoff to the watershed.
- Groundwater users in a given area.

Agricultural Water Users

- Surface water diverters who divert water out of a given watershed.
- Surface water diverters who divert water and return flows, discharges or runoff to the watershed.
- Groundwater users in a given area.

Dischargers

Dischargers have been identified by others as "stressors" in a "stressor pays" cost allocation system, but CUWA recognizes dischargers as a subset under the beneficiary pays concept. Dischargers include entities that could be distinguished as follows:

- Discharge occurs into or affects a potable water supply source
- Discharge is from a point or nonpoint source
- Discharge is from urban or agricultural sources

Interests Benefitting From Flood Protection

This is a potentially large group of beneficiaries that includes entities responsible for infrastructure benefitting from flood protection associated with water projects. These entities could be divided into two general categories:

- *Beneficiaries of flood protection from an on-stream reservoir.* Surface storage reservoirs offer flood protection to downstream areas such that all interests receive a benefit. On this basis, the flood protection provided could be considered a public benefit that is widely dispersed and non-excludable. Considering such a public benefit on a regional, rather than statewide, basis is one refinement that might be useful for allocating the costs of that public benefit.
- *Beneficiaries of flood protection from levees.* In this situation, specific beneficiaries can more readily be identified and may include entities with infrastructure that could include:
    - Water diversions, pumps and conveyances
    - Aqueducts
    - Highways
    - Railways
    - Shipping channels
    - Fuel and natural gas pipelines and storage facilities
    - Electrical transmission lines
    - Urbanized areas
    - Agricultural lands and facilities
    - Commercial and sport fishing

— Recreational facilities (marinas, docks, campgrounds, etc.)

The Public

Benefits such as ecosystem enhancement and recreation, and possibly water quality protection, could be considered public benefits that benefit a broader, non-excludable group of beneficiaries, like the general public.

Disadvantaged Communities

Among the communities that might receive benefits (e.g., from flood protection), there may be some that lack the resources to contribute in the proportion expected from other beneficiaries, or that may be impacted severely from major infrastructure projects. State policy recognizes disadvantaged communities for special consideration and, in some cases, financial support. These communities should be defined and identified so that a means may be found to relieve them of economically overwhelming costs and/or help them receive benefits that are generally available to the public.

Allocation of Benefits and Costs

Once beneficiaries have been identified, the next important steps are assessing relative benefits and allocating associated costs among beneficiaries. Applying existing and new tools can help achieve these steps. Regardless of the system, proportionality is a critical concept.

Proportionality

As noted in the Phase 1 white paper, the beneficiary pays principle means that a public or private entity who receives benefits from a specific project or program should pay a share of the project's cost proportional to the degree of benefit that each receives. Costs would be shared by as many beneficiaries as are benefited by either a new project or the privilege of continuing an activity.

Existing Cost Allocation Methods

One method that has been applied successfully to allocate project costs among multiple voluntary project proponents is Separable Costs-Remaining Benefits (SCRB) originally developed by the U.S. Bureau of Reclamation. Under SCRB, separable costs cover specific costs for project features that are included as part of a multipurpose project. They are estimated as the reduction in financial costs that would result if a purpose were excluded from the project. Separable costs include *specific costs*, or costs for project components that contribute to a single purpose, as well as a portion of *joint costs* for project features that serve more than one purpose. For example, recreation facilities around a multipurpose reservoir are a specific cost allocated to recreation, while the dam that creates the reservoir is a joint cost that is allocated jointly to recreation and to other project purposes.

Methods for allocating joint costs generally fall into one of two categories—those that consider benefits and those that do not. Methods that do not consider benefits may divide joint costs among beneficiaries equally or based on their share of separable costs. Methods that are based on benefits divide joint costs among beneficiaries proportional to the benefits each receives. The SCRB method allocates costs among beneficiaries proportional to the benefits remaining after separable costs are removed.

Costs allocated to project purposes may be reimbursable or non-reimbursable, depending on legislation authorizing the project or project feature. Costs for reimbursable purposes are repaid by the project beneficiaries (primarily water and power contractors), and costs for non-reimbursable

purposes are borne by federal and state taxpayers, which CUWA would characterize as public benefits.

SCRB has been applied successfully to both the Central Valley Project (CVP) and State Water Project (SWP). For both the CVP and SWP, costs are allocated first to project purposes and then to project beneficiaries. The CVP and SWP are discussed in greater detail in the following section as premier examples of the beneficiary pays principle.

New Cost Allocation Tools

New mechanisms will be required to effectively implement a beneficiary pays system in the future, particularly to encourage a more inclusive group of beneficiaries to the table. To date, no formal, non-litigious process exists that allows project proponents, if they so choose, to identify and call upon free riders (assuming a certain burden of proof is met that demonstrates free ridership status) to contribute toward the ongoing success of the project. Such a process could be created at either an administrative or regulatory level, with an entity designated responsibility for implementing the process. Parties that meet a certain benefits test would be enjoined to participate financially in a cost allocation plan authorized by the State or other entity.

Key elements of the plan could include:

- The total cost of the program/project
- Annual expenditure plans for the program/project
- An analysis and description of the basis for allocating program and project costs among private/local beneficiaries and, if applicable, the public
- The proposed cost allocation plan, including the source(s) of funding for any public benefits
- An enforceable mechanism that ensures that cost recovery (e.g., fees, contractual payments, cost-share agreements or contributions) are received and expended as intended, and not diverted to other purposes

The cost allocation plan should clearly demonstrate the benefits that will accrue to each class of identified beneficiaries. The finance plan should also demonstrate that project costs will be proportional to the benefits received and will be advantageous with respect to other means of obtaining similar benefits. By demonstrating a compelling business case, the finance plan can increase the likelihood that beneficiaries will participate voluntarily in a project and will be less likely to act as free riders, or attempt to escape a financial obligation. Voluntary participation will also reduce the necessity of forcing free riders to participate financially through legal or regulatory actions.

The cost allocation plan should be prepared in a public, transparent process and submitted in draft for public comment before being finalized. As appropriate, the authorizing entity should provide for a public hearing process that allows beneficiaries and interested parties to present evidence on the record in response to (or to rebut) cost allocations proposed by the authorizing entity.

With a regulatory approach, existing State agencies could be authorized to analyze project benefits and beneficiaries and develop a proposed cost allocation plan. An administrative approach might use administrative law judges (ALJs) to conduct hearings and render final determinations on cost allocations. ALJs could provide an acceptable process for rendering decisions on cost allocations because they function under an established body of rules and procedures with provision for appeals, presentation of evidence, etc.

Cost Recovery

Cost recovery options for water infrastructure projects vary, depending on whether they are being applied by private/local beneficiaries (e.g., water agencies recovering their costs through traditional mechanisms, like rates or fees) or public beneficiaries (public financing mechanisms, like bonds and taxes). The beneficiary pays concept being proposed by this White Paper can be applied to all of these existing frameworks as a means of allocating costs based on benefits received. Existing cost recovery options and funding sources for both private and public benefits are described in the following sections.

Cost Recovery for Private Benefits

Private benefits of water infrastructure projects are typically paid for by water rates and fees, as described below. Some overlap exists in that sources that typically fund public benefits may be used to fund private benefits in cases where projects or programs seek to modify behavior to increase the overall well-being of the public. In addition, agencies and their ratepayers may opt to fund the public benefits portion of some projects using water rates and fees, and consider it an appropriate cost of doing business.

Water Rates. As discussed previously, water agencies have the ability to recover costs from their customers by using their rate-setting authority. Agencies have been able to exercise this ability successfully to collect funds for projects and programs that provide significant private benefits or that are driven by legislative or regulatory mandates; however, agencies must generally demonstrate that the water rates or rate increases cover only the costs of property-related services, as defined by Proposition 218.

Licenses and Fees. Licenses and fees contribute to special funds that are restricted to specified uses defined by statute. They are typically designed to recoup operational costs incurred by agencies in administering specified programs, but may also be levied to recoup the costs of infrastructure improvement or construction from direct beneficiaries, e.g., a highway toll.

Cost Recovery for Public Benefits

Generally, water infrastructure projects strongly benefit the general public by promoting the economic, social and environmental well-being of communities. As such, state and federal tax dollars are considered an appropriate funding source for these types of projects, but are increasingly limited due to the recent economic downturn—despite taxpayer approval of various initiatives. For example, since 2000, California voters have authorized close to $20 billion in general obligation bonds for resources, yet about one-third of these bonds remain unsold. By allocating costs to more project beneficiaries, the beneficiaries pay concept could significantly reduce the public's cost share and allow the State's water suppliers to better leverage the limited public funds that are still available.

General Obligation Bonds. Public goods or benefits of projects are typically funded by government entities using general obligation (GO) bonds, the principal and interest on which are paid from the entity's general fund. The State's General Fund is the predominant fund used to support State government programs, including education, health and human services, and correctional programs. The Safe, Clean and Reliable Drinking Water Supply Act (Water Bond) would be an example of a GO-bond-funded program if approved by California voters in November 2012. CUWA currently considers GO bonds to be the most appropriate funding source for statewide public benefits.

Special Taxes. Special taxes generate revenue that is restricted to specified uses defined by statute, which may include projects or programs that provide broad public benefits. For example, recent

proposals for a public goods charge essentially outline a statewide special tax to fund public benefits of water-related projects. Despite the limitations defined by statute, special taxes have historically been susceptible to being diverted to other uses by the Legislature.

Federal Appropriations, Grants and Loans. Water agencies have had some success in securing project funding through federal appropriations or "earmarks", but the process is slow and highly political. Generally, the first step is passing legislation that authorizes federal funding for a project or program; the second step is getting the funds appropriated through the annual federal budget process. Recently, however, the House of Representatives declared a moratorium on all earmarks, which they appear to define broadly to include appropriations for some projects with existing authorizations or that have been vetted and approved by a federal agency. As a result, an already slow process has nearly ground to a halt.

Federal grant programs administered by the Environmental Protection Agency, the Bureau of Reclamation, the Fish and Wildlife Service and other agencies with water interests continue to provide funding for water-related projects and programs. Federally subsidized loans for water-related infrastructure projects are provided through State Revolving Fund programs. The concept of an infrastructure bank has also been raised and discussed over the last few years; however, recent legislative proposals have not gained any traction.

Section 3 | Examples of Beneficiary Pays System

The beneficiary pays system has been applied successfully over many decades, starting with the Central Valley Project (CVP) and State Water Project (SWP) and continuing more recently with large regional projects that have been implemented by CUWA member agencies in partnership with others. Several of these examples are described below to demonstrate how the beneficiary pays principles have been applied in practice. Though certainly not perfect, the CVP and SWP cost allocation systems are both working examples of beneficiary pays principles to very complex systems. In today's environment, the application of beneficiary pays principles will continue to become more and more complex, but these examples provide a foundation or potential models that can be built upon for future applications.

State and Federal Projects

Central Valley Project

The CVP has seven authorized project purposes—water supply, power, fish and wildlife, flood control, recreation, navigation and water quality—and allocates costs among these purposes using the SCRB method. Some purposes are reimbursable, meaning that these costs are repaid by direct project beneficiaries. These beneficiaries include primarily water and power contractors and, in some cases, local and state agencies. The water supply purpose serves multiple functions, including municipal and industrial (M&I) water supply, irrigation water supply, wildlife refuge water supply, recreation, and fish and wildlife functions. Responsibilities for repaying water supply costs are allocated among these functions based on use and statutory requirements. For example, a portion of the wildlife refuge water supply is considered to be a CVP mitigation cost and, therefore, reimbursable by water supply contractors, while costs for additional amounts of water are considered to be enhancement, and therefore non-reimbursable. Reclamation law also acknowledges that water supply contributes to ensuring a reliable, affordable food supply for the nation and economic growth, thus providing a public benefit; therefore, certain CVP capital interest costs allocated to water supply are also non-reimbursable.

Purposes other than water supply and power (i.e., fish and wildlife, flood control, recreation, navigation and water quality) are non-reimbursable in accordance with federal legislation because they provide general public benefits. Costs allocated to these purposes are paid with federal taxpayer funds. Reimbursable costs for all integrated CVP facilities are required to be repaid by 2030.

State Water Project

The SWP also allocates costs among project purposes using SCRB. The reimbursable project purposes are water supply and power generation; non-reimbursable purposes include recreation and flood control. Costs for non-reimbursable purposes are paid through State general taxpayer funds (although SWP contractor funds have historically been borrowed to cover shortfalls). Reimbursable costs are allocated among SWP water supply contractors based on benefits and use of facilities. Conservation facility costs (Delta Water Charge) are allocated based on each SWP water contractor's proportional share of total SWP contract quantities (Table A). Costs related to conveyance facilities (Transportation Charge) are based on each contractor's share of capital and operating costs for the specific facilities used to transport water to the contractor's turnouts. In addition, Off-Aqueduct Power Facility Charges are allocated among contractors in proportion to energy requirements for the year; variable operation, maintenance, power and replacement (OMP&R) costs are allocated in proportion to actual annual water use. Unlike CVP contractors, SWP contractors repay all capital interest costs related to water supply and power generation, with all current reimbursable costs expected to be repaid by 2035.

Regional Projects

Diamond Valley Lake

Diamond Valley Lake is an 810,000-acre-foot off-stream reservoir built and operated by the Metropolitan Water District of Southern California. Completed in 2000, Diamond Valley Lake has been operational for more than 10 years and provides both dry-year storage and emergency storage capacity for Metropolitan's service area. The $2 billion project included constructing three earthen dams, an inlet/outlet tower, a secondary inlet, and a large pumping station that includes power generation facilities. Select recreational activities are allowed at the reservoir.

The reservoir and accompanying environmental mitigation and enhancement elements provide a clear example of beneficiary pays principles. The primary cost element and benefit of the reservoir is for dry-year and emergency water supply. The primary beneficiaries are Metropolitan's 26 member agencies, and they pay for these benefits through water rates and charges.

Recreational facilities were also constructed and financed by Metropolitan. These facilities include a marina, boat launch, shoreline access trails, and hiking and biking trails. The direct beneficiaries of the recreational facilities pay to use the facilities through recreation fees, which include gate access fees, fishing permits and boat launch fees.

Significant environmental enhancement activities were also undertaken as part of the construction of the reservoir. Some of these activities were in addition to required environmental mitigation and provided additional benefits to parties other than Metropolitan and its member agencies. One of these activities was the creation of a habitat reserve on the Santa Rosa Plateau. Partnerships were formed between Metropolitan and other identified beneficiaries to create 6,900 acres of habitat with a reserve management plan and a management committee to oversee the reserve. The beneficiary partners contributed funds and property toward the reserve's creation. Metropolitan contributed

$15.4 million, plus a $1.7 million endowment. Riverside County contributed $15 million, and the Wildlife Conservation Board contributed $5 million.

Freeport Regional Water Project

The East Bay Municipal Utility District (EBMUD) and the Sacramento County Water Agency (SCWA) developed the Freeport Regional Water Project (FRWP) to divert up to 185 million gallons per day (mgd) of water from the Sacramento River near the town of Freeport. EBMUD and SCWA formed the Freeport Regional Water Authority (FRWA) under a Joint Powers Authority (JPA) to fulfill all environmental and permitting requirements for the entire project, as well as to design and construct facilities common for both agencies. The total cost of the FRWP is estimated at $922 million, with the two agencies providing 99 percent of project funding, which included covering all mitigation costs.

The cost-sharing formula included in the JPA agreement assigns costs for joint facilities to each agency in direct proportion to their respective assigned project capacity (100 mgd for EBMUD or approximately 54 percent, and 85 mgd for SCWA or approximately 46 percent). The cost-sharing formula reflected the two agencies' commitment to funding by their own ratepayers, which is consistent with the beneficiary pays principle.

The cost-sharing formula has worked well for project implementation because it is simple and, therefore, easy to apply for all circumstances where each partner benefitted from the funded activity. In general, environmental and permitting benefitted both partners, so costs were split in accordance with the formula. Design, construction and mitigation costs were shared per the formula for joint facilities but were assigned exclusively to an agency for a project component that will be used exclusively by that agency. For others considering a similar arrangement, it would be advisable, to the greatest extent possible, to itemize and differentiate in their JPA agreement (or like document) all costs that are shared and those that are exclusive to one of the JPA members.

Los Vaqueros Reservoir Expansion

The expansion of the Los Vaqueros Reservoir from 100,000 acre-feet to 160,000 acre-feet improves Bay Area water supply reliability and water quality while protecting Delta fisheries. The Bureau of Reclamation (Reclamation) was the lead federal agency, and the Contra Costa Water District (CCWD) was the lead state agency for the Environmental Impact Statement/Environmental Impact Report (EIS/EIR). CCWD, the local owner of Los Vaqueros, completed the EIS/EIR with additional funding provided by Reclamation and the California Department of Water Resources (DWR) under the State/Federal surface storage program.

The expansion project was developed to be consistent with the beneficiaries pay principle included in the CALFED Bay-Delta Program Record of Decision, the CCWD Board Principles for reservoir expansion, and the Los Vaqueros MOU executed by the local, state and federal agencies involved in the studies. The current phase of expansion to 160,000 acre-feet was developed primarily to meet CCWD's needs for drought supply. As a result, CCWD is locally funding 100 percent of the design, construction and mitigation costs. As described in the project's EIS/EIR, there is also the potential to meet some of the drought supply needs of other local agencies.

CCWD is continuing to work with other local agencies to examine the feasibility of partnering arrangements in the expanded reservoir. The details of any financial arrangements have not yet been determined. A federal feasibility study is also ongoing to determine the potential costs and benefits of a future expansion up to 500,000 acre-feet and to determine whether future expansion

could qualify for federal funding. Studies completed to date have shown that the next phase of reservoir expansion can provide significant public benefits and, as a result, has a strong potential to qualify for both federal and state funds if the 2012 water bond passes.

SFPUC Water System Improvement Program (WSIP)

The Water System Improvement Program (WSIP) is a multi-billion dollar, multi-year program to upgrade the SFPUC's water system. Built in the early to mid-1900s, many parts of the SFPUC's water system are nearing the end of their working life and have crucial portions crossing over or near three major earthquake faults. In 2002, the SFPUC launched the $4.6 billion WSIP to repair, replace and seismically upgrade the system's deteriorating pipelines, tunnels, reservoirs, pump stations, storage tanks and dams. The program will enhance the SFPUC's ability to provide reliable, affordable, high-quality drinking water in an environmentally sustainable manner to its 27 wholesale customers and regional retail customers in Alameda, Santa Clara and San Mateo counties, and its 800,000 retail customers in the City.

The WSIP objectives include:

- Improving the system to provide high-quality water that reliably meets all current and foreseeable local, state and federal requirements
- Reducing the water system's vulnerability to earthquake damage
- Increasing system reliability to deliver water by providing the redundancy needed to accommodate outages
- Providing improvements related to water supply/drought protection
- Enhancing sustainability through improvements that optimize protection of the natural and human environment

The WSIP is funded by a revenue bond measure that San Francisco voters approved in November 2002. It includes more than 80 projects throughout the service area—from San Francisco to the Central Valley—to be completed by mid-2016. Projects within San Francisco will be paid for by retail customers within San Francisco; regional projects costs will be borne by retail customers in San Francisco plus the 27 water wholesalers within the three counties. Initially, $9.8 million of revenues and $9.9 million of bond proceeds were used to finance projects early in the WSIP. Subsequently, the SFPUC has issued multiple series of water revenue bonds to finance and refinance WSIP projects.

San Vicente Reservoir Dam Raise

The San Vicente Dam Raise is an example of a local wholesale water agency taking on the construction of a very large infrastructure project without state assistance and partnered only with its own retail member agencies. The San Vicente project is part of a $3.5 billion effort by San Diego County Water Authority to diversity its water resources and to improve regional self-sufficiency. Prior to 1991 when the diversification effort began, the Water Authority relied on imports through Metropolitan Water District (MWD) for 95 percent of its water supplies.

The San Vicente Dam raise, which is expected to be complete in spring 2012, will increase the height of the dam by 117 feet and add 152,000 acre-feet of capacity, providing 52,000 acre-feet of additional emergency storage and an additional 100,000 acre-feet of water storage for use when needed. The San Vicente Reservoir is part of the City of San Diego's water storage system and has been providing 90,000 acre-feet of storage for the City of San Diego. The additional 152,000 acre-

feet will be for the Water Authority's use. The reservoir will be filled to capacity by means of an already-completed 11-mile pipeline and a pumping plant that connect the reservoir to the main Water Authority aqueducts.

In 2009 and 2010, the Water Authority issued revenue bonds to provide funding for the San Vicente dam raise project. Bond repayment will be provided through storage and other charges incorporated in the Water Authority's rates, which are paid by its 24 member agencies.