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REFINEMENT PROCESS TO PRODUCE PRELIMINARY PHASE II ALTERNATIVES

The CALFED Bay-Delta Program is in the process of developing and refining alternative solutions to problems of the Bay-Delta system. Currently, the Program has narrowed the range of solutions to ten refined alternatives which have recently been the focus of attention in a formal Scoping process. At the same time, staff of the Bay-Delta Program have been working with CALFED agencies to evaluate the ten alternatives against solution principles. Both of these processes have suggested a modification in the structure of alternatives. Currently the alternatives vary in the level of effort applied to actions related to ecosystem quality, water quality, system vulnerability, and water use efficiency. It appears that it may be more appropriate to include each of these as a common program that is essentially the same across a range of alternatives. This range of alternatives would thus be defined by variations in components related to Delta conveyance and water storage.

The scoping comments, evaluations, and reasoning that have led to this proposed change in the structure of alternatives are summarized below.

Current Status and Structure of Ten Alternatives

All of the draft alternatives developed by the Program, including the initial set of 20 and the refined set of ten, were structured to include a varying level of effort applied to certain components of the alternatives. Levels of effort characterized as *modest*, *moderate*, or *extensive* were applied to many of the components. This approach was used originally in order to provide a range of solution alternatives, and to offer a very rough level of equity meeting different objectives within each alternative.

At the beginning of the process a different approach was proposed, in which most components of the alternatives remained constant, and the alternatives varied only with respect to the water supply components, in particular Delta conveyance. At the time, this approach was dismissed because it appeared to concentrate solution-finding effort on problems related to water supply while devoting relatively little planning effort to solution of other problems in the Bay-Delta.

The information package for Workshop 6 categorized actions into 20 components within the four resource areas of water supply, water quality, ecosystem quality, and system vulnerability. We can simplify the structure by forming larger components. Using this approach, the current set of ten alternatives can be described as including components related to **ecosystem quality, water quality, system vulnerability, water use efficiency, Delta conveyance, and water storage**. Each alternative also includes the same set of core actions.

The first four components vary principally in the level of effort applied. The two components that include distinctly different approaches among the alternatives are Delta conveyance and water storage.

Issues from Scoping

During April and early May the Program conducted nine scoping meetings around the state, a workshop in Sacramento, and a meeting of the Bay-Delta Advisory Council. The scoping period has been formally extended to May 20. A scoping report is being prepared based on comments received to date, and will be updated after the scoping period concludes.

The comments cover a wide range of technical, policy, and financial concerns (see separate document entitled *Key Emerging Issues Summary*). Some of the comments have prompted consideration of modifying the structure and presentation of the alternatives. These comments have led us to conclude that several components in the alternatives might be more appropriately treated as programs that must be included in all the alternatives. Some of these comments and our conclusions are:

Water use efficiency must be strongly pursued in all the alternatives. This suggests that water use efficiency measures should be implemented at a vigorous level among all the alternatives, where previously they included efficiency at modest or moderate levels. Alternative A, Extensive Demand Management, is the one current draft alternative that relies principally on water use efficiency to balance supply and demand. While there was great concern expressed that Alternative A may have gone too far and utilized some improper approaches, it was generally agreed that a high level of water use efficiency is essential. If the Program adopts the approach that water use efficiency is implemented at the same level in each alternative, this common water use efficiency component will need to be developed with consideration of differences in local conditions and local needs.

The best possible source water quality is of paramount importance to urban water suppliers. Agencies that deliver drinking water are very concerned about the cost of meeting future drinking water quality standards, as well as the technical challenges associated with treating source water of degraded quality. This suggests strong pollutant source control measures in every alternative.

Delta levees will be needed to protect agriculture, infrastructure, and habitat no matter how water is conveyed in the Delta. Among the values protected by Delta levees, only water quality varies among alternatives (according to the method of conveyance). Adequate levee integrity is required to protect other values regardless of the method of Delta water conveyance. This argues for a similar level of protection in each alternative.

Ecosystem actions at the modest and perhaps the moderate level appear inadequate; the Program needs a single coherent vision of ecosystem restoration. We have already acknowledged that adaptive management will be vital in guiding our efforts to improve

ecosystem quality. It is this adaptive management that will provide the needed flexibility in ecosystem quality improvement. There is really no alternative to a single comprehensive plan for restoring ecosystem health.

In response to comments such as these, some components of the alternatives can be viewed in a different way. Water use efficiency, water quality, system vulnerability, and ecosystem quality could be viewed as *programs* that are present in all the alternatives, and are composed of a series of actions that are implemented incrementally over time.

Alternative Refinement and Evaluation Against Solution Principles

The next activities for the Program will include additional refinement of alternatives, leading to selection of Phase II alternatives that is large enough to offer a reasonable range of solutions while small enough to allow for detailed analysis.

Additional refinement of the ten alternatives is proceeding according to these steps:

1. Review how each alternative satisfies the Mission Statement and Objectives.

2. Review input from CALFED, BDAC, scoping meetings, workshops, stakeholders, and the public on each alternative.

3. Evaluate and document how well each alternative satisfies each Solution Principle.

4. Determine potential ways to modify each alternative to improve any low Solution Principle ratings.

5. Verify that the alternative, if revised, would still meet the Objectives and the other Solution Principles.

6. Review the alternatives and potential modifications to identify improved alternatives.

7. Merge similar improved alternatives into a single alternative.

Staff from CALFED agencies and the Program team are evaluating alternatives against Solution Principles. As the detailed Solution Principles are applied to the ten alternatives, and modifications are being devised to improve low Solution Principle ratings, a pattern is emerging. Several components are becoming more similar across the range of alternatives. Some of the potential improvements that could be made in several of the alternatives are these:

- Reduce the magnitude of land retirement to reduce indirect impacts (eliminate redirected impacts) and provide more equity; develop alternative approaches to achieve agricultural conservation;

- Add more habitat, on the order of Alternative F with upper Sacramento River meander belts, to provide higher conflict resolution and durability; (as the magnitude of ecosystem restoration increases, it will be necessary to rely more heavily on adaptive management to guide actions beyond the initial stages of the restoration program);

- Add additional fish screening to reduce conflict and provide higher durability;

- Increase water quality actions to provide higher conflict resolution;

- Increase levee maintenance to provide higher conflict resolution and provide more durability;

- Add subsidence control program to provide higher conflict resolution, higher durability, higher implementability and eliminate redirected impacts;

- Increase emergency response to provide higher conflict resolution, higher durability, higher equity, more implementability, and to eliminate redirected impacts.

Application of Solution Principles and modification of alternatives to better meet the principles tends to make the draft alternatives more similar to one another in some ways. This is particularly true for components of the alternatives related to water use efficiency, water quality, system vulnerability, and ecosystem quality. Some changes made to the components in order to better meet Solution Principles may reduce the level of effort. However, many changes tend to increase the level of effort in components previously described as modest.

For example, Alternative A offered a water use efficiency component that satisfied most of the solution principles moderately well. However, the extensive land retirement described in Alternative A made it weak in meeting the Solution Principles of *equity* and *no significant redirected impacts*. Reducing the level of land retirement makes the water use efficiency component satisfy the Solution Principles better. When improvements are made to the water use efficiency components of other alternatives to better satisfy Solution Principles, the basic approach to demand management (water use efficiency) tends to converge to a single program.

Implications for Program Direction and Alternative Structure

As a result of comments received to date in scoping, and our evaluation of alternatives against Solution Principles, we may view each of the preliminary Phase II alternatives as composed of two parts. The first part of each alternative might consist of variable components related to water storage and Delta conveyance. This part of the alternative would also address increased opportunities for water transfers that result from storage and conveyance. The second part of

each alternative might contain certain uniform components or common programs related to water use efficiency, water quality, system vulnerability, and ecosystem quality. The core actions identified earlier in the program would also be part of these uniform components. Components in this second part of the alternative are really programs that would consist of actions or projects which are initiated in stage I of the alternative with continued implementation over time. As a result, the preliminary Phase II alternatives may not be a list of discrete alternatives, but rather a matrix of the variable components combined with a set of relatively uniform common programs.

The array of alternatives evaluated during Phase II might be portrayed using the matrix format shown below:

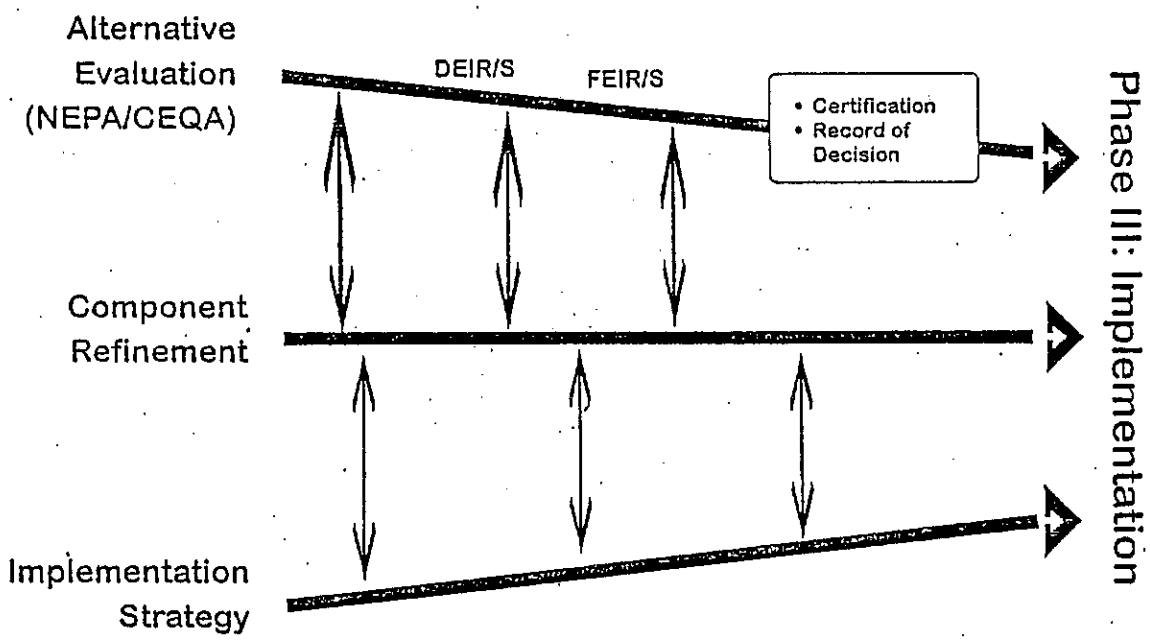
POTENTIAL PHASE II ALTERNATIVES MATRIX				
Conveyance Component:	Existing	Through Delta Modification	Dual System	Isolation
Storage Component:				
Common Programs:	Core Actions			
	Water Use Efficiency Program			
	Ecosystem Restoration Program			
	Levee Integrity Program			
	Water Quality Program			

Although the common programs would be very similar in each alternative, there would be significant differences in the details of the common programs in order to complement the variable components of the particular alternative. For instance, the ecosystem restoration component of each alternative might include restoration of shallow water habitat in the Delta. If an alternative continued to rely on exports from the existing south Delta pumping plants, then shallow water habitat might not be located in the south Delta where fish would be vulnerable to entrainment. Among the common programs, the water use efficiency common program will need to be particularly flexible because it will be closely tied to the variable conveyance and storage components and the opportunities for water transfers. Still, the goal of the water use efficiency common program would remain the same across all the alternatives.

Many actions, including ranges of implementation level, have been described in the ten alternatives. These actions provide the basic framework of the components, but should not be considered final or definitive. Refinement of all the components, including the common

programs, will continue well into Phase II of the Program. This refinement will include determination of both the level of effort and the specific combination of actions included in each component, as well as preliminary site evaluation.

Phase II component refinement will take place concurrently with the alternative evaluation that leads to preparation of an environmental impact report and environmental impact statement, and there will be extensive feedback between these two processes. A third concurrent activity will be the continuing development of an implementation strategy. This strategy will address technical, financial, institutional, and organizational decisions necessary to provide for the beginning of implementation during Phase III of the Program. The three concurrent efforts in the Phase II process can be depicted as shown below.



An approach that uses common programs combined with variable components offers several advantages. The common programs offer consistent solutions to problems in several resource areas where this seems appropriate. At the same time, these common programs will greatly reduce the complexity involved in modeling the alternatives and comparing alternatives on the short list. Common programs that are implemented incrementally over time offer the flexibility to apply adaptive management and the opportunity to make actions more affordable by financing costs over a period of time.