

# Project Memorandum #8 - Evaluation of Possible Financing Mechanisms

June 14, 2016

## INTRODUCTION

This memorandum presents the framework and process our team will use to identify and evaluate the feasibility of various financing mechanisms to generate revenue to support investments in levee-related risk reduction activities.

For the specific purpose of this study, our team developed archetypes representing five situations in the Delta to evaluate the feasibility of various financing mechanisms in particular settings. This approach greatly simplifies actual Delta situations, and provides transparency for the analysis. The archetypes include various sets of significant beneficiaries; applicable financing mechanisms are matched to those beneficiaries based on the suitability of the mechanism to the activity or purpose that is benefiting. For example, revenues from a farm may be secured with a land-based assessment or tax, while a water utility may be reached with a user or regulatory fee.

Not all mechanisms will be present in any one archetype because not all beneficiaries are present in all archetypes. We then screened candidate mechanisms across a range of criteria using the process outlined in this memorandum. As part of this screening, the team will evaluate the overall portfolio of mechanisms in each of the archetype settings.

Our interdisciplinary project team (consisting of land use lawyers, economists, environmental planners, policy analysts, and public finance experts) identified a comprehensive, though not exhaustive, set of possible mechanisms based on the team's experience, and by reviewing relevant literature.

We then grouped the identified revenue-generating mechanisms into broad categories, for example, based on whether they were property-based (e.g., assessment districts), embedded in public financing approaches, user fees, or regulatory charges linked to utilities or infrastructure.<sup>1</sup> In addition, the team evaluated the legal requirements and parameters (e.g., differences in application of Proposition 13 for Board of Equalization as compared with county-assessed entities) as reflected in "Context Memorandum #2: Current Legal and Institutional Context for Financing Flood Protection." Appendix A Table 1 lists the broad categories of financing mechanisms with key characteristics.

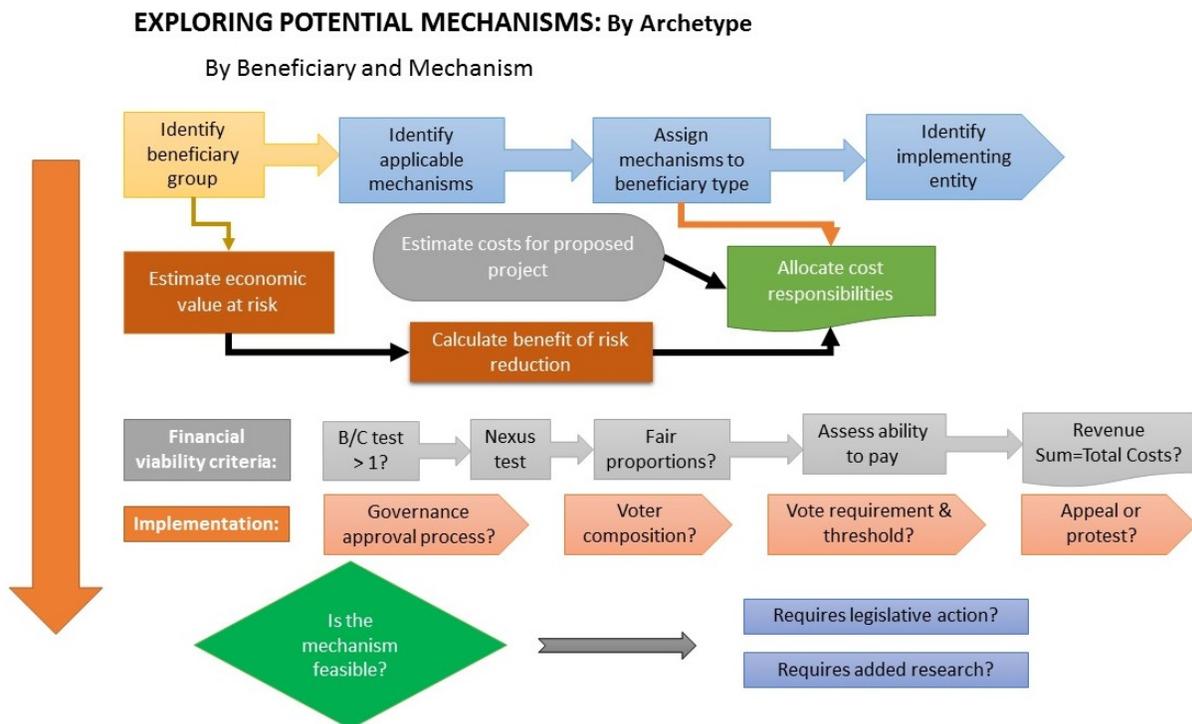
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<sup>1</sup> After Proposition 13 was enacted in 1978, state and local governments, developers, non-profits and others created a large number of new revenue-generating mechanisms, and continue to do so, as means to finance public sector activities outside traditional property taxation approaches.

## STEPWISE SCREENING PROCESS

The team devised a stepwise process to identify the most promising financial mechanisms to be applied in a given situation (e.g., archetype). After categorizing the available mechanisms, the steps are as follows: identify beneficiary groups, identify applicable mechanisms, assign mechanisms to beneficiary type, estimate economic value at risk and the benefits of reducing that risk, estimate costs of proposed project, allocate cost responsibility, check financial viability, and set out the implementation steps. Figure 1 illustrates this process at a summary level. These steps are further described below in more detail.

Figure 1



*Identify beneficiary groups:* Potential beneficiaries of flood control measures were identified in *Project Memorandum #5: Beneficiaries Analysis – Overview of Approach and Methods*. The team determined which beneficiaries were involved in each archetype, as described in *Project Memorandum #3: Archetypes*. Each archetype has a unique combination of beneficiaries; not all beneficiaries are in each archetype.

*Identify applicable mechanisms:* Certain categories of mechanisms are applicable to specific beneficiaries. For example, a local assessments district such as a reclamation district cannot capture revenues from a water exporter, but a water exporter can be levied a user fee. The pool of potential mechanisms is shown in Appendix B.

*Assign mechanisms to beneficiary type:* In this step possible financing approaches are matched with potential beneficiaries, and the state, local, or special district public sector entities that (1)

authorize; and (2) collect charges identified. In many cases this is a straightforward exercise, for example, a user fee on highways could be linked to benefits to highway users, and could be imposed by those agencies responsible for ensuring highway access, such as Caltrans or counties. The unit on which the revenue measure will be assessed (e.g., acreage, miles, weight, value) would depend on the potential mechanisms.

*Estimate economic value associated with the purposes and activities protected from flooding:* This is a function of the total assets and the proportion exposed to the flood hazard. Estimating this value involves several sequential steps, as outlined below.

- Estimate or compute total asset value by benefit and associated beneficiary: This value reflects what is being protected, either in dollar terms, or, if that is not possible, relative magnitude, as described in *Project Memorandum #5: Beneficiaries*. In general, the starting point for the team's valuation is available information, either specific to the location, or comparables, with an identification of what additional data or analysis is needed to refine value estimates. For study purposes, the team assumes that existing uses are static unless there is an explicit reason to assume otherwise (e.g., planned new residential developments). Assets with similar relative values within an archetype can be grouped, with the importance of developing more detailed values influenced by the magnitude of asset value in a particular setting (e.g., agriculture in the western Delta or residential developments in the Secondary Zone).
- Estimate flood hazard: This estimate reflects the probability of a flood event occurring that could damage assets given current protection. The initial flood hazard estimate comes from the team's evaluation of DRMS results;<sup>2</sup> it should be updated with stakeholder input or additional external information when moving to implementation.
- Estimate damage from flood event: This reflects the potential reduction in asset value created from a specified flood event. The initial estimate will come from DWR analyses,<sup>3</sup> but again should be updated with stakeholder input when moving to implementation.
- Estimate value at risk by beneficiary: This equals the estimated asset value multiplied by asset damage multiplied by flood hazard. For example, a residence may be worth \$100,000 and the expected flood damage may be 25% with two-feet of inundation, with the expected damage \$25,000. If the flood hazard is 1 in 100 years, or 1%, then the estimated value at risk in any one year is \$250. The annual risk can be accumulated over a specified number of years, usually either the life of the asset or the underlying term of debt on the asset. In this example, with a 30-year mortgage and a 3% discount rate, the present value of the value at risk is \$4,900.

*Calculate the benefit from reduced flood risk from a project:* Estimating this value is based, in most cases, on reducing the risks associated with doing nothing. This is the benefit derived from flood protection. Again this involves several sequential steps.

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<sup>2</sup> Based on draft DRMS spreadsheet file data (2008) provided by the consulting team.

<sup>3</sup> 2012 Central Valley Flood Protection Plan, Attachment 8F

- Calculate change in flood hazard: This is the reduction in flood risk from a flood control measure. For example, the levee project may reduce the hazard from 1 in a 100 to 1 in 200 years, which is a reduction from 1% to 0.5%.
- Characterize change in value at risk by beneficiary: This equals asset value multiplied by asset damage multiplied by change in flood risk. Using the example above of a residence and the change in flood hazard, the present value of the change in risk would be \$2,450.4
- Estimate cost of alternative risk reduction measure: For example, alternatives could include armoring a portion of the levee, purchasing flood insurance, improving emergency response, or armoring individual assets. For example, a residence might be built on stilts or a berm to raise it above the flood plain.
- Assess relative benefits across beneficiaries: For each archetype, relative benefits, as defined either by the appropriate financing mechanisms or from accepted economic methods, are estimated compared to other co-located or related beneficiaries (e.g., agricultural neighboring habitat). The key is arriving at a common metric for that comparison. This comparison is used in the cost allocation step, next.

*Estimate cost for proposed project or flood protection activity:* This reflects the cost of the specified measure to reduce the risk of a damaging flood (e.g., raising levees). This could include raising portions or all of an island's levee to a specific engineering standard, such as those contained in Bulletin 192-82. Or it may consist of ongoing maintenance to keep levees at current levels.

*Allocate cost responsibility:* The chosen portfolio of financing mechanisms may dictate how to allocate costs among beneficiaries in particular settings. For example, federal law requires the separable-cost, remaining benefits (SCRB) method;<sup>5</sup> for land-based assessments, Proposition 218 mandates that there be a strict linkage between the assessment and the benefits delivered to those being assessed, with only specific (versus general) benefits eligible for assessment. This step is discussed in more detail in *Project Memorandum #7: A Menu of Available Cost Allocations for Financing Mechanisms*.

Based on the relative benefits metrics and the chosen financing mechanisms, the basic principles for the cost allocation method that is applicable to each mechanism is described. These methods are discussed in more depth in *Project Memorandum #7*. Since different cost-allocation methods may be applicable based on legal, administrative and societal criteria, several scenarios may be presented.

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<sup>4</sup> An important next step in implementation would be to *characterize risk tolerance*. This starts with the change in value at risk, then asks for stakeholder input on the probable value of avoiding the flood hazard if it differs from the initial estimate. The team has not developed values for these in the feasibility study because doing so requires substantial effort that is best reserved for moving to the implementation phase. Such tolerance is not easily derived for hypothetical situations illustrated with the archetypes.

<sup>5</sup> As described in the US ACE Cost-Benefits Manual and the DLIS Technical Memo 3.1.

*Economic and legal criteria:* Within the cost-allocation step, certain threshold tests may be applied depending on circumstances:

- *Nexus test—cause/effect:* The flood control intervention must provide value to the beneficiary according to this legal test. For example, for land-based assessments, the proportional relationship – nexus – between the benefit received and the assessment imposed must be analytically demonstrated. For non-land-based revenue generating mechanisms like a tax, there may, or may not, need to be a relationship between the activity on which the charge is being levied and what is being protected.
- *Fair proportions:* The fair proportional allocation is bounded by the relative benefits received by a beneficiary as the upper bound, and the cost of service to a beneficiary as the lower. In other words, a beneficiary should not pay more than the potential benefit in costs, but should pay at least the direct cost of service.<sup>6</sup>
- *Characterize the relevant reclamation district's ability to pay:* Per Water Code section 12986(a)(3)(A), the Department of Water Resources must verify a reclamation district's ability to determine local versus state cost shares on Delta levee subventions.
- *Apply benefit-cost test—check if value is greater than cost:* This reflects a threshold test to determine whether the change in value at risk is greater than the minimum cost of risk reduction measures.<sup>7</sup> An example of the latter is the Proposition 218 test that an assessment not exceed the benefits. For the justification test, the cumulative change in the value at risk or benefits can be compared to the total project costs, without allocating costs to beneficiaries. For the legal test, usually the cost allocation must be done first, and then the allocated costs compared to the individual benefits.
- *Financial viability criteria:* Do total revenues collected from all beneficiaries equal the total costs of protection measures? This determines whether the application of the bundle of mechanisms to the set of beneficiaries can feasibly pay for the needed risk reduction interventions.

*Legal implementation requirements:* As discussed in “Context Memorandum #2: Current Legal and Institutional Context for Financing Flood Protection,” and reflected in Appendix A, identify the state, local, or special district public sector entity – or the voting jurisdiction – that has to authorize the mechanism, under what requirements (e.g., majority; super-majority), with what voter composition (e.g., registered voters; landowners), and appeal process (e.g., Proposition 218).

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<sup>6</sup> The fair share to be paid by a beneficiary (bounded by these two values) would be determined during implementation through negotiation and should be informed by the literature on optimal taxation and other topics.

<sup>7</sup> This type of test has been applied by different agencies and in different settings to both determine if improved flood protection is justified, and whether the amount charged to a beneficiary for flood protection meets certain legal tests.

*Determine if the mechanism is feasible:* Based on the various tests and the implementation requirements, is the mechanism a feasible alternative in the context of a portfolio of mechanisms?

*Identify if it requires legislative action:* Will the process be conventional or require an innovative or novel legal approach? Is approval for levee improvements linked to changes in financing mechanisms?

*Identify if it requires additional research:* A mechanism may be intriguing in the context of a given archetype, but insufficient information is available to complete the screening. The team will recommend whether further research is warranted.

## APPENDIX A: MECHANISM CATEGORIES: LEGAL CHARACTERISTICS AND POTENTIAL LIMITATIONS

Revenue Option	Cities and Counties	Special Districts	State of California
<b>Assessments</b>	Proposition 218 procedural and substantive limitations apply: engineer’s report, capture of special benefits only, hearings, and majority protests based on weighted voting tied to relative financial obligations. The assessed property must specifically benefit from the improvements or services.	Same as cities and counties.	Proposition 218 assessment requirements do not apply to the State. Current State assessment activity is non-existent or limited at most. State assessments may require a 2/3 vote of both legislative houses unless the tax (charge) is reasonably related to the cost of a benefit, service, facility, or regulatory effort being provided to the payor.
<b>General Taxes</b>	Ad valorem property taxes are capped by Proposition 13 at 1% of full cash value. New general taxes where revenues are collected for general revenue purposes must be approved by the local voters.	Ad valorem property taxes are capped by Proposition 13 at 1% of full cash value. Special districts may be entitled to a historic proportionate share of property taxes. Special districts cannot levy a general tax.	Ad valorem property taxes capped by Proposition 13 at 1% of full cash value. New taxes require a 2/3 vote of both legislative houses unless the tax (charge) is reasonably related to the cost of a benefit, service, facility, or regulatory effort being provided to the payor.
<b>Special Taxes</b>	As stipulated by Proposition 218,	Same as cities and counties.	New state taxes require approval by

Revenue Option	Cities and Counties	Special Districts	State of California
	<p>new special taxes are subject to 2/3 voter approval. Tax revenues can only be used for the purpose for which the tax is collected.</p>		<p>2/3 vote in both legislative houses unless the tax (charge) is reasonably related to the cost of a benefit, service, or regulatory effort provided to the payor.</p>
<p><b>Impact Fees</b></p>	<p>Cities and counties have the inherent constitutional authority to adopt impact fees. Under the Mitigation Fee Act, the fees charged have to be reasonably related to their stated purpose. Impact fees are generally associated with new development activity. Impact fees would have limited utility in the Delta Primary Zone but may be more applicable in the Secondary Zone where urban development is occurring.</p>	<p>Special districts do not have the inherent authority to adopt impact fees and must rely on specific legislative authorization. If a district is authorized to adopt impact fees, it must follow the Mitigation Fee Act. Impact fees would have limited utility in the Delta Primary Zone but may be more applicable in the Secondary Zone where urban development is occurring.</p>	<p>The Mitigation Fee Act applies only to local agencies. State impact fees, if enacted, may require a 2/3 vote in the legislature pursuant to Proposition 26.</p>
<p><b>New or Increased Property-Related Fees and Charges</b></p>	<p>Property owners must be notified of the proposed charge and given the right of protest (the measure must be terminated by majority protest). The fee must be reasonably related to the service being provided and</p>	<p>Same as cities and counties.</p>	<p>Proposition 218's limitations on property-related fees and charges do not apply to the State, although would apply to a state created regional agency New state imposed charges are limited by Propositions</p>

Revenue Option	Cities and Counties	Special Districts	State of California
	<p>not for general governmental purposes. The burden is on the agency to correlate fees/charges to service costs. Fees/charges (other than water, sewer, or solid waste disposal charges) must be approved by the voters (property owner or registered voter) (Proposition 218).</p>		<p>13 and 26.</p>
<p><b>Regulatory Charges</b></p>	<p>Regulatory charges are restricted to the reasonable costs of providing the service or activity; they cannot be used for general revenue purposes. The burden is on the agency to correlate fees/charges to service costs.</p>	<p>Same as cities and counties.</p>	<p>Same as cities and counties.</p>
<p><b>User Fees</b></p>	<p>User fees are restricted to the reasonable costs of providing the service or activity; they cannot be used for general revenue purposes. Depending on the specific imposition, a user fee may also fall under the requirements of Proposition 218 (see Property-Related Fees and Charges, above).</p>	<p>Same as cities and counties.</p>	<p>New state levied taxes require a 2/3 vote of both legislative houses unless the tax (charge) is reasonably related to the cost of providing the benefit, service, or regulatory effort. Under Proposition 26, revenues cannot be used for general revenue purposes.</p>

## **APPENDIX B: CANDIDATE FINANCING MECHANISMS AND RELATIONSHIPS TO BENEFICIARIES**

Table 1 shows a list of potential financing mechanisms, matched with the beneficiary groups to which they could be applied. The financing mechanisms identified in the table are based on different state and local statutes, as discussed in “Context Memorandum #2: Current Legal and Institutional Context for Financing Flood Protection,” Appendix A. They reflect a mix of mechanisms that are largely predicated on the “beneficiary – pays” approach, as well as public benefits financing tools, which are embedded in creating more general societal benefits. The rationale for using this approach is described in several previous project memorandums.

Due to the large number of candidates, individual measures are explained in the forthcoming memorandum that describes the screening in each archetype only if each is evaluated within a specific archetype setting. In this way, we avoid discussions of irrelevant options at this early stage.

**Table 1 – Candidate Financing Mechanisms with Targeted Beneficiaries**

Beneficiary Category	Community Beneficiaries					Agr. Water Users	Muni. Water Users	Infrastructure Owners and End Users							Upstream Dischargers			General Public			State and Local Government		State Economy							
Beneficiary	Delta Resident Personal Safety	Delta Commercial & Residential Property Owners	Delta Public Facilities	Delta Schools	Local Economy	In-Delta Ag Operators	South of Delta Ag Water Users	In-Delta Muni. Water Users	South of Delta Muni. Water Users	EBMUD	Oil and Gas Companies	Power plant Owners	Electricity Infrastructure Owners	Telecommunications Companies	Railroad Companies	State Highway Users	Ports	Wastewater Dischargers	Stormwater Dischargers	Hydropower owners and operators	Public concerned for ecosystem	Commercial/recreational fishers	Recreation participants	Delta as Place beneficiaries	State Government	Local Government	Special Districts	State Economy		
Funding Mechanism	Agency/ Entity																													
<i>Property-related</i>																														
Assessment district	Local		X			X					X	X	X	X	X															
Delta-wide assessment district	Regional		X			X					X	X	X	X	X															
State assessment district	State		X			X					X	X	X	X	X															
Geological hazard district	Local		X			X					X	X	X	X	X															
Incremental tax district (e.g., Mello-Roos)	Local		X			X					X	X	X	X	X															
Delta Flood Protection Fee	DSC	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X													
<i>User Fees</i>																														
Delta user fee / AF	CSLC						X	X	X	X							X						X	X						
Agricultural discharge fee / AF	SWRCB, CVRWQCB					X																								
Groundwater pumping fee / AF	SWRCB, CVRWQCB																													
Delta gas severance fee	DOGGR										X																			
Delta boat registration tag	DMV																						X	X						
Fishing/licenses	CDFW																						X	X						
Motorboat use fee	CDBW																													
SWP/CVP Water Conveyance Fee	DWR, SWRCB or CSLC						X		X	X																				



