

9. Financing and Governing a Soft Landing

“The best is the enemy of the good.”

Voltaire

The Delta of the future cannot be all things to all people, as CALFED agreements seemed to promise. The current Delta is unsustainable, and all options for strengthening its long-term prospects involve tradeoffs. Alternatives that seek to maintain a freshwater Delta are not compatible with improved conditions for native species. Alternatives that allow for a fluctuating Delta could achieve this goal, but they would entail some loss of Delta farmland and would affect other Delta users. Alternatives involving reduced Delta exports, with only seasonal pumping, would generate losses for water exporters as well as for Delta farmers. Investments in any given Delta alternative also imply tradeoffs, because these resources could be used to fund other priorities.

The risks are very real that a desire to protect the status quo will prevent the adoption of approaches that achieve much better outcomes for California—i.e., those that generate the greatest benefits overall relative to the costs Californians are willing to support. Pressure to protect the status quo is likely to come from various quarters. For example, Delta farmers and other land-based interests could be expected to push to maintain a freshwater Delta in its current configuration, to continue existing and planned land uses. And although water exporters might be more open to other alternatives, they share an interest in keeping user contributions to a minimum and relying on taxpayer support, as under CALFED.

To move beyond the status quo, California will need to consider new approaches to financing a Delta solution. First, this means resuscitating and strengthening the CALFED “beneficiary pays” principle. With better ground rules for user contributions, it should be possible to channel available public funds to support the parts of an investment package that are truly public in nature. Second, this means devising mitigation packages to soften the costs of adjustment. Mitigation is a different approach from

that pursued by CALFED; instead of insisting that a Delta solution can provide direct benefits to all stakeholders, it acknowledges that there will be losers as well as winners in any long-term Delta strategy. By compensating those who lose out, mitigation can create incentives to move beyond the status quo. In this chapter, we provide some initial thoughts on how a new funding approach for the Delta might work.

Developing a viable Delta solution will also require innovative approaches to governance. Although it is beyond the scope of this report to provide a detailed analysis of governance questions, we provide some thoughts on two central issues: improving coordination of land use in the Delta and providing better incentives to manage water resources.

Funding Principles for a Soft Landing

Financial considerations are central to creating a successful long-term strategy for the Delta, given the magnitude of the sums required and the extended time frame over which investments will need to be undertaken. By our rough estimates, water infrastructure costs alone are likely to be in the range of several billion dollars, with significant additional sums required for stronger urban levees, ecosystem restoration efforts, and adjustments by other infrastructure providers (see Chapter 8). It is not realistic to expect taxpayer dollars to meet all, or even most, of these costs, given other demands on public spending. For instance, the recently approved bond funds for flood control earmark some \$3 billion to \$4 billion for the entire Central Valley—a very large sum relative to past state contributions.¹ Yet there is likely to be considerable competition for these funds, because some of the most pressing flood risks are in heavily urbanized areas upstream of the Delta. Beyond this, general obligation bond financing of water supply infrastructure (repaid with general state tax revenues) establishes poor incentives for local water managers to operate efficiently. If someone else is paying, it is always easier to ask for more. Thus, it is necessary to consider other options.

¹Proposition 1E earmarks \$3 billion to flood control within the Central Valley and \$300 million to other regions and it provides \$790 million for flood protection activities without geographic restrictions. Proposition 84 allocates \$275 million to flood control in the Delta and another \$525 to flood protection activities without geographic restrictions.

The Beneficiary Pays Principle Is More Relevant Than Ever

One of CALFED's clear failures was its inability to mobilize adequate stakeholder contributions to its investment portfolio. Everyone had signed on to the "beneficiary pays" principle, but stakeholders tended to argue that program elements provided public benefits, and should therefore be funded by state and federal taxpayers. As noted in Chapter 5, considerable local funds were expended on local water supply investments—notably groundwater storage, water use efficiency, and recycling. But general obligation bonds were also used to support these investments—making it cheaper for water agencies to stretch or expand water supplies—on grounds that this lessened pressures on the Delta ecosystem. Water users who stood to gain from new surface storage investments made similar arguments, without offering to fund a significant share themselves. Today, many Delta stakeholders are calling for massive public investments in Delta levees, even though many of the beneficiaries are clearly private or localized in nature: water exporters, Delta farmers and land developers, power and rail companies, and users of the local road network.

Because the costs of any new Delta strategy are likely to well exceed the funds available from state and federal coffers, better ground rules on funding contributions are needed. User finance—that is, payment by the actual users of the investments—has many advantages. It frees public funds for truly public purposes, such as ecosystem restoration and mitigation, and it helps ensure that many investments are cost-effective. If water users are unwilling to finance investments that increase the reliability of their water supply, chances are that the investment is not a sound one. If landowners are unwilling to contribute to the costs of flood protection, chances are that the value of the land to be protected is too low to merit such investments.²

User contributions would be especially relevant for collective infrastructure investments in both water supply and flood protection. Water exporters should be expected to fund improvements in water supply

²Local levee investments will also be too low if someone else is liable for flood damages. Since the 2003 *Paterno* decision, the state has been held liable for damages in areas behind "project levees" belonging to the Central Valley flood control system, which includes some Delta levees.

reliability, and a variety of beneficiaries should be expected to contribute to programs to reduce flood risks. It is often argued that mobilizing user contributions to Delta flood control is too complex, given the many interests involved and the fact that some of them—such as Caltrans—lack specific budgets to pay for such programs. But straightforward precedents exist for user finance in other areas of public safety. For example, the private sector finances most investments in seismic retrofits and prevention; Bay Area bridge users pay a surcharge to help fund seismic retrofits of bridges. There is no reason why a beneficiary pays principle could not apply to infrastructure adjustments in the Delta. For new homes and businesses, developer fees are a straightforward way to collect up-front contributions to flood protection and property assessments can be used to cover maintenance costs. The key challenge is to ensure that these fees and assessments are high enough to cover the costs of building and maintaining adequate protection. If not, the local community (and state taxpayers) will be left footing the bill.

Apportioning Costs of Large Water Projects

For water supply investments large enough to require the participation of multiple parties, one stumbling block facing CALFED was the lack of agreement on how to apportion costs among beneficiaries: Should each water user be required to pay the same amount for each unit of water received, or might some sort of sliding scale be appropriate? This question is particularly relevant for Delta exports. In a typical year, agricultural water use employs most (72%) of the direct diversions from the Delta, yet most agricultural uses cannot justify costs as high as those urban users are willing to pay.

Two central problems facing any public project are how large to build it and how much to charge users to cover the costs of the project. Standard economic calculations of marginal cost pricing, whereby all users are charged the incremental project cost, typically will fail to recoup total costs of water projects because the incremental cost falls as the size of the project expands. These economies of scale occur because building water projects often involves a large fixed cost and a relatively small constant per unit operating cost. Thus, spreading the fixed costs over greater capacity lowers the incremental unit cost.

An analogy can be made with the cost of operating a passenger jet. The basic costs of operating the jet are largely the same regardless of the number of passengers. The incremental cost of a student in the back of the plane is little more than peanuts (the in-flight snack), so how much of the fixed cost of flying the plane should be charged to the student and how much should be charged to a business class passenger? One answer comes from the economist Frank Ramsey. Ramsey (1927) worked out that each user should cover the incremental costs (the peanuts) and that the fixed costs should be allocated in proportion to each user's price sensitivity—or the extent to which the quantity purchased varies with price. This rule is generally termed Ramsey pricing. Where such economies of scale exist, the Ramsey rule says that the least price sensitive group (business class) should pay the greatest proportion of the fixed costs through higher fares, and the most price sensitive group (the student traveler) should be charged the lowest proportion.

For water projects, users have wide variation in sensitivity to water prices—what economists refer to as the price elasticity of demand. Several studies have estimated the elasticity of demand for urban water users to be between -0.2 to -0.4 (i.e., when faced with a 100 percent increase in price, urban use would fall by 20% to 40%). Irrigated agriculture is more price responsive, with elasticities of demand for water ranging from -0.8 to -1.2 (implying a drop in use of 80 to 120 percent for a comparable 100 percent price increase). It follows that the practice, adopted by many water projects, of charging urban users higher prices than agricultural users can be justified as efficient, permitting the overall service area to benefit from scale economies. Similarly, urban water suppliers often charge commercial users more than residential users. In times of drought, those paying higher prices also are often provided with greater reliability (another economically efficient outcome). Such pricing principles are also common in the rail, electricity, and airline industries.³ They would be appropriate for some of the Delta management alternatives examined in Chapters 7 and 8—

³Baumol and Willig (1981); Braeutigam (1979); Chessie System Railroads (1981); Damus (1981); Seneca (1973).

including the peripheral canal options and the near-Delta surface storage investments that might be used in the Opportunistic Delta scenario.

The key point is that if the beneficiary pays principle is to be implemented to cover all the costs of building a project, the sizing of the project must be balanced against different users' willingness to pay for different amounts of water. Project plans must also be backed by formal up-front financial commitments. Ramsey pricing is one way to balance these issues. It provides a standard method for efficiently allocating costs that users are willing to pay. Public statements about having users pay are not effective if the project design does not account for their observed willingness to pay.

Mitigating Environmental Damage

The above discussion focuses on apportioning the costs of new investments that directly benefit various stakeholders. It will also be appropriate to create programs of environmental mitigation for stakeholders who will benefit from whatever alternative is chosen, particularly when those benefits put pressures on environmental resources. These programs are already in place for water exporters, at least as a premise of existing Delta agreements. Exporters have been expected to participate financially in CALFED ecosystem restoration projects. Although agreement in this area has been slow, it is the basis of the Bay-Delta Conservation Plan now under development (see Chapter 5).

However, exporters are not the only group for whom environmental mitigation is relevant. As we saw in Chapter 6, in a typical year, upstream water users actually divert 80 percent more water from the Delta than exporters do. Although some upstream users have been involved in voluntary programs to contribute to the health of the Delta watersheds, there has been a tendency for both regulators and the environmental community to overlook upstream diversions and to focus exclusively on exporters.⁴

⁴Voluntary programs include the "Phase 8" agreements involving Sacramento River diverters and the Vernalis Adaptive Management Program (VAMP) within the San Joaquin River watershed. Under VAMP, some upstream users are being paid with public funds to alter the timing of their diversions to assist in maintaining adequate environmental stream flows.

Environmental mitigation should be required for the urbanization of Delta lands, given the irreversible changes caused by land development. One possibility would be set-aside requirements to maintain some lands for environmental uses. Such mitigations are already a standard practice for new development in many parts of the state. The Delta, with its unique environmental resources, should be no exception.

Environmental mitigation is also appropriate for ships using the Ports of Stockton and Sacramento, given the role of ballast water in introducing alien species. Present ballast water control requirements are too lenient to be of much value for the Delta. A ballast water fee could be imposed on shippers who do not undertake significant additional efforts. Tighter controls are also appropriate for horticultural, aquarium, bait, and other industries that deal with live organisms, all of which are likely sources of invasive species.

Public Sector Funding Roles

Even with application of the beneficiary pays principle to collective investments in water supply, flood control, and environmental mitigation, public funds will be needed to implement a more sustainable long-term solution for the Delta. State and federal taxpayer contributions are appropriate to help finance programs for which the general public is a beneficiary, such as environmental restoration. In some cases, these public benefits would include avoiding future public liabilities—a justification for taxpayer contributions to flood control and other emergency-preparedness measures. Public funds are also appropriate for programs considered important from the perspectives of equity and social justice—for instance, programs to provide safe drinking water to low-income rural communities. And finally, public funds can provide incentives to encourage various stakeholders to agree to actions that would generate overall social benefits that they might otherwise be reluctant to pursue. These last two reasons justify using bond monies or other public resources to finance programs to soften the costs of adjusting to Delta solutions.

Softening the Costs of Adjustment

No matter which Delta alternative is chosen, all users of Delta services will face some additional costs. In all cases, water exporters will need

to make new investments to improve reliability and quality; under some alternatives, they would bear added water scarcity costs as well. Under any plan, some Delta farmers will go out of production because of island flooding; others will incur additional costs under regimes that feature fluctuating Delta salinity. Under most options, urban water users that pump directly from the Delta will need to alter their intake points, possibly building aqueducts to connect to reliable freshwater sources.

The increasing flood risks that accompany climate warming and sea level rise will also carry adjustment costs. Existing and planned urban areas behind Delta levees will need to invest in levee upgrades. The owners and users of the various types of infrastructure that crisscross the Delta will face additional costs for these same reasons. Suisun Marsh duck clubs will find it increasingly difficult to keep salt water from breaching their fragile levees and will eventually need to shut down or move elsewhere. And although recreational boating will continue in any likely future, alternatives that modify the channel network (e.g., Fortress Delta or the Armored-Island Aqueduct) could reduce revenues at some local harbors.

Candidates for Mitigation

Clearly, it is neither feasible nor desirable for state taxpayers to compensate all of these interests; doing business in the Delta is becoming more expensive because the current system is unsustainable, not because of the actions of the state or any one group. However, mitigation can soften the costs of adjustment for interests that will be particularly hard hit by changes to the status quo. For Delta management alternatives that move away from a freshwater Delta, this list includes Delta farmers and urban agencies that draw water directly from the Delta (notably, Contra Costa Water District). For alternatives that also significantly reduce water exports, this list includes farmers on the west side of the San Joaquin Valley and in the Tulare Basin. For alternatives that result in significant water transfers, this list might also include communities in the source regions. Other candidates could include owners of land that would benefit environmental goals—e.g., the Suisun Marsh duck clubs—or businesses that would be affected by changes in Delta channels.

There are no hard and fast rules for drawing up such a list. The goal of a mitigation process should be to encourage buy-in from interests that

are likely to resist changes that could benefit the system as a whole. One consideration is legal standing. Under current agreements, Delta farmers and urban pumpers have protections on water quality (salinity) standards to the extent that these are affected by CVP and SWP exports. Another consideration is equity. As Chapters 6 and 8 showed, farmers in the Delta and in the San Joaquin Valley would lose out substantially under some alternatives. It makes sense to consider mitigation options to help ease transitions in these communities, whether or not there is a legal obligation to do so.

Mitigation Options

Mitigation does not imply a wholesale buy-out or coverage of all adjustment costs. Over time, the natural forces at work in the Delta will reduce the reliability of Delta services, requiring various groups to adjust anyway, largely at their own expense. Because almost all interests face worsening conditions, mitigations could be considered in relation to future “no action” conditions and effects, rather than in relation to some rosy, and unrealistic, continuation of current or past conditions.

Policies to soften adjustments could include a range of different forms of assistance. Many of these have been used in various contexts both in California and elsewhere.

Investment Cost Sharing

Cost sharing arrangements might be appropriate, for instance, if western Delta water users need to construct new pipelines or storage to allow the western Delta’s salinity to fluctuate for ecosystem purposes. One example of a precedent for this kind of arrangement is the assistance provided to Los Angeles to reduce its diversions from the Mono Lake region. A state grant helped finance indoor conservation measures (notably, toilet retrofits) to reduce the city’s water demand.

Financial Compensation

For farmland that will lose value, some form of financial compensation is likely to be appropriate. One option is outright land purchases. Precedents include Sherman Island, at the western edge of the Delta, which

the state purchased in an attempt to ease water quality standards.⁵ On the west side of the San Joaquin Valley, the federal government has already purchased some lands that have become unfarmable because of drainage problems, and there are proposals to make additional purchases as part of a settlement with farmers over the lack of drainage facilities.

Other options might be considered. In the Delta, where farming might continue indefinitely on some islands—depending on the patterns of island flooding and salinity intrusion—it may be beneficial to consider contracts under which farmers retain ownership but receive compensation for the eventual loss of farm income. Such a system has the advantage of letting farmers continue to manage the lands; they have more detailed knowledge and are likely to be better stewards than the state. Payments could be made up-front, as with a flood easement, or on withdrawal from farming. In either case, the land would not be eligible for development, and claims could not be made regarding future water quality standards.

One way to manage such a program would be through subsidized insurance or performance bonds. Currently, federal flood insurance programs offer protections to farm buildings, and federal crop insurance is available for flood damage to crops in any given year.⁶ But there is currently no form of crop insurance that would cover the permanent loss of Delta farmland if islands become permanently flooded.

Although the Eco-Delta alternative is the only one that explicitly includes a transition to environmentally friendly farming in the Delta, such a transition would be appropriate under numerous alternatives for some Delta lands. Such farming practices would aim to restore soils, even sequestering carbon,⁷ and would provide forage crops valuable for desirable terrestrial species, including sandhill cranes and Swainson's hawk. There

⁵This measure proved unsuccessful, because it was still necessary to maintain standards for industries operating in the western Delta. The state now leases these lands to farmers.

⁶Currently, farms in the Delta appear to have roughly the same rate of crop insurance coverage as farms in the rest of the state—with about 36 to 38 percent of all acreage insured. Crop insurance also covers damage from drought, hail, and other natural events.

⁷Carbon sequestration—or the capture of greenhouse gases—can be accomplished by growing certain perennial plants—like trees or tules—which store carbon captured from the atmosphere, particularly if these plants are then interred to prevent the carbon from reentering the atmosphere as the plants decay.

are clear precedents for this type of activity elsewhere in California and the nation. Conservation easements can be used to compensate farmers willing to make such transitions for the loss in other income. Within the Delta, it would be important to target lands that would generate the most environmental benefits.

All of the programs noted here have the goal of encouraging farmers to sign on to a program before island flooding occurs, to help advance the adoption of an overall solution package for the Delta. Another option is to compensate farmers for the loss of farmland once an island floods. To provide proper incentives, it would be appropriate to pay a higher price for land enrolled in the program early and to purchase flooded land at a discount.

Physical Substitution

For some activities, it may make sense to provide land rather than financial compensation. For instance, duck clubs currently in Suisun Marsh could be provided with lands farther east, making habitat in Suisun Marsh available for delta smelt and other threatened Delta species. Such physical solutions are a frequent feature of dam construction projects, which offer relocation possibilities for those displaced.

Community Mitigation Funds

In areas where a substantial proportion of lands discontinue agriculture, there may be economic consequences for the entire local community as well as for individual farmers. The compensation mechanisms described above can help farmers adjust to change, but they do not help the community—local farm laborers, agricultural input sellers and output processors, and even other local businesses and public services that may be affected by a loss of farm activity. Similar issues come up when there are large transfers of farm water outside of a region, as in the case of some recent transfers of Colorado River water to Southern California cities. In these cases, community mitigation funds have been set up to help various third parties to transition to new economic activities. Some parallels also exist in U.S. trade legislation, which provides adjustment assistance to workers and businesses displaced by imports. The early experiences in water transfer mitigation in California suggest the need for

clear ground rules on eligibility and types of assistance (Hanak, 2003). As with water transfers, it is also important to recognize that such change does not always mean losses for a community, particularly when new opportunities arise in the local urban and recreational sectors.

Performance Bonds for Environmental Risk

For many of those depending on Delta services, uncertainties about the health of listed Delta species pose real costs, affecting the reliability of water supplies and land uses. This problem already exists, and it is likely to continue under any future Delta alternative. It may be possible to use performance bonds to capitalize some of these risks. Such bonds are used to cover the risks of cost overruns and delays in large construction projects. Performance bonds are essentially an insurance policy taken out based on the performance of a particular structure; if the structure does not perform to a set of specifications, the bond is paid to the owner. This arrangement provides assurance to the bond holder, who also has incentive (enforced by the insurer) to be prudent in constructing the structure.

Mitigations Versus Assurances

Mitigations and compensations differ from assurances. Assurances entail a guarantee of behavior or performance. The language of the CALFED era has been steeped in assurances, implying that such guarantees are possible. Mitigations and compensations do not assure specific future performance or actions. Rather, they provide a substitute for assured performance. Assurances of performance seem unreasonable for any likely Delta scenario, given the many uncertainties regarding the physical and biological dynamics of the Delta itself as well as long-term water availability in the Delta watersheds with climate change.

State and federal governments face an interesting policy problem regarding Delta mitigations. If consensus over a sustainable solution cannot be reached, nothing is likely to be done. The Delta is then likely to fail catastrophically, incurring major emergency expenses, plus restoration and remediation expenses—all under very unfavorable conditions. By investing in mitigations, some economically minor compensation costs (relative to California's \$1.5 trillion per year economy) could be used to catalyze agreement on better long-term solutions for the Delta.

Governance Considerations

Although it is beyond the scope of this report to provide a detailed analysis of governance questions, we provide some thoughts on three central issues: improving coordination of land use in the Delta, managing environmental lands, and providing better incentives to manage water resources.

Bringing Delta Land Use into the Fold

As we have argued in the preceding chapters, long-term solutions for the Delta need to address land use as well as water and environmental goals. The CALFED process made important progress in coordinating agencies with responsibility for water and environmental management, but it overlooked land use agencies. Developing a governance framework that incorporates land use is particularly daunting in the Delta, given the current state of institutional fragmentation. Individual cities and counties are the permitting authorities for new development, and local reclamation districts are responsible for most decisions on levee maintenance and upgrades. There is little effective representation of larger regional and statewide interests in Delta land use decisions. This is a problem, given the broader public interest and considerable public investment in the Delta.

The Delta Protection Commission, established by the Delta Protection Act of 1992, is the only body representing regional interests in the Delta.⁸ Its membership includes representatives from Delta cities, counties, and reclamation districts as well as various state agencies with Delta interests. Its primary purpose is to oversee land use and resource management issues in the Delta's primary zone, which the act reserved principally for agricultural, recreational, and environmental uses. Recently, the commission has begun serving as a regional forum for discussing growth issues more broadly. Although the commission may challenge land development that is inconsistent with the land use goals for the

⁸Delta cities and counties are members of three separate councils of government—the Association of Bay Area Governments, the Sacramento Council of Governments, and the San Joaquin County Council of Governments.

primary zone, it has no permitting authority and no ability to block land development.⁹

The state Reclamation Board currently does have the potential to exercise land use oversight in the Delta, through its authority to maintain the integrity of the flood control system. However, it has taken little interest in the Delta to date. Under current policies, it focuses only on those issues that either directly affect project levees (just over a third of all Delta levees—see Figure 2.2) or increase regional flood levels. As noted in Chapter 5, the board has come under criticism for its recent approval of the flood control plan for the River Islands housing development on Stewart Tract, with critics concerned that this decision did not adequately consider the implications for future flood risk either within the development itself or in neighboring areas.

Numerous other state and federal permitting agencies have the potential to affect land use in the Delta, including the California Department of Fish and Game and the U.S. Fish and Wildlife Service (species protection), the State Water Resources Control Board (water rights and water quality), the Army Corps of Engineers (flood control, navigation, and wetlands), and the Department of Water Resources and the U.S. Bureau of Reclamation (water contracts). However, none of these agencies have an institutional inclination for the regional management of resources of broad public interest.

The current lack of institutional authority for Delta land use, at a time when pressures to develop land resources are great, points to the need for a new approach. At a minimum, significant representation of state interests from outside the Delta is needed on the Reclamation Board and the Delta Protection Commission. More important, effective management of the Delta in the interest of the entire state will likely require an organization with more comprehensive oversight authority. Two models are the San

⁹For the second time in its 14-year history, the commission recently ordered a local authority to stop work while it reviews two appeals that challenge development in the primary zone. The case concerns a proposed 162-unit development in the northern Delta town of Clarksburg (unincorporated Yolo County). Litigation could result if there is disagreement between the county and the commission over the project's consistency with the provisions of the Delta Protection Act (Weiser, 2006c).

Francisco Bay Conservation and Development Commission (SFBCDC) and the California Coastal Commission.

These two bodies were created in response to pressures similar to those that now face the Delta. The SFBCDC, in operation since 1965, was established to tackle problems of uncoordinated development that were leading to the filling of the San Francisco Bay, which lost an average of four square miles per year between 1850 and 1960. The Coastal Commission, established in 1972, was created to ensure that land and water uses in the coastal zone are environmentally sustainable. Unlike the Delta Protection Commission, these two bodies have regulatory authority over a wide range of activities that have the potential to affect the beneficial uses of the bay and coastal resources. Both are authorized, under federal law, to exercise regulatory oversight of the actions of federal agencies. Both include a broad, representative membership.¹⁰

The SFBCDC's success has been truly remarkable—the San Francisco Bay is larger now than when the commission was created, and this has been achieved alongside the development of economic and recreational uses of the bay. As a regional entity, it provides a particularly interesting model for the Delta—which is part of the same valuable estuary as the San Francisco Bay.

An alternative management framework that has begun to draw interest in the Delta is the Habitat Conservation Plan/National Communities Conservation Plan model. As noted in Chapter 5, water exporters, state and federal fisheries agencies, and some environmental groups are in the process of developing such a framework, known as the Bay Delta Conservation Plan. In parts of Southern California, such plans have become very useful for making land use decisions that preserve open space and wildlife habitat at a regional scale. Designated areas are set aside for preserves, creating what some observers refer to as *de facto* urban limit lines. Both developers and environmental advocates see advantages in such an approach, which avoids piecemeal actions for habitat protection while providing more certainty to

¹⁰The SFBCDC has 27 members, including local land use authorities and various state and federal agencies. The Coastal Commission's 12 voting members include a mix of public members and local elected officials from various coastal areas; three state agencies have nonvoting status.

developers. These programs are also credited with facilitating fundraising for environmental mitigation.

Although the BDCP approach now under way may provide similar benefits to water users and Delta species, it is too limited in scope to serve as a comprehensive tool for governing Delta resources. In particular, it does not include local land use authorities. For this reason, we see the Bay Delta Conservation Plan process as a complement, rather than a substitute, for an institution like the SFBCDC for the Delta.

Managing Environmental Lands in the Delta

Another governance issue is the management of environmental lands. All Delta solutions will require more integrated management of water and land resources to foster improved habitat conditions for the Delta's aquatic and terrestrial species. As seen in Chapters 7 and 8, some Delta solutions have the potential to devote considerable resources to this goal. Environmental uses would, in many cases, be compatible with the further development of the Delta as a recreational destination. To manage these resources in a coordinated way, the establishment of various forms of public or nonprofit entities may be appropriate, including a state or national park or a nonprofit land trust. A land trust model is particularly compatible with the continued private management of some lands for eco-friendly agriculture. Land trusts across California and the country have played an important role in the development of conservation easement programs for farm and ranch lands. Some trusts play an active role in environmental land management as well.¹¹ One example within the Delta is the Cosumnes River Preserve, a 40,000 acre wildlife area managed by the Nature Conservancy and the U.S. Bureau of Land Management, in cooperation with other governmental and nonprofit partners.

Finance and Control of Water Facilities

In Chapter 8, we noted that stakeholder involvement will be important to develop good design and implementation rules for various Delta water management activities. New forms of stakeholder involvement are also likely to be an important part of any incentive package necessary to gain agreement on new water facility investments or the re-operation of

¹¹For information on land trusts and a list of California organizations, see the website of the Land Trust Alliance (www.ltanet.org).

existing facilities. Finance and operational control of solutions are often unavoidably intertwined. Those who pay or invest have good reasons to want a role in the design, implementation, and operation of a solution. In the past, concerns over control of major new infrastructure facilities have led to unwillingness to either accept new facilities or pay for them.

One potential alternative is to assign shares of capacity of new (and perhaps existing) facilities to different parties with a stake in Delta water quality and water supply (upstream diverters, in-Delta users, exporters, and environmental agencies). Weekly or monthly pumping capacity would be allocated among the different agencies, with the share of a particular agency determined by its financial contribution or regulatory role. Under such a system, each party could affect the use of some infrastructure capacity to protect its interests, but there would be incentives for improved overall operations (e.g., through water exchanges and transfers). For instance, an environmental agency owning part of this capacity would have the option to limit diversions or to lease its share to other water users to generate revenues for environmental restoration activities in the Delta or upstream. Such an arrangement would give the environmental agency an incentive to allow pumping when it does little harm to fish, because it would provide revenues for other environmentally worthy activities.

The Environmental Water Account (EWA) established under CALFED is a prototype of this idea. It has sometimes been called a “water district for the environment,” because it provides state and federal environmental managers with water resources that can be called on to regulate the operations of the CVP and SWP pumps to protect native fish species. However, this program has relied mostly on annual budget allocations rather than on a substantial permanent allotment of the water rights or project pumping capacity. As such, it has been subject to budgetary vagaries that may have limited its effectiveness (Rosekranz and Hayden, 2005).

Conclusions

Any viable long-term solution for the Delta’s problems must encompass more than just a physical solution. It must also include fiscal and institutional solutions, requiring a political agreement. No Delta solution will be good for all parties. This was a delusion of the CALFED era,

born of a now-depleted state and federal cash flow. Reaching a political agreement in the face of tradeoffs will be difficult and will likely require some compensations and mitigations. Such mitigations will require either greater external (state and federal) funding or increased payments from beneficiaries. In any event, beneficiaries will almost certainly need to pay most of the costs of fixing the Delta.