Workshop with Water Commission on Aug. 15, 2012:
Quantification of Public Benefits
Items for Follow-up Discussion
Topics of Discussion for Regulation

SB X7-2 Chapter 8 (the Act), codified as California Water Code §79740 et seq., requires the California Water Commission (Commission) to develop and adopt, by regulation, methods for quantification and management of public benefits associated with eligible water storage projects by December 15, 2012. The following issues pertaining to methods for quantification and management have been identified by staff and others before and during the Commission's discussion of the Act, held at its August 15 and September 19 meetings. This memorandum re-frames the issues with more explicit references to the related language from the Act. It is the intent of the Commission that discussion of these questions will spur collaboration with and inform this and other efforts to address public benefits and water financing. A separate memorandum deals with issues involving the competitive funding process envisioned by the Act.

The three general issue areas covered in this memorandum are:

- The exact scope and definition, for the purpose of economic quantification, of public benefits
- Assurances for planned public benefits, and
- The role of the federal government in operating, managing and funding projects that also have eligible funding benefits under the Act.

1. Definition of Public Benefits

The Act states that

> §*79740(b) Notwithstanding Section 13340 of the Government Code, the sum of three billion dollars ($3,000,000,000) is hereby continuously appropriated from the fund, without regard to fiscal years, to the commission for public benefits associated with water storage projects….*
>
> §*79743. (a) Funds allocated pursuant to this chapter may be expended solely for the following public benefits associated with water storage projects:*

The Act then defines five categories of public benefits, but the definitions leave some room for interpretation regarding exactly what benefits should be counted within the scope of which category. Which benefits to count is an important question, because

> §*79740(c) Projects shall be selected by the commission through a competitive public process that ranks potential projects based on the expected return for public investment as measured by the magnitude of the public benefits provided,*
>
> *79746. (a) The public benefit cost share of a project funded pursuant to this chapter, other than a project described in subdivision (c) of Section 79741, may not exceed 50 percent of the total costs of any project funded under this chapter.*
>
> *(b) No project may be funded unless it provides ecosystem improvements as described in paragraph (1) of subdivision (a) of Section 79743 that are at least 50 percent of total public benefits of the project funded under this chapter.*

So, the definition of what can be counted may influence the ranking of projects, the share of all public benefits that are for ecosystem, and through cost allocation, the exact definition and scope of public benefits will influence the share of cost allocated to public and other benefits.

Water Quality

Are all quantified water quality benefits "pubic benefits," or should any be defined as non-public benefits that should be paid for by private or local interests that receive the benefit?

The Act's definition of the water quality public benefit is:

> *Water quality improvements in the Delta, or in other river systems,* ***that provide significant public trust resources****, or that clean up and restore groundwater resources.*

This definition is not entirely clear, in part, because there appears to be no commonly accepted definition of public trust resources. The Act does not provide its own definition of public trust resources. "Public trust uses" have included navigation, fishing, recreation, and preservation of nature (CSLC, 2012). Under one possible interpretation, only water quality benefits that improve navigation, fishing, recreation, and preservation of nature might be counted as public benefits under the Act.

On the other hand, if water quality itself is a public trust resource, then all water quality benefits might be counted as public benefits. Frank (2012) asks "What natural resources are subject to the public trust?" and lists inland navigable waterways, public access, water rights, water quality, fish and wildlife, and air resources as contenders. In California,

> In United States v. State Water Resources Control Board, also known colloquially as the "Racanelli decision" . . . the court relied in significant part on the California Supreme Court's National Audubon decision to conclude that the public trust doctrine allows state water regulators to modify previously-issued water rights in permits in order to protect the water quality values of the Sacramento-San Joaquin Delta region (Frank 2012).

If water quality is a public trust resource in California, then perhaps all economic benefits caused by water quality, including benefits to urban and agricultural water users, could qualify as eligible public benefits under the Act. However, if all benefits from water quality improvements can qualify, what was the legislature's purpose in adding the qualifying phrase "that provide public trust resources"? Did they believe that some water quality benefits do not provide public trust resources?

In the absence of clear direction from the Act or from other state law, the Commission arguably has flexibility to decide how it will interpret the eligibility of various benefits related to water quality improvements.

A second issue involves the clean-up and restoration of groundwater resources. Consider the Act's definition:

> *Water quality improvements in the Delta, or in other river systems, that provide significant public trust resources,* ***or that clean up and restore groundwater resources***

One interpretation could be that any project that cleans up and restores groundwater resources is providing a public benefit. However, under §79742, a project must still provide "measurable improvement to the Delta ecosystem or to the tributaries to the Delta" So, some aspect of the project must provide this improvement regardless of the groundwater quality benefits.

One consistent interpretation of the groundwater-related clause is:

> *Water quality improvements in the Delta, or in other river systems . . . that clean up and restore groundwater resources*

In other words, only groundwater quality improvements that are caused by Delta or river water quality improvements would qualify.

Another interesting implication of the wording is that "clean up and restore groundwater resources" is not subject to the public trust resources test. Therefore, it appears that some groundwater quality benefits accruing to urban and agricultural water users should be eligible regardless of how the Commission decides to interpret "public trust."

Ecosystem

Do any and all economic benefits that result from "restoration of aquatic ecosystems and native fish and wildlife" qualify as an ecosystem public benefit?

The Act's definition of ecosystem improvement public benefits is:

> *Ecosystem improvements, including changing the timing of water diversions, improvement in flow conditions, temperature, or other benefits that contribute to restoration of aquatic ecosystems and native fish and wildlife, including those ecosystems and fish and wildlife in the Delta.*

Ecosystem benefits under the Act are those provided by ecosystem improvements. . . that contribute to restoration of aquatic ecosystems and native fish and wildlife.

A common approach to evaluating ecosystem benefits is known as "ecosystem services", by which an ecosystem improvement is related to a set of benefits caused by it (i.e., the services it provides). Ecosystem services may include, among other things, benefits obtained by recreational users, public and private cost savings, or benefits obtained by water users as reduced costs of water supply.

This leads to the question: What types of ecosystem service benefits should be attributed to ecosystem improvement and are therefore eligible public benefits under the Act?

- As one example, a salmon population increases because of improvement in flow conditions and temperature, and as a result recreational catch increases. Can the benefit of increased catch be counted as ecosystem improvement because it was *caused by* an ecosystem improvement?
- In another example, improvements in flow conditions in the Delta are expected to contribute to the recovery of Delta smelt, and this recovery is expected to reduce pumping restrictions and increase water supply. Can the water supply benefit be counted as an ecosystem improvement benefit?
- In a third example, a water supply project south-of-Delta would replace some Delta supply with a local supply, thereby reducing Delta exports and improving flow conditions in the Delta. Is the flow improvement an eligible public benefit?

An alternative approach is to assign benefits based on the group to which to benefit accrues.

- In the first example above, since recreational fishermen are the beneficiaries of the value of the catch, that benefit would be to recreation and be an eligible public benefit under the Act.
- In the second example, the water supply enabled by relaxed pumping restrictions accrues to water users in the regions receiving the supply increment. Since water supply benefit is not listed as a public benefit, it would be locally funded and not be an eligible public benefit.
- In the third example, the local water users would receive no change in water supply, so the benefit would be to the Delta ecosystem and therefore be an eligible public benefit under the Act.

An additional issue involves the Act's apparent deference to native fish and wildlife. The ecosystem benefits must contribute to "restoration of aquatic ecosystems and native fish and wildlife" (§79743(1)). For ecosystem benefits, should native fish and wildlife hold a special status in the quantification and ranking? How should economic benefits caused by ecosystem improvements for non-native species such as striped bass be included in the quantification, ranking, and funding?

Recreation

What types of recreation benefits should qualify as public benefits? The Act's definition of a recreation public benefit is:

> *Recreational purposes, including, but not limited to, those recreational pursuits generally associated with the outdoors.*

The main question here involves the phrase "but not limited to." Reservoir and flow-based recreation such as fishing, boating and swimming that directly result from the proposed project would qualify, as well as related activities such as sight-seeing and camping, but what about recreation that results from the use of a water supply, like public parks, public swimming pools, or golf courses? Can the cost of providing the water supply to, say, the golf course be eligible because it supports an outdoor recreational activity? Since no limit has been defined, what about recreation benefits from water provided to private recreation facilities such as water parks, private golf courses and private swimming pools?

2. Assurances for Public Benefits

What approaches should be required to ensure that claimed public benefits will be obtained?

The Act States

> *§79745.(a) Except as provided in subdivision (c), no funds allocated pursuant to this chapter may be allocated for a project. . . until the commission approves the project based on the commission's determination that all of the following have occurred:*
>
> *(2) The department has entered into a contract with each party . . . that ensures the party will pay its share of the total costs of the project. The benefits available to a party shall be consistent with that party's share of total project costs.*
>
> *(3) The department has entered into a contract with each public agency identified in Section 79744 that administers the public benefits, after that agency makes a finding that the public benefits of the project for which that agency is responsible meet all the requirements of this chapter, to ensure that the public contribution of funds pursuant to this chapter achieves the public benefits identified for the project.*

Also

> *§79748 (c) A joint powers authority subject to this section shall own, govern, manage, and operate a surface water storage project, subject to the requirement that the ownership, governance, management, and operation of the surface water storage project shall advance the purposes set forth in this chapter.*

Management of public benefits could include a range of approaches to determine and/or assure that promised benefits are provided. Options include:

a. Require each project to be managed and operated under a plan that is expected to provide the public benefits.

b. Alternatively, require each project to provide specified amounts of public benefits, probably varying by conditions, (i.e., the applicant would commit to a set of outcomes rather than just a set of operations.)

c. In addition to either of the above:

    i. Require monitoring under a monitoring plan

    ii. Include enforcement provisions and fund enforcement costs.

iii. Require applicant or project operator to post funds in an escrow account to be used for monitoring, enforcement, and noncompliance penalties if needed;

iv. Require adaptive management based on monitoring.

v. Require a specified arbitration procedure in case of disagreement about the benefits provided.

3. Quantification of cost shares

The regulation currently contemplates that cost shares would be calculated based on public and private benefit amounts, and cost allocation procedures that have well-known and desirable properties.[1] However, the Act does not discuss the potential for a federal role in surface storage projects, including management, operations and funding for public benefits.

What should be the role of federal funding of public benefits in cost share calculations?

The Act did not mention a role for the federal government, except that

> *79748. Surface storage projects funded pursuant to this chapter and described in subdivision (a) of Section §79741 may be made a unit of the Central Valley Project*

The federal government often plays a role in planning, funding and management of large surface storage projects that have purposes other than water supply. In particular, if a project is deemed to have a federal interest, then the federal government may pay project costs associated with certain benefits. Clearly, if a project may become a unit of the federal Central Valley Project (CVP), it might be considered for a federal funding share.

Some benefits that may qualify for federal funding are the same as the public benefit types defined by the Act. Should the Commission's funding explicitly account for federal funding as a way to make the State funds go further?

The historical federal role is described in Section 6.3 of the staff report "Description and Screening of Potential Tools and Methods to Quantify Public Benefits of Water Storage Projects." For costs allocated to most benefit types, non-federal interests are expected to pay the costs of lands, easements, rights-of-way, relocations, and disposal areas (LERRD) and all O&M costs. The non-federal cost share for construction costs is summarized in the table below. In summary, the federal government might pay 65 percent of construction costs allocated to flood damage reduction, 65 to 75 percent of ecosystem improvement costs, 50% of recreation costs, and 80% of costs allocated to emergency benefits. All of these benefits might also be eligible public benefits under the Act.

Federal Civil Works Projects Cost Sharing Formulas, by Purpose

Project Purpose	Cost Share for Construction
Flood Control	
Structural	Minimum of 35% nonfederal and a maximum of 50% (to include the value of LERRD). A minimum of 5% of the nonfederal share must be cash.
Nonstructural	35% nonfederal. The value of LERRD counts against this percentage.

[1] Separable costs remaining benefits, for example, ensures that all participants' cost shares are less than their benefit, so they will want to participate, and no participant has a cost share that is less than the cost they impose of the project, so all participants are welcome in the collaboration.

Federal Civil Works Projects Cost Sharing Formulas, by Purpose

Project Purpose	Cost Share for Construction
Ecosystem Restoration and Protection	
Project modifications	25% nonfederal; additional LERRD required count toward this percentage.
Aquatic ecosystem restoration	35% nonfederal; LERRD count toward this percentage.
Recreation, Reservoir Projects	50% of separable costs nonfederal.
Emergency	Construction costs – 20% non-federal.
Municipal and Industrial Water Supply	100% nonfederal.
Agricultural Water Supply	35% nonfederal. The value of LERRD counts against that percentage.

Source: USACE, 2000; CAUSACEWRPPP, 1999

Also, some projects might include benefits to federal lands and facilities. For example, flood damage reduction might benefit a federal facility like a military base; or ecosystem improvements might benefit federal wildlife refuges. Should the State be willing to fund the associated costs?

Questions to consider are

a. How should the overall funding decision consider cost-sharing available from the federal government?
b. What would be a fair allocation of costs associated with public benefits when the potential federal and State cost share is more than 100%?
c. Should federal funding for public benefits be counted as part of the maximum 50% public benefit cost share?
d. Should federal funding for ecosystem benefits be counted as part of the minimum 50% ecosystem benefit share?
e. Are benefits that accrue to federal properties (for example flood damage reduction on a national wildlife refuge or military base) eligible for funding by state tax money?