

PART I. CASE STUDY

Overview of Case Study: Action Elements

This section and the one following briefly describe the actions associated with the case study. In general, these actions can be broken into two categories: specific actions and programmatic actions. Specific actions are those actions that are both named and promised in the alternative (e.g., convert x land into y habitat). Programmatic actions are categories of actions that will take place where the Program does not specify which specific actions will take place (e.g., ecosystem restoration using adaptive management). The challenge for the Assurances Work Group is to find ways to assure the implementation of both the specific and the programmatic actions. Because the CALFED Bay-Delta Program is currently preparing a programmatic level environmental review, many of the initial CALFED solutions will be programmatic in nature.

The case study is necessarily written with a broad brush. It is designed primarily to meet the four program goals -- Ecosystem Restoration, Water Supply Reliability, Water Quality, and System Integrity. Secondly, the case study is designed to make the problem of assurances more approachable. The case study is generally consistent with CALFED draft alternative 3.

The **Ecosystem Restoration objective** is addressed by: (1) a major habitat restoration program in and above the Delta (including both specific actions and an adaptive management program); (2) improvements in flow and diversion timing patterns (made possible by new storage, efficiency improvements, water purchases, and the construction of multiple export intakes); (3) improvements in diversion screening; (4) increased flexibility in the location of diversions (made possible through the construction of multiple export intakes); and (5) improvements in water quality.

The **Water Supply Reliability objective** is addressed by: (1) new storage elements, managed partly for increased out-of-stream supply; (2) construction of the dual Delta transfer facility to allow more efficient and more frequent movement of water across the Delta; and (3) the water efficiency and water market elements.

The **Water Quality objective** is addressed by: (1) specific actions and programs designed to improve water quality within and in the tributaries to the Delta; and (2) the construction of a dual transfer facility to improve export water quality

The **System Vulnerability objective** is addressed by: (1) programs to protect and upgrade existing levees; and (2) a program to upgrade emergency response to levee failure.

The case study incorporates two provisions specifically designed to make the assurance problem more manageable. The first provision is the adaptive management program for ecosystem restoration. Considering that there is considerable uncertainty in our ability to predict which restoration activities will be most beneficial, the inclusion of a high quality adaptive

management program will significantly increase the likelihood that the solution will achieve meaningful restoration at a reasonable cost. The second provision is the selection of a dual transfer facility with limited capacity in the isolated component to help reduce concerns that export interests will seek to reduce expenditures on levee, water quality, and environmental protection in the future, particularly when the isolated component is too small to carry projected levels of exports.

If the case study spurs fruitful discussions of assurance issues, the Work Group may wish to increase the complexity of the case study in future iterations. The case study was designed to bring to light significant and difficult assurance issues; however, it probably will not bring to light every conceivable assurance issue.

Case Study: Action Elements

1. Ecosystem Restoration (Represents all restoration activity, including Central Valley Project Improvement Act (CVPIA), etc.)
 - a. Specific commitments
 - i. Enhance existing habitat
 - ii. Convert existing land uses to habitat
 - (1) Create meander zones
 - (2) Enhance vegetation on levees
 - (3) Levee setbacks
 - (4) Buffer habitat on the inside of levees
 - (5) Convert agricultural land to managed wetlands
 - (6) Convert Delta land to shallow habitat
 - iii. Screen certain local intakes
 - iv. Alter flow and temperature patterns to provide net fishery benefits. Flow benefits generated through combination of rules (changed flow/X2 standards) and market mechanisms.
 - b. Programmatic commitments
 - i. Set long-term restoration goals and objectives
 - ii. Create a mechanism designed to meet long-term goals and objectives through restoration activities, while allowing discretion as to the means
 - iii. Establish monitoring and evaluation process
2. Water Quality. Includes requirements and programs from other agencies, e.g., the Regional Water Quality Control Board.
 - a. Specific commitments
 - i. Undertake specific pollutant source control actions (agricultural and urban)
 - ii. Mine drainage remediation programs
 - iii. Environmental water quality standards
 - iv. Delta salinity standards to protect Delta agriculture.

- b. Programmatic commitments
 - i. Water quality improvement program, based upon specific goals and objectives.
 - ii. Implement watershed protection programs
 - iii. Establish monitoring and evaluation process
3. Water Use Efficiency. Categories identical to those used in efficiency work group. Transfer element could be broken out if desired.
- a. Programmatic commitments
 - i. Standardized rules for water transfers
 - (1) Define transferable water
 - (2) Mitigate local third party and environmental impacts
 - (3) Streamline approval process
 - ii. Water Reclamation
 - (1) Define BMP
 - (2) Eliminate institutional barriers to implementation
 - (3) Implementation and monitoring program
 - iii. Urban Water Conservation
 - (1) Define BMP
 - (2) Quantify targets
 - (3) Implementation and monitoring program
 - iv. Agricultural Water Efficiency
 - (1) Define EWMP
 - (2) Definite local planning process
 - (3) Create incentive process
 - (4) Implementation and monitoring program
 - v. Refuge Efficiency
 - (1) Define BMP
 - (2) Create Incentive process
 - (3) Implementation and monitoring program
4. Delta Vulnerability
- a. Specific Commitments
 - i. Target levees for maintenance, repair, upgrades
 - b. Programmatic Commitments
 - i. Establish and implement emergency response program. Includes response to simultaneous multiple failures.
 - ii. Establish and implement long-term maintenance and subsidence management plan
 - iii. Seepage flood remediation program (mitigation for isolated system).

5. Conveyance
 - a. Specific Commitments
 - i. Construct dual conveyance facility.
 - ii. Size the isolated portion of dual facility at 5,000 cfs
A second alternative will size the isolated portion of the dual facility at 15,000 cfs.
Either sized isolated facility will also include the following.
 - (1) Screen intake
 - (2) Operational rules -- new rules designed to meet ecosystem needs while simultaneously improving supply reliability. Represents sum of all constraints on operation from all sources.
 - (a) Operate to achieve Delta fishery protection
 - (b) Operate to meet existing Delta water quality requirements
 - (c) Operate to meet export standards
 - (d) Operate in real time to protect fish etc. near intakes
 - (e) Meet all other existing laws, regulations, etc.
 - (f) Coordinate project operations with other user and environmental controlled water (market transfers, discretionary environmental supplies, etc.)
 - iii. Through Delta portion
 - (1) Screened intake on Sacramento River
 - (2) Operational rules as with isolated portion
 - iv. Coordinated operations of the two facilities
 - (1) South Delta pumping minimums set to assure protection of South Delta water quality and direct island deliveries or channel releases to protect water quality.
 - (2) Beyond this level, first priority is isolated system diversions, with second priority south Delta diversions, when isolated diversions curtailed for biological reasons.
 - b. Programmatic commitments
 - i. Mechanisms to change operational rules as understanding of biological needs changes.
6. Storage Facilities
 - a. Specific commitments
 - i. Construct offstream storage facility north of the Delta.
 - (1) Operations: Facility operated to benefit local users, export interests, and environment.
 - (a) Fill during periods of low environmental impact, e.g., during falling limb of pulse flows
 - (b) Water user share of storage operated to boost reliability for local and export uses, e.g., release storage to boost water supplies during dry years
 - (c) Environmental share of storage operated to boost environmental flows during key periods, e.g., release storage to support flows during dry years or key seasons.

- ii. Access 200,000 acre feet of groundwater space north of the Delta
 - (1) Operations: pump during dry periods, refill through percolation and in lieu during other periods.
- iii. 200,000 acre feet storage in Delta island(s).
 - (1) Operations: Description similar to upstream storage
- iv. Construction of local facilities to maximize groundwater storage potential within Kern Fan (via conjunctive use, percolation, etc.).
 - (1) Operations: Description similar to upstream storage
- b. Programmatic commitments
 - i. Mechanisms to adapt storage operations based upon changing needs of users and changed understanding of environmental needs. Could lead to changed diversion patterns and/or changed discharge patterns in order to simultaneously provide environmental protection, restoration, and water supply reliability.

7. Funding: [Should be consistent with work of funding committee]

- a. Specific elements
 - i. Detailed allocation of funding sources. All of the following elements used:
 - (1) Diversion fees
 - (2) GO bonds (for ecosystem restoration)
 - (3) Revenue bonds (for facilities)
 - (4) Federal appropriations
 - (5) Existing funding sources
- b. Programmatic elements
 - i. Mechanisms to alter funding or benefit patterns, based upon various contingencies
 - (1) Shift funding based upon shifts in use patterns.
 - (2) Reductions in funding after environmental goals and objectives achieved
 - (3) Mechanisms to cope with possible future new endangered species.