

CALFED
BAY-DELTA
PROGRAM

Implementation Strategy

Programmatic EIS/EIR
Technical Appendix
March 1998

DRAFT IMPLEMENTATION STRATEGY

February 15, 1998

The CALFED Bay-Delta Program is developing a long-term comprehensive plan to restore the ecological health of the Bay-Delta and improve water management for beneficial uses. Once the CALFED agencies select a plan, they will need an implementation strategy that assures the plan will be implemented and operated as agreed. In addition, the CALFED agencies will need a contingency response process to address situations where an element of the solution cannot be implemented or operated as agreed.

Below is a summary of the implementation strategy for program-wide implementation including finances and financing. Additional work on this strategy will become increasingly important as the agencies and public contemplate selection of a preferred alternative and release of a final environmental impact statement and report at the end of 1998.

ASSURANCES

Assurances are the mechanisms necessary to assure that the long-term Bay-Delta solution will be implemented and operated as agreed. In addition, an assurances package will include a contingency response process to address circumstances in which an element of the long-term solution cannot be implemented or operated as agreed. This is a status report on the development of the Assurances package and will address the process used to identify the building blocks that will make up any assurances package, remaining issues and a suggested process for completing an assurances proposal for the final programmatic EIS/EIR.

Process

During Phase II of the Program a work group, appointed by the Bay Delta Advisory Council (BDAC), identified and discussed a number of issues relating to development of the Assurances package. These discussions occurred at public meetings approximately every six weeks and included BDAC members, CALFED agency representatives and members of the public.

Early in their discussions, the work group determined it was necessary to develop a case-study in order to focus their discussions. The work group selected an alternative that presented multiple assurances issues. The selection of the case study was in no way an endorsement of any program alternative or approach.

Periodically, CALFED staff or BDAC members presented updates to the full BDAC on the work group's efforts. The work group process and resulting discussions at BDAC have identified the building blocks necessary to construct a package of assurances. Neither the work group nor BDAC have identified a single assurances proposal that addresses every concern, or satisfies every interest group. A significant amount of work remains, therefore, to craft a

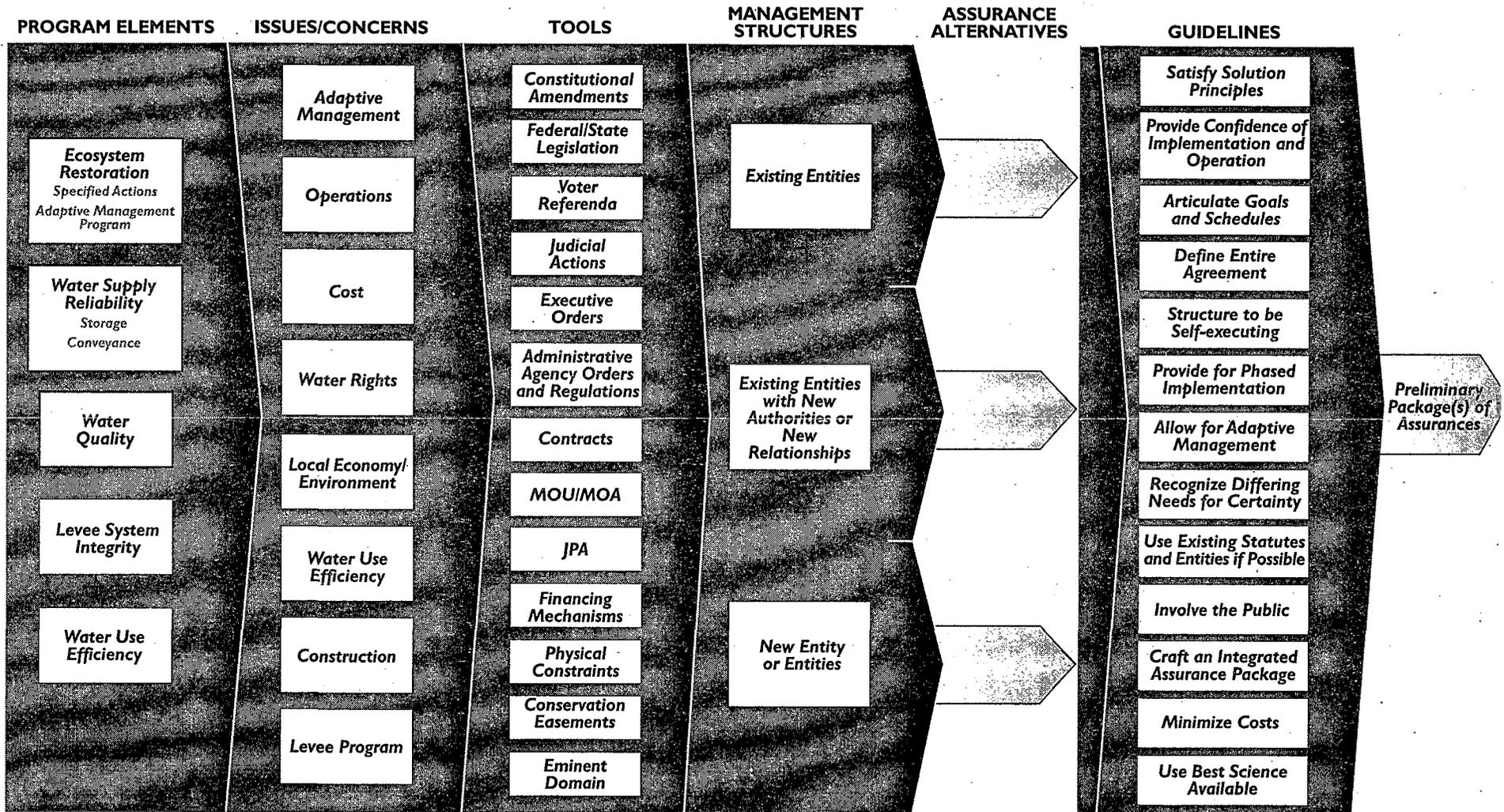
package of assurances prior to completion of Phase II of the CALFED Bay-Delta Program. Without a sound assurances proposal, implementation of any preferred alternative is uncertain.

In addition, the Program is developing implementation plans for each program component. The task for assurances will be to collect these individual implementation plans into a coordinated program-wide implementation strategy that will also include assurances and financing.

Building Blocks

Because the long-term CALFED solution will be a complex program addressing differing resource areas (ecosystem restoration, water quality, water supply reliability and levee and channel integrity), it became evident to the work group that differing program elements may require differing types of assurances. In addition, it also became clear to the work group that different program elements raised differing concerns among stakeholder communities. The CALFED staff and work group thus identified the program elements that needed to be assured as well as the issues and concerns raised by process participants. They discussed the many differing tools available for use as assurances tools including the choice of who implements the program. Finally, the staff and work group developed a list of guidelines against which to measure any assurance proposal in order to assess the merits of the proposal. Each step is briefly summarized below and shown at Figure 1. Additional detailed information on any of these steps is part of the Assurances Work Group and BDAC briefings materials available from the CALFED Bay-Delta Program.

IMPLEMENTATION: ASSESSING ASSURANCES



Program Elements

The program elements to be assured are as follows:

- Ecosystem Restoration - including both specified actions or programs, as well as a significant adaptive management program.
- Water Supply Reliability - including both storage and conveyance programs.
- Water Quality.
- Levee and Channel Integrity.
- Water Use Efficiency.

Each provides its own set of assurances challenges. For example, the concerns over appropriate adaptive management for ecosystem restoration may require differing assurance mechanisms than do assurances for constructing additional offstream storage reservoirs. Each program element, therefore, was analyzed both in terms of how to assure it individually, as well as how to assure it as part of implementing the entire long-term solution.

Issues and Concerns.

Many of the program elements present unique issues of concern to CALFED agencies and stakeholders alike. Some of the issues of concern follow:

Adaptive management - A significant portion of the Ecosystem Restoration Program element relies on adaptive management to determine specific restoration actions and measure their efficacy. Therefore, assuring effective adaptive management becomes essential to assuring successful implementation of the Ecosystem Restoration Program. The difficulty is that adaptive management by definition is flexible. The challenge is to provide adequate and appropriate assurances that an adaptive management system has all of the basic authorities and resources to operate effectively without overly restricting the directions such a program may take.

Operations - How a water conveyance or storage facility is operated can mean the difference between a facility providing benefits to many beneficial uses and one providing no benefits, or benefits to one user group at the expense of another. CALFED will identify a process that will lead to agreement on operations to

provide benefits consistent with stated Program purposes. Fear of misoperation is of paramount concern for many stakeholders.

Cost - One of the concerns over whether or not the long-term solution can be implemented and operated as agreed is assuring adequate funds are available.

Water rights - How and whether the long-term solution will affect area of origin claims, and existing and future water rights, creates concern on the part of some stakeholders.

Local economies and environments - Many stakeholders are concerned with how a long-term solution might affect local economies and environments. If, for example, local land uses change because of restoration efforts, what will the affect on the local economy be? Likewise, if a long-term solution increases water transfers, what will the affect on local environments be?

Voluntary water use efficiency - Some have expressed concerns that voluntary water use efficiency measures are virtually impossible to assure.

Construction - Because of the programmatic environmental review, most construction associated with a long-term solution will probably require additional site-specific environmental review and permitting. The uncertainty of these future processes causes concern among stakeholders that assuring future construction is difficult.

Support for levee program - Levee stabilization and improvements require a significant investment of money. Many are concerned that support for such a program may vary depending upon the level to which water users rely on water from the delta common pool.

Consistent vision throughout implementation - Many stakeholders are concerned that program components must remain linked throughout implementation.

Tools.

The staff and work group developed a list of tools and generic descriptions of them. Although some tools provide greater certainty, they may also be more difficult to establish initially, or may cost significantly more than another tool. Selection of specific tools, therefore, will be an assessment of risk and willingness to pay to minimize that risk. In general, the staff and work group identified the following tools:

Constitutional Amendments. Federal or state. Article X §2 of the California Constitution, for example, calls for the reasonable and beneficial use of all water.

Constitutional amendments are difficult to obtain and difficult to modify once obtained.

Statutes. Federal or state. Examples of statutes that govern management of a resource include the state and federal endangered species laws, state and federal water quality statutes (Porter-Cologne Act and the federal Clean Water Act), area of origin protections, state and local land use statutes and the federal Central Valley Project Improvement Act. Statutes may be modified by act of Congress for federal statutes and by the Legislature for state statutes.

State voter referenda. Voter referenda can be used for a variety of purposes, but the most common are to enact particular legislation (such as Proposition 13 which enacted constitutional and statutory limits on local financing and property taxation) or to approve particular bond measures (such as the series of California Parks and Wildlife bond measures or the bond measure funding Bay-Delta ecosystem measures (Proposition 204). Modification of voter referenda is normally more difficult than modifying statutes, and at a minimum requires action by the Legislature.

Regulations. Federal or state. Adopted by administrative agencies to guide implementation of their duties and obligations. An example is the California Environmental Quality Act (CEQA) guidelines. Regulations are proposed by federal or state agencies and subject to public review and comment prior to adoption. Regulations may be modified by administrative agencies.

Judicial actions. Federal or state court judgments, orders, validations, consent decrees, stipulated judgments. Can be modified only by future judicial decrees or statutory changes passed by Congress or the Legislature. Examples: the Racanelli decision on the 1978 Water Quality Control Plan and the California Supreme Court opinion in the National Audubon case, particularly the application of the "public trust" doctrine.

Executive orders. The President and Governor both may issue executive orders. The Governor issued an executive order to form the Water Policy Council, for example. Executive orders may be modified by action of the President or Governor.

Administrative agency orders. Examples are water right permits or permit amendments. Administrative agency orders are applications of statutes and regulations to a particular individual or group. They can be modified by subsequent order, but generally require notice and a hearing before the agency may do so.

Contracts. Legal agreements between two or more individuals or entities. Generally, no one party may unilaterally modify the terms or conditions of a contract. Enforcement may be specified in the terms of the contract and remedy for breach is available through the courts.

Memoranda of understanding/agreement. MOU/MOAs are interagency agreements with varying levels of specificity. Many are general agreements to cooperate that may be terminated at will by any party. Others are more specific and bind the agencies to a particular financial or programmatic commitment. The CALFED Agencies' MOU describing the roles and responsibilities of each agency with respect to preparation of the Bay-Delta Programmatic EIR/EIS is an example.

Joint powers agreements. State law authorizes public agencies (including federal, state and local agencies) to enter into agreements in which they "jointly exercise any power common to the contracting parties." Federal legislation would be needed to authorize a federal agency to participate in a joint powers agreement with a state agency although this may raise certain constitutional considerations.

Financing mechanisms. Various processes are available for generating capital and operating revenues. Water user fees are one example.

Bond measures. Provisions in the authorizing legislation or in the bond instruments could be used to establish Program requirements, schedules or related commitments.

Market incentives. Market forces can be used to encourage or discourage specific behaviors. For example, a water transfer market can create an incentive to use water more efficiently so that the unused portion can be sold.

Physical constraints. Constructing a conveyance facility to carry a specified amount of water is one example of a physical solution to an assurance problem.

Parallel implementation. Implementing elements of differing components in parallel processes might provide an assurance that one component is not completed before another is begun.

Public oversight/public involvement process. Public involvement, public advisory processes and dispute resolution mechanisms will be part of the assurances program.

New institutions. Created to implement, manage or fund any of the Program components.

Multiple species protection plans. A recent tool evolving out of the federal and state endangered species programs is the multiple species protection plan. These plans, which are usually called Habitat Conservation Plans (HCPs) under federal law, and Natural Community Conservation Plans (NCCP) under California law, generally preserve portion of a particular habitat for one or more species, and at the same time provide some certainty or stability for the public and private land owners by limiting future regulatory actions in the same area.

Programmatic permitting. Regulatory assurances could be provided in some circumstances but a programmatic permitting process for the CALFED Program, which would incorporate certain agreements regarding the actions to be required in the event of future regulatory constraints.

Guidelines.

The staff and work group identified a number of guidelines against which any assurance proposal should be measured. Those guidelines include the following:

- Satisfy the Program solution principles (implementable, durable, affordable, equitable, reduce conflicts, no significant redirected impacts).
- Provide high confidence that identified actions will be taken and that identified programs will operate as agreed. The Program will not guarantee outcomes. Additionally, the assurance package should not be used to compensate for perceived problems in the solution itself.
- Ensure that the solution contain clearly articulated performance criteria and proposed schedules for attaining Program goals.
- Specify that the written description of the long-term solution constitutes the entire agreement. Parties' unstated assumptions about the implementation of particular components should not be binding.
- Structure the solution to be self-executing. The CALFED solution, once implemented, should be minimally dependent upon discretionary actions by actors outside the solution framework.
- Include recovery mechanisms. The solution should contain internal mechanisms capable of responding to surprises and disappointments.
- Provide for implementation of the entire Program, even if that implementation occurs in stages or phases.

- Allow for adaptive management, wherever the current state of knowledge is inadequate to made definitive choices now.
- Allow for variations in the need for certainty on discrete program components. Some parts of the Program may need to be "set in stone," while others may require a more flexible approach. The assurances, therefore, may vary in nature, scope and extent among program components:
- Work within existing statutes, regulations and institutions where feasible.
- Involve the public in decision-making. In order to maximize the likelihood of continued public support, the solution should contain mechanisms for soliciting, influencing and responding to public opinions.
- Craft an integrated package of assurances that work well together. Although assurances may differ by program component, they must function smoothly together. This effort is intended to assure implementation of the entire program.
- Minimize costs. The proposed assurance package should be structured so as to provide the necessary assurances at the lowest possible cost.

Issues

Program staff have identified a number of significant assurance concerns relevant to the alternatives being analyzed in this EIS/EIR. A brief summary of some of these concerns follows:

Institutional arrangements including a new implementing entity for ecosystem restoration program. Many stakeholders are concerned that the existing diffused approach to ecosystem management and restoration with responsibilities resting in state, federal, local and private entities is inadequate to assure implementation of the ERP as envisioned. Program staff, therefore, is examining institutional arrangements including a new entity.

Any implementing entity would have the powers and resources necessary to implement the ERP. In addition, the decision of how and by whom new actions in the remainder of the program will be implemented is also pending. Program-wide coordination throughout the implementation phase is essential to successfully implementing the entire program. A decision on an ecosystem entity cannot be made without considering the remainder of the program.

Ongoing stakeholder involvement. Many stakeholders are also concerned with the nature and scope of their involvement in the implementation phase of the Program. The almost unanimous opinion expressed at BDAC Assurances Work Group meetings is that stakeholders would like to weigh in on decisions and advise agencies in a meaningful and timely manner throughout implementation. For some stakeholders this concept is

expressed in stakeholder representation on the governing board of whatever entity implements the ERP.

Coordinated implementation. The agencies and stakeholders are concerned that any decision regarding who implements the ERP must also consider how the remainder of the program is implemented. Because of the nature of the Program and the resource, it is impossible to implement program elements independently. Decisions about management entities must be reached at the same time in order to assure coordinated implementation.

Endangered species assurances. Many stakeholders are concerned with the nature and extent of assurances given to the recovery of endangered species and the assurances given to water users for protection from future regulatory restrictions on their activities. The overall concept of "no surprises" is an important assurance for both the ecosystem and the water users. Program staff and stakeholders are examining California and federal endangered species laws to craft mutually acceptable assurances for the Bay-Delta ecosystem, as well as the water users.

Assuring appropriate operation of storage and conveyance facilities. Many stakeholders are concerned that construction and operation of an isolated conveyance facility will unacceptably alter the "common pool" conditions which currently provide export water users with an incentive to protect the delta levees and channels and maintain specified water quality standards throughout the delta. The stakeholders fear that if water could be exported without first passing through the delta that the delta itself could be harmed and that the incentives to continue to protect the delta will be smaller for those now receiving water from a conveyance facility isolated from the delta.

Although some stakeholders believe a small isolated conveyance facility presents overwhelming problems, many more believe that a large isolated conveyance facility presents greater problems as it provides greater capacity to move more water around instead of through the delta. Stakeholders worry that no assurance mechanisms can adequately prevent the future misuse of a large isolated facility.

Each of these descriptions is but a snapshot of a much larger and complex discussion that is continuing in the BDAC Assurances Work Group and elsewhere. Although it would be easier developing assurances after a preferred alternative has been selected, the above discussion should provide some insight into the importance of discussing assurance concerns while alternatives are being evaluated.

Completing an Assurances Package

Assurances Proposal

The Program is working to develop a package of assurances for the common programs. In addition, the Program is exploring options for assuring the variable

program components. The Program will continue working with BDAC and the BDAC Assurances Work Group to identify areas of agreement in a proposed assurance package. For areas of disagreement, the Program is identifying options that represent differing approaches for assuring a particular portion of the program. As a part of this effort, the Program is also developing a contingency response process.

Contingency Plan

It is impossible to protect the implementation of the long-term solution from every eventuality. The Program is developing a contingency response process to address circumstances where a significant program element cannot be implemented or operated as agreed.

Research on other complex resource management programs indicates that, regardless of planning, there is no way to anticipate and prevent all possible events that may interrupt or alter Program functions. The purpose of the contingency plan is to increase the potential for timely and appropriate restoration of Program functions when unforeseen events occur.

Over the next several months, the Program will begin developing a contingency plan that identifies broad categories of events and gauges their potential impacts on the Program, specifies how the Program will respond to them and defines procedures for resolving detrimental effects on implementation and operations.

Staging

Regardless of which program alternative or assurance package is selected, the CALFED agencies must determine how to implement the program over several years. Because the Program likely will require a number of funding, legislative, regulatory, contractual and institutional changes, implementation will be a complex process. Additionally, the size of the Program and the nature of the Program components make it impossible to implement the entire program simultaneously. The Program, therefore, must be implemented in stages.

The challenge in implementing a program in stages is to allow actions that are ready to be taken immediately to go forward, while assuring that each interest group has a stake in the successful implementation of the entire program over the implementation period. A staged implementation strategy, therefore, should have the following characteristics:

- each stage should be completed before the next stage can begin;

- each interest group should have strong inducements to support the completion of each and every stage; and
- program elements which are outside of the control of the CALFED agencies should be implemented as early as possible to reduce the risk that outside actors may affect implementation.

The Program has identified four stages to begin this effort:

Stage I - activities occurring between the present and certification of the final Programmatic EIS/EIR. This stage begins now and continues through certification of a final environmental document.

- A. Draft individual implementation plans for each program component including:
 1. a description of the program element;
 2. a summary of the goals, objectives and targets the element is seeking to achieve;
 3. a detailed description of the actions to be taken, the tools and strategies to be used and a schedule for implementing these actions. This section will include a description of the order in which actions should be taken and their relative priorities;
 4. a discussion of how and when success is to be measured and any other information necessary to assure timely and effective implementation.
- B. Draft implementation document (plan or agreement) and circulate for agency and public review and comment. The document will be a compilation of all the actions necessary to assure program-wide implementation. The document should be as detailed as is possible in the time allotted.
- C. Describe how the Program is to be managed in the near term.

Stage II - transitional period during which the Program moves from programmatic planning to implementation. This stage is projected to occur from about January 1999 - December 1999. As soon as possible following certification of the Programmatic EIS/EIR, the following would begin:

- A. Introduce state and/or federal legislation necessary to implement the solution.
- B. Draft contracts and agreements to govern implementation. This would include:

1. joint powers authorities, MOUs, MOAs, or other forms of agreement among the CALFED agencies; and
 2. contracts between agencies and stakeholders.
- C. Sign and execute a conservation strategy to address federal and state endangered species.
 - D. Establish a forum for discussions with members of the public throughout this stage.
 - E. Finalize the process to address circumstances which prevent key program components from being implemented or operated as agreed (contingency response process).

Stage III - near-term implementation. January 2000 - December 2000.

- A. Establish a stakeholder advisory committee or oversight committee.
- B. Begin implementing the levee stabilization program and emergency plan.
- C. Complete site-specific analysis and seek permit authority.
- D. Begin implementing ERP.
- E. Implement ecosystem restoration monitoring plans.
- F. Begin implementing water use efficiency and water quality programs.

Stage IV - long-term implementation. This stage is anticipated to occur from January 2001 - December 2030.

- A. Establish long-term implementation authority and responsibility.
- B. Assure program is being implemented consistently and in a coordinated manner. If all program components are not being implemented substantially as agreed, the process to address these circumstances would be triggered.

Clearly, the issue of assurances, particularly phasing, is paramount to achieving an acceptable long-term Bay-Delta solution. A great deal of additional work and refinement is necessary to craft a completed package of assurances. Assurances and related implementation strategy issues will be receiving more attention through the conclusion of CALFED's Phase II process.

FINANCING

Introduction

The Financial Strategy is a conceptual plan for funding the long-term solution (Solution) being developed by the CALFED Bay Delta Program (Program). This is a status report on the development of the Financial Strategy that identifies potential funding sources for the Solution. The potential funding sources discussed in this report are intended to apply to the Preferred Alternative (when selected), including Program Elements. Although the Preferred Alternative has not been selected, the funding sources might apply to any of the three proposed Phase II alternatives under consideration as well as the Program Elements. There may also be additional funding sources beyond those contained in this report.

Phase II of the CALFED process is designed to look at the long-term solution at the Programmatic level. The Programmatic approach determines the level of detail that will be available for purposes of formulating the Financial Strategy. Given this fact, this report will focus on concepts and ranges of costs rather than specific numbers and dollar amounts. Specific amounts are important, but they will be introduced in Phase III of the CALFED Bay Delta Program, in which project-specific information for each component will be prepared.

Process

During Phase II of the Program, a work group appointed by the Bay Delta Advisory Council (BDAC) identified and discussed a number of issues relating to development of the Financial Strategy. These discussions took place on a monthly basis at public meetings held in several different locations in the State. One or more BDAC members, Program staff, State and Federal agency representatives, interested stakeholders, and members of the public generally attended the meetings.

The work group was formed to identify, examine, and offer recommendations concerning policy issues. In this role, the work group identified what it considered to be the most important issues relating to the Financial Strategy. Much of the discussion was of necessity conducted in the abstract, because detailed information on the costs and performance of the alternatives was not available to the Work Group.

The work group approached the issues in an iterative manner by considering a set of Financial Principles proposed by staff to guide future detailed decisions on the Financial Strategy. The discussions of the issues and Financial Principles identified by the work group are the source for this report. The next section of this report describes the Financial Principles that have been discussed. In some cases more detailed discussions have taken place regarding the application of these principles to the Solution. These discussions are described in the component-specific sections later in this report.

Financial Principles

- **Benefits-based allocation**

Sharing the costs of the Solution based on the benefits being created is the cornerstone principle of the CALFED Financial Strategy. The fundamental philosophy is that costs will be paid by the beneficiaries of the actions, as opposed to seeking payment from those who, over time, were responsible for causing the problems being experienced in the Bay Delta system.

Among State and Federal agencies and within the stakeholder community, there is general agreement with this benefits-based approach as a guide for future cost sharing, although some cost obligations for past impacts may be appropriate. A number of questions remain to be answered concerning the application of this principle.

Some benefits created by the Solution are difficult to quantify. Benefits associated with restoring ecosystem health, for example, are not measurable in the same way as the benefits of water supply improvements. This implies that while the benefits-based approach is useful as a guide, benefits cannot be used in a strictly quantitative way to arrive at an answer regarding sharing of costs.

Also, even though they agree in principle with the benefits-based approach for future costs, some stakeholders feel that direct beneficiaries of water development, including water users, should pay something for past damage to the ecosystem prior to using the benefits approach for future costs. The essence of this concept is that a benefits-based approach for the future is only fair if all parties start out from an equal position. Some feel that reaching this "level playing field" would take an initial adjustment in favor of the ecosystem.

Assessing water users for this type of adjustment is difficult because there is not general agreement over what role any particular water diversion, or water diversions in general, may have played in degrading the ecosystem relative to the many other factors over the last century or more that man has been affecting the Delta. There exists a similar problem with other direct beneficiaries of water development. Water users also argue that they have already paid sufficient amounts over time to offset any past action. This issue is discussed in more detail below in conjunction with the Ecosystem Restoration Program Plan component of the Solution.

The remaining questions that must be resolved relating to the benefits-based approach revolve around what to do when benefits cannot be quantified, and whether or not any adjustment for past impacts is appropriate prior to using the benefits approach.

• **Public/User Split**

During Phase I of the Program, it became apparent that both public money and user money are necessary to fund the long term Solution. The public and user categories have also been extended to describe the character of certain types of benefits which may be produced by the Solution, with an eye towards which source of funding will pay for certain portions of the Solution. In principle, public money will be used to do things that create public benefits, and user money will be used to do things that create user benefits.

Public money for the Solution means funding from the United States government and the State of California. The essence of the public money concept as a funding source is that it is money collected without being tied to the receipt of any specific product or service. State and federal income taxes may be the clearest examples of sources of public money. Generally, public money is expected to be used to pay for aspects of the Solution which generate public benefits, as described below.

User money for the Solution refers to money which is collected in exchange for provision of a good or service. Fees paid for water service are a clear example of user money. Although it is clear that many of the water providers are public agencies, funds collected by these agencies in exchange for their services are not defined as public money for purposes of funding the Solution.

User funding for the Solution can come from a variety of sources, for example

- water user fees such as diversion or discharge fees;
- assessments; and
- access and license fees.

Generally, user money is expected to be used to pay for aspects of the Solution which generate user benefits and potentially for past impacts.

Benefits can be generally classified as either “public” or “user” based on the practicality of excluding individuals from access to the resource providing the benefit. If individuals can be effectively excluded from using the resource, then they can probably be charged for access to it. For some public benefit resources, one person’s use can have a detrimental effect on the ability of others to use the resource. Resources of these type are called “common property” resources, to distinguish them from public resources that can be used by any number of people without depleting the resource.

Public benefits are generally those that are shared by a wide cross-section of the community and from which individuals cannot be realistically excluded. A public benefit is one that once you make it available to one person, it is available to all. Inability to exclude individuals means that imposing charges for access to the benefit is difficult. If “free riders” can access the benefits without paying, there is no economic incentive for

users to spend their money for these benefits. This means that if these benefits are to be created, public funding must usually be used.

User benefits are generally those that accrue to an identifiable subset of the community, and from which individuals can be excluded. The ability to restrict benefits to those that pay enables these benefits to be funded with user money. In some cases, such as metered water use, individuals can be charged based on volume of use. In other cases, such as access to recreational facilities, charges are based on simple access to the benefit.

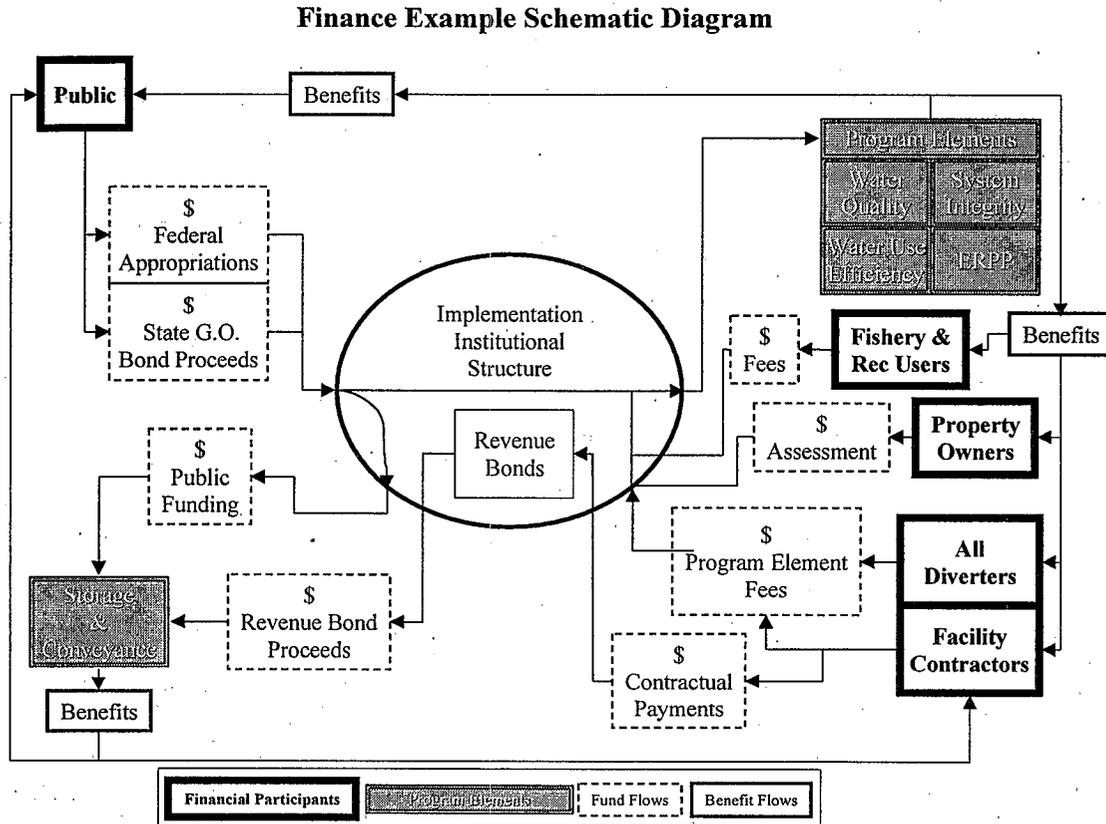
The practical application of classifying benefits is in identifying which parts of the Solution should be paid for with public funds, and which with user funds. As a general policy, portions of the Solution that create user benefits, as defined above, should be self-supporting through the use of user money. User interests receiving the benefit should be charged for use of or access to the benefit.

Public money should, as a matter of general policy, be used for those items that create public benefits. This includes those things that need to be done in the interests of the broader public, and create benefits from which it is not practical to exclude those that do not pay.

For both user and public funding, total solution benefits must be perceived to equal or exceed the costs in order to justify the expenditure.

Some of the immediate implications of the benefits-based approach and the public/user split are shown in Figure 1 below. Figure 1 is a hypothetical example of a funding structure for the Solution. There are many other possible structures, and there is no special significance to any of the features of this example structure. In Figure 1, benefits that flow out of the components of the Solution are broadly divided into those that accrue to the public in general, and those that accrue to a specific subset of individuals. For each subset of beneficiaries, a funding source has been identified that will allow that subset to contribute to funding those portions of the Solution that benefit them. Most people will find themselves in more than one box. They are both members of the general public as well as members of one or more identified user groups. The diagram also highlights the need for the institutional structure to be able to coordinate a number of funding sources as they are applied to multiple components and projects. It should also be noted that the Program will rely on continuation and redirection of existing funding sources as well as new funding sources.

Figure 1.



Another logical consequence of the benefits-based approach is an assumption that a broad-based revenue source will be needed to fund Common Programs with broad-based, but non-public, benefits. There has been no policy articulated in this area, but the discussion has been around a Delta watershed fee(s) that would provide a non-public revenue stream to supplement public funding for the Program Elements. This fee would include upper watershed users including San Francisco, East Bay MUD, Sacramento Valley and San Joaquin Valley, as well as in-Delta diverters. Substantive questions surrounding such a fee include the size of the fee, the basis on which it would be charged, and whether it should be uniform or differ by user group and whether state or federal legislation may be necessary to impose and collect the fee.

There are additional questions in defining public versus user benefits that arise in conjunction with benefits that are not clearly one or the other. Some user benefits are so widespread that the group sharing them is substantially the same as the general public. The keys to resolving this issue may lie in whether or not

access to the benefit can reasonably be excluded to those who do not pay for that access, and in whether future behavior can be beneficially affected depending on the choice of funding mechanism.

Ability to Pay

This issue relates to whether or not specific users will be obligated to pay the full cost allocation for their benefits, or whether some obligations should be reduced based on the limited ability of certain users to those costs. Such reduced obligations would have to be subsidized either by other users or with public funds. A third option that must be considered is the possibility for reducing or eliminating benefits for those who are unable to pay for them.

In principle, users should pay their full share, with any exceptions to be considered on a case by case basis after a full cost allocation has been made assuming no ability to pay constraints. The concept is that any reductions in cost obligations based on inability to pay the full cost share should be explicitly identified and justified. Further discussion of this issue is included in conjunction with specific Solution components.

Crediting

This policy relates to reducing Solution-related cost obligations to reflect payments made by obligees toward other parallel efforts to address Bay-Delta issues. An interim policy granting credit for cash contributed to the Category III Program has been approved by CALFED, but no additional provisions for long-term crediting have been approved.

In principle, all expenditures directed at the Bay-Delta system are part of the overall effort to improve that system. Coordinating or consolidating the parallel efforts to address Bay-Delta ecosystem issues has been advocated as an important step in ensuring effective and efficient use of the available funding for such efforts. Coordinating these efforts is seen as a way to expedite and implementation of many diverse and complex projects, as well as to enable flexible and efficient use of available funding. These issues are discussed in detail in the Assurances section of the Implementation Strategy. In principle, consolidation of these efforts for planning and funding purposes should include expansion of the crediting policy to reflect payments toward any of the consolidated efforts.

As part of the long-term crediting policy many additional details must be agreed upon, including the start date for crediting, types of payments to be credited, consideration of the timing of payments, and others.

Cost Allocation Methodology

This policy relates to selection of particular cost allocation techniques for making detailed cost allocations within the sphere of a benefits-based cost allocation approach. No policy decision has been articulated here, although individual CALFED agencies have historical policies relating to cost allocation techniques. Within the stakeholder community, there is general consensus that while traditional methodologies may be applicable for conventional facilities, they may not be appropriate for use with the Program Elements due to the difficulty in including non-market benefits created by the Program Elements in the allocation process.

Certain terms need to be defined prior to discussing cost allocation concepts:

A project purpose refers to an objective or need that the project is designed to meet. Examples of project purposes include water supply, flood control, and ecosystem enhancement.

Projects that address only one objective are single purpose projects. An example might be a flood control project, which addresses only flood control considerations. Cost allocation among purposes for a single purpose project is not an issue. Projects that address multiple purposes are called multi-purpose projects and raise the issue of cost allocation among the several purposes.

As a whole, the Solution is a multi-purpose project. However, individual actions included in the preferred alternative may be distinct projects that are single purpose. No determination has yet been made as to the level at which cost allocations will be made, although much of the discussion has centered on the Program Components. Each Program Component is multi-purpose.

Cost allocation is the process of distributing the costs of a multi-purpose project among the various purposes served. The cost allocation process becomes an issue when a project includes features that serve more than one purpose. The cost of such features is known as a joint cost, and the essential problem of the cost allocation process centers on the distribution of joint costs among purposes served. The goal is to develop a method that allocates these costs *equitably* among purposes served.

More than one person or group can share the benefits of each purpose. Cost sharing refers to how the costs allocated to each purpose are further split up among those who share in the benefits of that purpose.

Cost Allocation Method Selection Criteria

There are many possible cost allocation methods, each with its own strengths and weaknesses. The BDAC work group developed a set of conceptual criteria to guide the selection of methods for dividing the costs of the Solution. Selection of a specific method for each Component may be in order, and this selection will

probably involve tradeoffs among these criteria. There is no single best method that addresses all of the criteria in an optimal way.

Criterion	Description
Consistent	<p>The costs allocated to a purpose should not change based solely on how the other purposes are subdivided or aggregated either initially or over time. In addition, effects of cost changes over time on the allocations to each purpose should be predictable and rational.</p> <p>For example, increases in total project costs should not lead to cost allocation reductions for some parties at the expense of larger increases for others. Costs allocated to the federal government related to ecosystem should not change based on whether all users are grouped together or treated separately as urban and agricultural.</p>
Fair	<p>All purposes and beneficiaries are treated the same in terms of receiving a reasonable share of the savings from the joint project. No special rules or calculations should be employed that would result in special treatment of a particular purpose.</p> <p>Joint projects are pursued because it is less expensive than pursuing separate projects to gain the same benefits. The crux of the allocation issues relates to joint costs: those that cannot be traced to a specific purpose. One way to look at the allocation issue is how to share the savings of the joint project versus the separate projects.</p>
Flexible	<p>The allocation method must enable addressing issues for a diverse mix of projects and programs that each may raise different issues</p> <p>For example, does the methodology must enable addressing the issues of fish screens, flood control measures, and recreational benefits? Each of these raise some specific issues.</p>
Inexpensive	<p>Using the cost allocation methodology should involve manageable costs for obtaining input data, performing cost allocation calculations, and developing results.</p> <p>For example, SCRB requires costing out a number of scenarios that are never intended to be built for purposes of defining separable costs. This can be expensive.</p>
Rational	<p>Ability to charge each purpose at least as much as the cost of inclusion, and no more than the cost of going it alone</p>
Reliable	<p>The allocation methodology must employ proven techniques. Proven techniques are those that have been employed previously by CALFED agencies or others in similar situations and have been demonstrated to produce workable results.</p>
Sufficient	<p>The cost allocation methodology should assure recovery of full project cost.</p> <p>Marginal cost approaches are not designed to recover a set amount of money, and could end up recovering more or less than the cost of the project.</p>
Understandable	<p>Ability to explain the methodology and results in a manner that enables widespread comprehension and support of the methodology.</p>

Description of Approaches

The BDAC work group reviewed three general types of cost allocation methodology, as described below.

- **Traditional Approaches**

A 1954 inter-agency agreement on cost allocation between the Department of the Interior, the Army Corps of Engineers, and the Federal Power Commission agreed that three methods of cost allocation are acceptable:

1. The **separable costs-remaining benefits (SCRB) method** is considered preferable for general application.
2. The **alternative justifiable expenditure (AJE) method** is acceptable where the necessary basic data to determine separable costs are not available and the time and expense required to obtain the data are not warranted.
3. The **use of facilities (UOF) method** is acceptable where the use of facilities is clearly determinable on a comparable basis and where use of this method would be consistent with the basis of project formulation and authorization.

- **“Follow the Water”**

This approach would use the overall use or consumption of the water resource as a means of allocating costs. Although there are many complex details associated with this approach, the basic concept is simple. Costs of the Solution would be split among groups based on their proportional use of the water that flows into the Delta or would flow into the Delta but for being diverted.

- **Technical Approaches**

This set of methods is based on a substantial body of academic research that has been developed over the past two decades on cost allocation. The thrust of these methods is to identify clearly the shortcomings of traditional cost allocation approaches listed above and to use mathematical or logical models to overcome those shortcomings in the interests of creating better, fairer cost allocation methods. Two technical methods were identified:

1. **Shapley Values** result in an allocation based on the average price of all orderings for inclusion of purposes in a multi-purpose project.
2. The **Nucleolus** approach is based on a repeated allocation of joint costs such that each pairing of two parties split the difference between the most and least favorable divisions to themselves holding other allocations constant, and maximizing the distribution of cost savings to each proper subset of parties.

Selection of Methodology

As identified above, the remaining issues that must be resolved with respect to cost allocation relate to selection of specific methods to use, and whether allocation should take place at the level of the composite Solution, or individually for each Program Element, or some other subset of the Solution.

Summary

While the fundamental policy direction for each of the Financial Principles discussed above has been identified, much work remains to be completed. Most of the remaining work is in the detailed application of these policies to a Preferred Alternative. Resolution of these issues will require the involvement of policy level representatives of Federal and State agencies and stakeholder interests. The process for moving these issues through the public and stakeholder process that has defined the Program to-date must be implemented during 1998 to enable resolution of these issues prior to finalization of the Implementation Strategy for the Preferred Alternative.

Program Element Funding

The discussion that follows addresses the components of the long-term Solution, identifying what is known for each program for the next ten years, and the types of issues that need to be addressed. Addressing the components individually does not alter the fact that the Solution must be implemented as a whole. Although individual funding sources may be earmarked for specific projects or components, the entire Solution must be funded with a package that is both adequate and reliable.

The specifics of the institutional structure that will be given responsibility for implementing the Solution may affect the ability to use some of the funding sources identified here. The options for this structure are not discussed here, although aspects of the structure that affect the funding alternatives are identified when relevant.

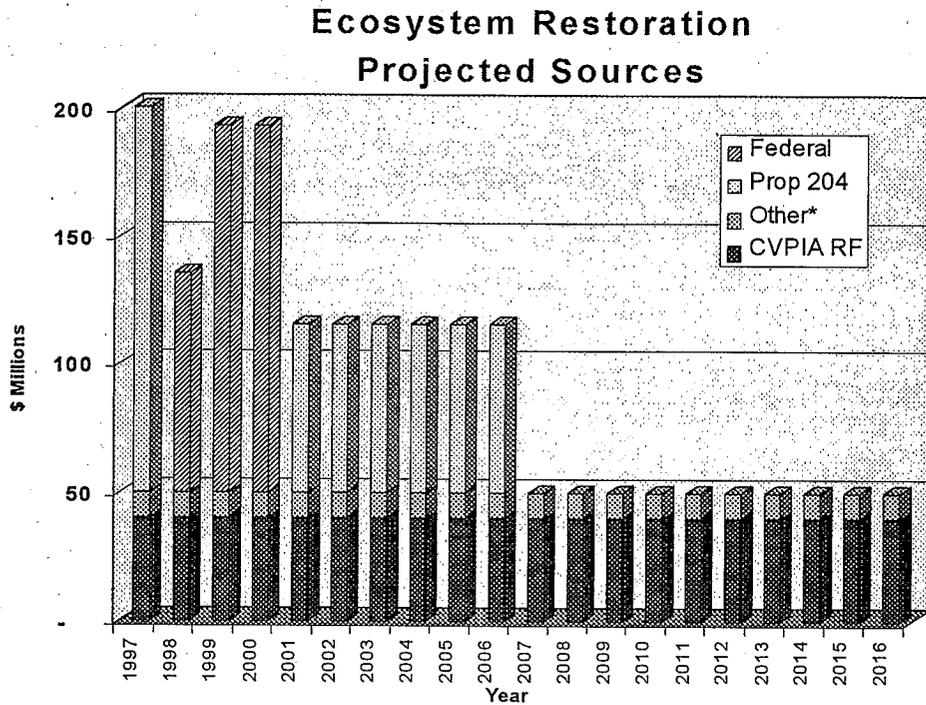
Ecosystem Restoration Program Plan (ERP)

The ERP is projected to cost a total of about \$1.25 billion in 1996 dollars. While there has been no specific breakdown of this total by year, this total would translate into roughly \$42 million per year over thirty years, excluding interest and inflation.

The ERP is the component of the Program that has the greatest identified funding potential at present. As Figure 2 shows, the ERP has potential for funding in excess of \$100 million annually for the next several years. This level of funding is expected to be adequate for ERP capital through roughly the first ten years of the Program. The total ERP will require additional funding, but there is a saturation point for the amount of funding that can be put to effective use in any

single year. Additional ERP capital funding over and above the amounts shown, assuming these amounts are realized at the levels shown, are probably not needed until projected funding has been exhausted. In addition, funding for operations and maintenance for certain ERP activities must be provided. Actual funding levels are dependent on several factors, as explained below for each of the funding sources.

Figure 2



Federal Funding

Congress authorized initial federal funding of \$143.3 million per year for three years in 1996. This funding is contingent on approval of annual appropriations by Congress. For Fiscal Year 1998, the first year of the authorization, Congress appropriated \$85 million, as shown in Figure 2. Figure 2 assumes that future appropriations equal the full \$143.3 million per year. This funding can be used for both capital and O&M funding.

Proposition 204

Voters in the State of California approved the sale of \$995 million in General Obligation bonds Proposition 204 in November 1996 for various water-related purposes. The table below shows funding amounts contained within Proposition 204. The portions of this authorization that are specifically directed to the ERP (and included in Figure 2.) are italicized in the table below. Other provisions of Proposition 204 include funding for other Program Components.

SHORT TITLE	AGENCY	TOTAL AMOUNT (\$MILLIONS)
CVPIA	F&G	93
Category III	Resources Agency	60
Levee Rehabilitation	DWR	25
South Delta	DWR	10
Delta Recreation	P&R	2
Bay Delta Program	DWR	3
Clean Water	SWRCB	110
Recycling	SWRCB	60
Drainage Management	SWRCB	30
Watershed Management	SWRCB	15
Seawater Intrusion	SWRCB	10
Lake Tahoe	CTC	10
Feasibility Projects	DWR	10
Conservation & Groundwater	DWR	30
Local Projects	DWR	25
Sac Valley Habitat	DWR	25
River Parkway	N/A	27
Bay Delta Program	Resources Agency	390
Flood Control	DWR	60
	Total:	995

The \$93 million for CVPIA State matching funds and \$60 million for Category III were immediately available, and projects to be implemented using these funds are being currently being examined. The assumption has been made that all of this funding will be committed in FY98. Availability of the \$390 million is contingent on several things, including certification of the final Programmatic EIR/EIS, which is expected in late 1998. An assumption has been made for the purposes of Figure 2 that this \$390 million fund would be spent in six equal annual installments of \$65 million beginning after the last year of

federal funding in FY2000, although the funds are generally available in total once all of the conditions have been met.

Due to the fact that Proposition 204 relies on General Obligation bond funding, these funds cannot be used for O&M for ERP activities.

CVPIA Restoration Fund

The CVPIA Restoration Fund, which represents payments by CVPIA users including power users, is designed to address many of the same problems that the Program has identified (see Crediting section above) although there is not a complete overlap between the ERP and CVPIA Restoration Fund projects. Congress must also appropriate this funding, although existing law establishes the charges to CVPIA contractors and power revenues.

Other Sources

Other sources include user contributions to the Category III Program, the Four Pumps Agreement, and the Tracy Mitigation Agreement. These funds are estimated to total about \$10 million per year. Like the CVPIA Restoration Fund, these sources are intended to address many of the same issues as the ERP.

Future Funding

As Figure 2 shows, after 2006 the amount of funding projected for the ERP on an annual basis decreases dramatically. ERP funding after this point is expected to come from renewed State and Federal sources as well as user sources. Securing the reliability of this future funding for both capital and O&M is a major issue within the Implementation Strategy. Another important assurance consideration is providing funding flexibility that is compatible with the Adaptive Management approach that is central to the ERP.

ERP User Funding

If a determination is made that user funding is appropriate for some portion of the ERP, existing contracts alone would not be adequate. Existing contracts do not cover all of the necessary parties that would need to contribute. Future contracts relating to any Program facilities are also likely to fall short for the same reason.

Although it has been controversial in the past, a fee on water diversions that encompasses the entire Bay-Delta System watershed appears to be the best tool to collect revenues directly from a wide cross-section of water users. Such a fee would cover not only contractors but also those who have an obligation to participate financially in the Program for other reasons.

The exact nature of this fee is somewhat dependent on the institutional structure that is put in place to implement the Program, but conceptually the fee would probably resemble the type of basin-wide fees that have been discussed

previously. Problems with prior proposals will have to be addressed and overcome as part of developing an acceptable structure.

Financial Baseline

There is a wide spectrum of views as to how the costs of the ERP should be shared that is based in part on differing views as to the starting point or "baseline" from which ecosystem improvements should be viewed. If such a "baseline" level were known, then restoration to that "baseline" level could be considered mitigation for past acts, while restoration above the "baseline" level could be considered enhancement to the ecosystem. Traditionally, mitigation actions are paid by those whose acts caused the need for the mitigation, while enhancement has been viewed as a responsibility of the general public. Unfortunately, no such "baseline" definition exists, and the ERP does not define a baseline in determining the goals and targets for restoration activities.

In the absence of an authoritative answer, possible viewpoints are wide-ranging. On one extreme end of the spectrum is the view is that all of the degradation of the ecosystem is due to modifications to the natural system, including dams, diversions, levees and other human interventions. This view implies that all restoration efforts would be seen as mitigation for human acts. The ecosystem cannot be enhanced by current restoration efforts, only returned to some decreased level of degradation. In the extreme, this view might suggest that the baseline predates human intervention in the Bay-Delta system ("Early Baseline").

On the other extreme end of the spectrum is the view that the degradation of the ecosystem is the cumulative result of centuries of diverse events, both natural and man-made. These events reflect an historical public policy based on a different set of societal values from those that exist today, and were endorsed by the State and federal governments. This view would suggest that the effects of past actions are impossible to evaluate, and that only changes from the current situation are relevant. In the extreme, this view might suggest that all improvements to the current ecosystem should be viewed as enhancements to the ecosystem, and no actions should be considered mitigation. This view would find the baseline date is in the present or very recent past ("New Baseline").

Resolution of the issue may have very real implications for allocating the costs of the ERP. An ERP example will illustrate this point, and further discussion of this issue is included regarding funding for storage facilities.

Habitat

The ERP includes acquisition of land for purposes of establishing new habitat. This type of action in the short term creates benefits primarily for ecosystem purposes.

The Early Baseline view would argue that establishing such habitat is only necessary due to reduction of historical habitat and reduced flows from human intervention. As such the costs of the habitat would be viewed as mitigation and would be paid by users.

The New Baseline view would allocate the costs to the general public as a result of the ecosystem enhancement benefits of the action.

Agreeing on the baseline in this example would determine to what extent users could contribute a portion of the costs of primarily ecosystem actions.

Needs of Affected Parties

Several of the affected parties have offered comments that reveal some of their underlying concerns over how this ecosystem baseline question is resolved. These parties may have additional needs beyond those listed here, and other groups may have different concerns that may need to be considered as well. In concept, this listing represents the issues that must be addressed adequately by the definition of the ecosystem baseline or elsewhere within the Program in a reliable way in order to allow the parties to agree on a baseline definition.

The thought to bear in mind in these discussions is that defining the ecosystem baseline in a certain way may not be the only, or the best, way to address the needs of the interest groups. Finding a different or better tool for addressing each need could reduce the conflict over definition of the ecosystem baseline and allow the equitable allocation of costs while at the same time meeting the needs of the affected parties.

Environmental Interests

There appear to be two key concerns among environmental interests concerning the ecosystem baseline. The first relates to ensuring adequate funding for the ERP, and the second relates to achieving a sustainable solution.

The funding concern relates to the unpredictable and limited nature of public funding sources. Were the ERP to be paid for using public funds only, it would be subjected to a continuing struggle for appropriations that could result in the funding being both limited and unreliable. Defining the ecosystem baseline in a way that places more of the burden on users could result in greater and more reliable funding for the ERP over time. The underlying need is to assure that the ERP has sufficient funding over time.

The sustainability concern relates to the fact that current water costs do not accurately reflect the full ecosystem impacts of water resource use decisions. This could result in decisions over time that could undermine the objectives and success of the Program, even if the initial Program appeared to be effective. Defining the baseline in a way that places more of the burden on users could result in a more accurate reflection of the costs of water resource use decisions

over time, resulting in decisions that would maintain or enhance the effectiveness of the Program over time. The underlying need is to incorporate the costs of ecosystem impacts in the price of water to an extent sufficient to reflect ecosystem costs of water use decisions.

Urban Interests

Urban interests appear to be primarily concerned with controlling costs. There is a limit to amount of money they can pay in total for the Program, and that includes any ERP costs that they might pay. This limit is based on a number of factors including the costs of alternative water supplies, political pressure to avoid rate increases, and concerns over the economic impact of rate increases within their service areas. The underlying need is for an acceptable total cost for Delta water. Urban interests are also concerned that total benefits they receive from the Solution justify their costs.

Agricultural Interests

Agricultural interests are also concerned with controlling costs, but they have slightly different factors to consider. There is a limit on what agricultural interests will pay based on the costs of alternative supplies and political pressure to avoid rate increases, but there is also a strict limit on what most agricultural users can pay based on the profitability of their crops. The chief agricultural interest might be best described as maintaining an ability to stay in business and achieve a reasonable return on their investment.

Levee System Integrity

The cost of the Levee Program depends both on the security level to which the levees are maintained and the geographic extent of the maintenance program. Raising all Delta levees to a P.L.99 standard would cost around \$2 billion in 1996 dollars. A phased program that would strengthen levees to this level over time by prioritization is projected to cost about \$30 million annually on an ongoing basis. Such a phased program would not result in all levees being upgraded to the PL-99 standard in the foreseeable future.

Proposition 204 extended funding for delta levees in the amount of \$25 million dollars, and \$60 million for Flood Control subventions. The full levee component of the Program will require additional funding. This funding is expected to come from State and Federal sources, local property owners, and water user fees. Local property owners will benefit from increased flood protection, while water users will benefit from reduced risk of interruption of diversions due to catastrophic levee failures.

In contrast to ERP benefits, which may take years to develop, levee benefits can be felt immediately. So, although much of the early ERP funding is from the State and Federal governments, implementation funding for the other Program Elements including the levee program needs to come from all parties. This suggests that fee structures for the other Program Elements need to be put in place from the start. Any fees assessed based on

property ownership would need to be approved by voters. Water users could be charged using the same type of fee structure discussed in relation to ERP funding.

A remaining issue with respect to the Levee Program relates to the fact that the cost of levee restoration in much of the Delta exceeds the value of the underlying land and its ability to generate revenue; and following the principle of beneficiaries pay, the costs imposed on landowners could be substantial. This raises questions about the willingness and ability to pay for Delta landowners, as well as the economic justification for the expenditures.

Water Quality Program

The Water Quality Program may have substantially lower early capital requirements than some other components, as it initially consists more of research, monitoring, and education activities. Significant funding over time for land conversion related to drainage issues may be expected. The Water Quality Program is expected to eventually cost about \$750 million in 1996 dollars. On an annual basis for the first ten years, approximately \$25 million per year will be required for this program.

State and Federal funding, combined with user fees are expected to provide for this program. As with the Levee programs, these fees need to begin immediately with the commencement of the Program.

Water Use Efficiency Program

The Water Use Efficiency Program also has lower early capital requirements than some other components. The Water Use Efficiency Program is expected to eventually cost about \$750 million in 1996 dollars. On an annual basis for the first ten years, approximately \$25 million per year will be required for this program.

Like the Water Quality Program, State and Federal funding, combined with user fees are expected to provide for this program. These fees need to begin immediately with the commencement of the Program.

Storage and Conveyance Facilities

The costs for Storage and Conveyance facilities estimated to total \$2 to \$8 billion in 1996 dollars depending on the type and number of facilities included in the Solution. The bulk of capital construction costs will of necessity come later, most likely after the initial ten-year period. This is due to the longer planning, design and permitting process associated with these types of actions. Planning costs for selected facilities would begin immediately after selection.

Storage and Conveyance facilities have been assumed to be operated to address both user and ecosystem needs. For this reason, funding is expected to come both public and user sources. How to divide the costs between users and the public is in question. The issue is related to the ERP baseline issue discussed in the ERP section. Storage costs, like some ERP costs, can be considered as

enhancement or mitigation, depending on your point of view. The following example illustrates the issue.

North of Delta Storage

New storage north of the Delta within the Program alternatives is assumed to be used jointly for ecosystem and water supply purposes. This would involve diverting water into storage during periods of high flow, and releasing some of the water when needed for users= diversion purposes and some when needed to supplement in-stream flows for ecosystem purposes.

The New Baseline view (as defined in the ERP section baseline section) would treat the portion of the costs of the new storage that were to be used for ecosystem as an ecosystem enhancement, suggesting that those costs should be borne by the general public.

The Early Baseline view would argue the water diversion to a storage facility cannot be considered ecosystem enhancement, as the best use of water for the ecosystem is to let it remain in the river in its natural condition. Any diversions, even if intended to be used to supplement dry year flows for the ecosystem, are only necessary because the natural flows have been disrupted by human actions. Had the natural flows not been disrupted, dry years flows would not unduly stress the ecosystem and flow supplements from storage would not be needed. Thus any costs related to ecosystem storage should be considered mitigation, according to this view, and paid by users.

Agreeing on the baseline in this example determines to what extent public funds could be used to pay a portion of the costs of new storage.

Future Funding Timing

Although any federal contributions to the funding of Storage and Conveyance facilities would be expected to be made at the time of expenditure, both any State and user contributions are likely to be financed with through bond issues. This changes the out-of-pocket cash expenditures, due to the fact that State and user costs would be based on making annual debt payments, probably extending over 30 or more years, as opposed to up-front payments.