Memorandum #3
Potential Financing Mechanisms for Groundwater Recharge from Floodwater Diversion

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For Sustainable Conservation

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INTRODUCTION

This memo outlines potential financing mechanisms for groundwater recharge in California's Central Valley. After a brief introduction on how current methods of funding groundwater recharge might be applied to a floodwater diversion program, the body focuses on potential financing options under the Sustainable Groundwater Management Act (SGMA), and possibilities for program beneficiaries and other non-beneficiary private interests to contribute to project financing. Table 1 provides a summary of how the beneficiary categories identified in the previous memo on Benefits and Beneficiaries correspond with potential funding sources. Appendix A provides a more exhaustive list of financing methods along with their institutional, legal, and political feasibility.

Table 1. Financing mechanisms and program beneficiaries

	Financing Mechanisms	Beneficiaries included
Local	Local Pumping Fees	Local Ag Operators, Local Municipal Water Providers, Local Agricultural Water Providers, Private Well Users
	Local Groundwater Banking and Trading	Local Ag Operators, Local Municipal Water Providers, Local Agricultural Water Providers, Private Well Users
Upstream	Water Supply Reservoirs Payment	Upstream Flood Protection Agencies, Surface Water Project Customers
	Hydropower Payment	Hydropower Owners and Operators
Downstream	Flood Protection Fees	Downstream Commercial and Residential Property Owners, Downstream Agricultural Operators, Infrastructure Owners and End Users

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	Financing Mechanisms	Beneficiaries included
	Ecosystem Payments	Downstream Ecosystem
Statewide / External	Non-Local Groundwater Banking and Trading	
	California Climate Investment Funding--SALC Program	
	Private Investment (e.g. Environmental Bonds)	

CURRENT GW RECHARGE REGULATION

Prior to SGMA, the groundwater regulations that are currently in the early stages of implementation in California, there has been little consistent oversight of groundwater resources in the state. Such use has been governed by undefined "correlative" rights and outside the jurisdiction of the State Water Resources Control Board.

However, a small percentage of groundwater basins in the state have been managed under special oversight authority—either by districts created by a special act of state legislature or in basins that have undergone adjudication. There are currently 14 Special Act Districts and 22 adjudicated basins in California[2] that have groundwater management authority. A handful of special act districts charge Groundwater Pumping Fees[3] per acre-foot of water extracted from the basin, including Coachella Valley Water District, Desert Water Agency, Orange County Water District, and Santa Clara Valley Water District. Some management entities in adjudicated basins like Chino Basin and Mojave Basin in Southern California also charge replenishment fees for groundwater extraction to fund local groundwater replenishment programs.

In addition, in a number of adjudicated basins, groundwater pumping rights are transferable and active trading takes place among water users, with the management agency responsible for maintaining the overall cap on groundwater extraction.

POTENTIAL LOCAL FUNDING MECHANISMS

This section contains a description of several funding mechanisms that have the most promise for funding groundwater recharge in the Central Valley. They are a subset of a more exhaustive list of funding mechanisms, that have been culled to include those with the most potential, based on legal, institutional, and political constraints. A full list of possible financing

[2] https://californiawaterblog.com/2014/04/03/funding-sustainable-groundwater-management-in-california/

[3] It has been an ongoing question as whether Proposition 218 applies to groundwater pumping fees. The proposition would require 2/3 voter approval. The key issue is whether pumping fees are tied to property or to the activity of pumping.

mechanisms is included in Appendix A, along with the various considerations associated with each.

Pumping Regulation under SGMA

California's Sustainable Groundwater Management Act (SGMA) created Groundwater Sustainability Agencies (GSAs) responsible for implementing sustainable groundwater management practices in their basins. SGMA was enacted in 2014 to bring groundwater basins identified as overdrafted into sustainable balances of recharge and use. Local agencies, including counties and water agencies, are given until June 30, 2017 to form GSAs. The GSAs then have until 2020 for critically overdrafted, and 2022 for other basins, to develop Groundwater Sustainability Plans (GSP) to bring each aquifer into balance over 20 years. Many solutions have been discussed, but most likely limits on pumping will be imposed in most basins.

Local Pumping Fees

It also gives these agencies the authority to impose fees on groundwater use, providing a new revenue stream to pay for groundwater recharge. Under the same legislation, GSAs have authority to impose fixed fees and fees on a per acre-foot basis, including fees based on the quantity of groundwater produced, the year in which the production of groundwater commenced, and impacts to the basin. GSAs are also authorized to collect penalties from groundwater users for over-extraction.

Existing Special Act Districts and Adjudicated Basins can serve as models for how to structure these fees based on location, type of user, and use beyond a certain allocation. Following are some examples of how districts in California currently structure fee programs to fund groundwater replenishment.

- Coachella Valley Water District (CVWD) charges a Replenishment Assessment Charge (RAC) to partially meet the cost of groundwater replenishment in its district. Because the three subbasins in the district have their own set of costs and benefits of replenishment, there are three separate RACS. In all three subbasins, the RAC applies to all private and public well owners who pump more than 25 acre-feet of water per year. In 2016 the RAC ranged from $66 per acre-foot in the East Whitewater River Subbasin, to $123.20 and 128.80 per acre-foot in the district's West Whitewater River and Mission Creek subbasins. CVWD undertakes an annual engineering analysis of groundwater to

set RACs, which vary annually and have increased in recent years by 2%-30% annually in different years and subbasins.[4]

- Orange County Water District (OCWD) charges a per acre-foot Replenishment Assessment (RA) to any retail agency, farmer, business or individual that pumps groundwater in the district (though private individuals that pump less than one acre foot a year pay a flat fee instead). For the 2015-2016 water year, the RA was $322 per acre foot. OCWD also establishes a Basin Pumping Percentage (BPP), based on the portion of projected total water demands that can be met with the sustainable yield of groundwater supplies. Any party that exceeds their allocated BPP must also pay the Basin Equity Assessment designed to make the cost of pumping groundwater the same as the cost of more expensive imported water. In 2015-2016, the BEA was $587 per acre foot.[5]
- Santa Clara Valley Water District uses groundwater production charges that vary by use category and geography. Agricultural users and non-agricultural groundwater fees are different for the District's two groundwater zones. In charge zone W-2, which generally coincides with the Santa Clara Plain, groundwater charges for agricultural users are $23.59 per acre foot, while charges for non-agricultural users are $1,072 per acre foot. In charge zone W-5, which generally covers the Coyote Valley and Llagas Subbasin, groundwater charges on agricultural users are $23.59, and $393.00 on non-agricultural users.

Local Groundwater Banking and Trading

In addition, SGMA authorizes GSAs to establish rules for carrying over unused groundwater allocations from one year to the next, and voluntarily transferring allocations as long as the total extracted in any five-year period is consistent with the groundwater sustainability plan. This potential to establish tradeable groundwater use rights and water markets within the groundwater basin may provide an additional source of revenue, allow for "zero-cost" auctions in which users are compensated directly for transferring allocations, and provide a basis for incentivizing groundwater recharge.

Groundwater banking and trading also provide some flexibility in how participants in a recharge program can be compensated. If groundwater rights are tradeable, then participants do not

[4] Engineer's Report on Water Supply and Replenishment Assessment 016-2017. http://www.cvwd.org/ArchiveCenter/ViewFile/Item/505

[5] "OCWD Establishes 2015-2016 Basin Pumping Percentage and Price," *OCWD Hydrospectives*, http://newsletter.ocwd.com/2015/ReadMore_2015-07_BasinPumpingPercentageAndPrice.aspx

necessarily have to be compensated in cash, but can be compensated in groundwater rights that can subsequently be sold or traded on the market. A market in groundwater rights would relieve the groundwater agency of designing an auction mechanism for program participation. An example of a parallel program design is California's GHG allowance trading under AB 32. Under California's Cap and Trade program, entities can hold emission allowances and trade them on a secondary market to make up allowance shortfalls or profit from surpluses. Similarly groundwater users can trade rights to meet their annual water needs to profit from excess rights beyond their annual water needs.

POTENTIAL DOWNSTREAM FINANCING MECHANISMS

Downstream Flood Protection Fees

The ability to divert large quantities of water from waterways during high flow events and spread that water over large areas, safely away from downstream structures and agricultural interests has real flood risk reduction benefits. With careful analysis and valuation of these risk reduction benefits, downstream interests and flood management agencies may have an interest in contributing to such a program. A 2014 Tetra Tech, Inc. Hydraulic and Hydrology Analysis examined the downstream flood risk reduction benefits of a program to divert 150 cubic feet per second (cfs) and 500 cfs from the Kings River during flood flow conditions. The study found that at 150 cfs the project would reduce expected annual damages (EAD) by $300,000, and at 500cfs, it would reduce EAD by $800,000. In the case of the Tetra Tech project, DWR provided funding through its Flood Protection Corridor Program, which requires demonstration that the project provides sufficient flood mitigation benefits.

Ecosystem Payments

Investment in ecosystem benefits may be available from public agencies or conservation organizations. An example of this kind of investment is The Nature Conservancy's BirdReturns program, which pays farmers to flood their fields at certain times of the year to provide wetland habitat for migrating bird species. Rather than purchase conservation easements, The Nature Conservancy pays farmers to flood their rice fields temporarily, which is much less costly but provides needed habitat during periods of migration. The California Department of Fish and Wildlife is responsible for providing habitat for migrating bird species, along with non-governmental partners such as The Nature Conservancy.

POTENTIAL UPSTREAM FINANCING MECHANISMS

Upstream Water Management

There may be some potential to raise revenue for groundwater recharge through payments from other beneficiaries of groundwater recharge. Local groundwater users will presumably already be paying fees toward groundwater recharge through the GSA, however upstream and downstream beneficiaries may be prime to contribute to groundwater recharge programs in the Central Valley.

Water Supply Reservoir Payments

The option to use flood releases to recharge groundwater can give reservoir managers more flexibility in their water storage decisions. If managers can decrease releases during a storm event, knowing that the risk of large subsequent flows can be diverted to on-farm recharge locations, they can essentially transfer the flood control responsibility from the reservoir to downstream entities, while also extending environmental benefits.[6] This allows reservoirs to reduce the amount of space reserved to capture late winter storm events. Reallocating a portion of this reservoir storage space from flood control to conservation (including hydropower, water supply, and environmental releases) means that the reservoir can generate more storage benefits, particularly in wet years.

Hydropower Payments

In particular, hydropower owners and operators may be willing to pay into a recharge program that allows for increased reservoir storage and hydropower production. The ability to store additional water for use in the summer has numerous benefits, since hydropower is an important part of the electricity grid in California. Hydropower provides flexible, dispatchable resources that helps balance out other intermittent renewable resources such as wind and solar or resources that are more difficult to ramp up to meet peaks in demand. Additional hydropower generation also replaces less efficient gas-fired facilities in the state or out-of-state coal generation with greenhouse gas (GHG)-free emissions. Hydropower also provides ancillary and emergency support services to the grid.[7] Studies modelling flood storage reductions (i.e. reallocating reservoir space from flood control storage to storage for hydropower, water supply, and environmental releases later in the year) on the Mokelumne River have found small

[6] Watts, et al. 2011. "Dam reoperation in an era of climate change." Marine and Freshwater Research 62(3): 321-327. https://www.conservationgateway.org/Documents/Watts%20et%20al%202011%20dam%20reoperation%20in%20an%20era%20of%20climate%20change_0.pdf

[7] See Memorandum 1, Appendix C for a longer discussion of the benefits to hydropower.

improvements in total economic benefit from flood storage reductions of 25% to 50%.[8] Past studies by the USACE also found that reoperation of reservoirs to reduce flood storage space was the form of reoperation with the greatest benefits, without significantly affecting existing flood protection.[9]

STATEWIDE AND EXTERNAL FINANCING MECHANISMS

This class of beneficiaries reside outside of the water basin, but have interests in developing and supporting a floodwater recharge program, either as through use of a related resource such as project water, or economic and ecosystem relationships.

Non-Local Groundwater Banking and Trading

Groundwater banking in particular has the potential to draw funding from non-local sources. Municipal and urban water agencies like San Diego County Water Authority, Metropolitan Water District of Southern California, and Santa Clara County Water Agency make large investments to ensure supply reliability in dry years. These, along with smaller municipal agencies in the Central Valley participate in Water Banking projects in Kern County, where they store supplies in wet years to call on in dry years. Similar agencies may be willing to help fund a groundwater recharge program in exchange for a portion of the groundwater rights in dry years. Currently 11 agencies in Kern County, including the Kern Water Bank and the Arvin-Edison Water Storage District provide groundwater banking either locally or to other water agencies in the Central Valley and Southern California. The oldest of these agencies, the Semitropic Water Storage District uses proceeds from its water banking activities to offset the costs of imported surface water in its service area, thereby relieving pressure on groundwater resources.

Some counties in the Central Valley are constrained by local groundwater ordinances designed to discourage their ability to export groundwater to users outside of the county. These ordinances are in place in Kern, Fresno, Madera, and San Joaquin counties and in some cases also restrict groundwater substitution transfers, and groundwater banking with non-local entities. This means that transfers of groundwater, even by displacing surface water supplies, may remain solely within local basin-level or county-level markets in many cases.

[8] Burley, N.R. 2011. https://watershed.ucdavis.edu/shed/lund/students/BurleyMSThesisSS.pdf

[9] USACE. 1988. "Opportunities for reservoir storage reallocation." Hydrologic Engineering Center, Project Report No. 11.; USACE. 1990. "Modifying reservoir operations to improve capabilities for meeting water supply needs during drought." Research Doc. No. 31 AD-A236 078.

California Climate Investment funding through the Sustainable Agricultural Lands Conservation (SALC) Program

The SALC Program is a component of the Strategic Growth Council's Affordable Housing and Sustainability Program that funds permanent conservation of agricultural land at risk of development. The SALC Program provides funding for the purchase of agricultural conservation easements and the development of agricultural land strategy plans that reduce GHG emissions through the long-term protection of agricultural lands. To qualify for funding land must be able to demonstrate a risk of conversion to residential use. $37.4 million was awarded in August 2016. Funding for the 2016/17 program is anticipated in early 2017. The program is administered by the California Department of Conservation.

Private Investment

There are examples of private entities investing in water entitlements, particularly in arid regions where fresh water for agricultural irrigation is relatively scare. Since decoupling water entitlements from land titles in 2004 and creating a more robust market to facilitate efficient water trading, Australia has seen tens of millions of dollars invested in water entitlements. Holders of water entitlements are allocated a volume of water each year, which can be sold or leased to water users. Investors expect that long-term trends in water availability and demand for the high-value produce of Australia's agricultural industry will results in long term capital growth. In recent years, several large investment funds have been established, aiming to raise hundreds of millions of dollars in water investments.[10] California water markets may need to be further developed before this kind of investment is a real possibility, however the Australian example does raise the possibility of private entities investing in on-farm recharge opportunities in exchange for proceeds from a portion of resulting groundwater rights.

Private entities have successfully invested in groundwater banks when partnered with government agencies. The Kern Water Bank initially was part of the State Water Project, but was transferred to local interests.[11] And CalPERS has joined in investing in one of several water banks in the Antelope Valley.[12] However, private investment going it alone in California have been met with significant hurdles. Cadiz, Inc. has pursued a conjunctive use agreement with

[10] http://www.blueskyfunds.com.au/blue-sky-funds/real-assets/water-entitlements/; http://www.nature.org/newsfeatures/pressreleases/investment-opportunity-helps-balance-water-needs-in-australia.xml;

[11] Lois Henry, "Water districts stuffing Kern River water in every nook and cranny they can," *Bakersfield Californian*, http://www.bakersfield.com/columnists/lois-henry-water-districts-stuffing-kern-river-water-in-every/article_74e65aee-6a36-57cf-8c7e-11e6d41cbf2e.html, March 21, 2017.

[12] Dale Kasler, "Why CalPERS is pouring millions into a Southern California water deal," *Sacramento Bee*, http://www.sacbee.com/news/state/california/water-and-drought/article138540373.html, March 15, 2017

Metropolitan Water District of Southern California (MWDSC) to store Colorado River water along MWDSC's Colorado River Aqueduct, but that effort has been ongoing for almost two decades.[13] In another example, a private company proposed to establish a groundwater bank in Madera in 1996, which prompted that county's groundwater ordinance prohibiting exports based on increased groundwater pumping as discussed above.[14]

An outside investor may be interested in participating in an internal groundwater pumping allocation program. However, no such interest has materialized in canal water delivery trading systems, such as the one used by Westlands Water District.

Environmental Bonds

Environmental Bonds are an innovative financing tool being developed by some conservation organizations. Blue Forest Conservation has developed Forest Resilience Bonds (FRB), which uses private capital to invest in forest restoration projects that make national forests more resilient to climate change impacts. Blue Forest's forest restoration projects clear forest overgrowth, creating fire suppression benefits and watershed benefits that accrue to a variety of public and private beneficiaries, including the US Forest Service, water and electric utilities, private companies, state governments, and insurance companies. Based on an evaluation of the benefits, Blue Forest contracts with participant beneficiaries to provide corresponding annual cashflows back to the bond, providing repayment to initial private investors. Blue Forest is currently developing the tool and carrying out pilots. Partnering with similar organizations that are experienced in implementing environmental bonds could provide a vehicle for funding groundwater recharge through the upstream and downstream beneficiaries.

[13] "News: New Report Concludes Capacity Readily Available in the Colorado River Aqueduct for Conveying Cadiz Project Water," http://cadizinc.com/2015/06/23/news-new-report-concludes-capacity-readily-available-in-the-colorado-river-aqueduct-for-conveying-cadiz-project-water/, June 23, 2015; Frank Ury, "It's time to build the Cadiz Water Project," *Orange County Register*, http://www.ocregister.com/articles/water-717433-cadiz-project.html, May 31, 2016.

[14] The Natural Heritage Institute. "Designing Successful Groundwater Banking Programs in the Central Valley: Lessons from Experience." http://n-h-i.org/wp-content/uploads/2017/01/Central-Valley_Groundwater_Conj_final.pdf. 2001.

APPENDIX A: MATRIX OF POTENTIAL FINANCING MECHANISMS

	Institutional	Legal						Cost Responsibility & Limits			Stakeholder / Political Support
Funding Mechanism/Groupings	*Implementing entities with legal authority / potential capacity*	Governing statues and/or key restrictions / requirements	Governance approval	Voter composition	Vote requirement	Appeal or protest	Benefit-cost test	*Cost allocation method*	*Revenue capacity*	*Revenue-generating potential, including timing; risks*	*Potential Feasibility/Prospects for Successful Implementation*
Property-related											
Local assessment district	Local	Proposition 218	City/County/ district	Local board	Majority	Weighted by financial obligation	Only special benefits can be assessed. Costs must be reasonably related to special benefits	Benefits-based/Alternative justifiable expenditures	Status quo	Low, unlikely to generate significant new revenues	Existing reclamation districts supported, but not always well funded.
Valley-wide assessment district	Regional	Prop. 218; likely requires implementing legislation	Joint Powers Authority; special legislation	Local board	Majority vote in each jurisdiction	Weighted by financial obligation	Only special benefits can be assessed. Costs must be reasonably related to special benefits	Benefits-based/Alternative justifiable expenditures	Medium	High; five to 10 year development process	Substantial administrative, legal, and political challenges. Rejected by SF Bay Restoration Authority.
State assessment district	State	Possibly triggers Proposition 26. State-created district may be treated as a local assessment which triggers Prop 218.	California Legislature	Legislature	Likely two-thirds vote	Not unless added by statute	Charge must be reasonably related to cost	Benefits-based/Alternative justifiable expenditures	High	High; five to 10 year development process	Substantial administrative, legal, and political challenges.
Incremental tax district (e.g., Mello-Roos)	Local	Prop. 218; typically formed based on property owner consent	Local legislative body	Local voters	Two-thirds vote	No	No	Benefits-based/Alternative justifiable expenditures	Medium	High in geographic areas that are likely to experience significant development	Possible on a geographic-specific basis for new developments.

Funding Mechanism/Groupings	**Institutional**	**Legal**						**Cost Responsibility & Limits**			**Stakeholder / Political Support**
	Implementing entities with legal authority / potential capacity	Governing statues and/or key restrictions / requirements	Governance approval	Voter composition	Vote requirement	Appeal or protest	Benefit-cost test	*Cost allocation method*	*Revenue capacity*	*Revenue-generating potential, including timing; risks*	*Potential Feasibility/Prospects for Successful Implementation*
Parcel/assessed value tax	Local	Proposition 13	Local legislative body; voters	Local voters	Two-thirds vote	No	None	*Taxes can be established independent of cost allocation*	Medium	Medium	Requires effective ballot campaign; not beneficiary-pays based as dictated by parcel, not economic value.
Flood Prevention Fee	State or local	Requires state legislation	California Legislature	Legislature	Majority or two-thirds, depending on outcome of ongoing litigation	Yes, depending on legislation	No	Could be assessed on a per structure basis	Medium	Medium, based on Assembly Bill 29X1, Fire Prevention Fee. More likely to pay for operations and maintenance than capital expenses	Requires similar motivation as Rural Fire Prevention Fee. FPF presents precedential model passed by the Legislature.
Enhanced Infrastructure Financing District	Local	(Replacement of redevelopment districts)	Local legislative body	Local legislative body	Majority	No	No	Based on incremental property tax revenue generated	Medium	Based on incremental property tax revenue generated	Unknown
User Fees											
Water project conveyance fee;	State	Federal/State water contracts; Prop. 26	Legislature; possible contract modification	Legislature	Majority	No	Property use rates tied to fair market value	Proportionate use of facilities /Alternative justifiable expenditures	HIgh	Bay-Delta Finance Plan (2004) proposed that SWP/CVP fund 15% of flood control costs..	Similar to Bay-Delta Financing Plan user fee proposed in 2005, which identified levee financing as one component.
Groundwater pumping fee per acre-foot	GSA	Prop. 218	JPA Board	JPA Board	*To be resolved in pending court cases*	Yes	Only special benefits can be assessed. Costs must be reasonably related to special benefits	Benefits-based/Alternative justifiable expenditures	High	High	

Funding Mechanism/Groupings	**Institutional** *Implementing entities with legal authority / potential capacity*	**Legal** Governing statues and/or key restrictions / requirements	Governance approval	Voter composition	Vote requirement	Appeal or protest	Benefit-cost test	**Cost Responsibility & Limits** *Cost allocation method*	*Revenue capacity*	*Revenue-generating potential, including timing; risks*	**Stakeholder / Political Support** *Potential Feasibility/Prospects for Successful Implementation*
Groundwater pumping fee per acre-foot	State	Prop. 26, Prop. 218. Matter is in active litigation around the state	California Legislature	Legislature	*To be resolved in pending court cases*	No	Charge must be reasonably related to cost	Proportionate use of facilities /Alternative justifiable expenditures	High	High	
Flood protection fee on downstream infrastructure	State	Prop. 26; requires legislation	California Legislature	Legislature	Majority	No	Charge must be reasonably related to cost	To be determined. Underwriting and allocation of risk.	Medium	Treat as flood insurance for island recovery.	Need to designate a separate agency to enforce and collect.
Impact fees											
Groundwater pumping assessment	State or GSA	Prop. 26	California Legislature	Legislature	Two-thirds	No	Charge must be reasonably related to cost	Proportionate use of facilities /Alternative justifiable expenditures	Medium	Depends on SGMA implementation and ability to measure pumping rates	
Groundwater pumping parcel tax	State or GSA	Prop. 26	California Legislature / Electorate	Legislature	Two-thirds	No	None	*Taxes can be established independent of cost allocation*	Medium	Medium. Dependent on size of parcel tax amount, and properties targeted.	Likely to be strongly opposed by agricultural stakeholders. Probably requires local approval like SF Bay Restoration Fee.
Upstream discharger fee	State or GSA	Prop. 26	California Legislature	Legislature	Majority	No	Charge must be reasonably related to cost	Benefits-based/Alternative justifiable expenditures	Low	Runoff metric basis in Alameda Co FCWCD for benefits assessment. Cost of collection could be significant	Akin to ACFCWCD fee basis. Used with property protection method in SAFCA.

Funding Mechanism/Groupings	**Institutional** *Implementing entities with legal authority / potential capacity*	**Legal** Governing statues and/or key restrictions / requirements	Governance approval	Voter composition	Vote requirement	Appeal or protest	Benefit-cost test	**Cost Responsibility & Limits** *Cost allocation method*	*Revenue capacity*	*Revenue-generating potential, including timing; risks*	**Stakeholder / Political Support** *Potential Feasibility/Prospects for Successful Implementation*
Development impact fees	Local	Prop. 13	City/County	Local board	Majority	No	Nexus: must be reasonably related	Proportionate use of facilities /Alternative justifiable expenditures	Low	Low, other than geographic areas that are likely to experience significant development	Applicable on a geographic-specific basis
Habitat conservation plan (HCP)	Multi-agency	Prop. 13 applies to local impact fees	City/County	Local board	Majority	No	Nexus: must be reasonably related	Proportionate use of facilities /Alternative justifiable expenditures	Medium	Paid by water exporters mostly. Issue of whether ERP covers this already.	SWP/CVP contractors: believe already paying this cost.
Flood control plan akin to HCP (see 20 alternative)	Multi-agency	Prop. 13 applies to local impact fees	City/County	Local board	Majority	No	Charge must be reasonably related to cost	Proportionate use of facilities /Alternative justifiable expenditures	Low	Depending on development paying for flood control mitigation elsewhere in Delta	Requires identifying and quantifying specific upstream benefits.
Repeal of property tax exemption for habitat mitigation for government projects, or require in-lieu payment tied to specific benefit	State	Federal consent to pay charge, waiver of state immunity	California Legislature	Legislature	Majority	NA	None	*Taxes can be established independent of cost allocation*	Medium	May only require Legislature to fund current local assessments on CDFW land. Remove other muni exemptions.	Munis may object as being precedential for other activities. Formal requirement for in-lieu payment may be alternative.
Land trust support	Conservancy	Private action	NGO	NA	NA	NA	NA	NA	Low	Low	Required non-profit sector participation and identifying separate financing source.

Funding Mechanism/Groupings	**Institutional**	**Legal**						**Cost Responsibility & Limits**			**Stakeholder / Political Support**
	Implementing entities with legal authority / potential capacity	Governing statues and/or key restrictions / requirements	Governance approval	Voter composition	Vote requirement	Appeal or protest	Benefit-cost test	*Cost allocation method*	*Revenue capacity*	*Revenue-generating potential, including timing; risks*	*Potential Feasibility/Prospects for Successful Implementation*
Property covenants/set asides in exchange for investment	Private; non-governmental organization	Private action	NGO / negotiated	NA	NA	NA	NA	NA	Low	Low	Needs to be associated with water supply reliability
Levees upgrade fee	Federal; State	Requires Federal/State legislation	California Legislature	Legislature	Two-thirds	No	Charge must be reasonably related	Proportionate use of facilities /Alternative justifiable expenditures	Low	To compensate for adverse effects downstream from higher levees.	Similar to SAFCA and ACFCWCD district-based cost allocation assessments.
CATP Allowance Funds through the Sustainable Agricultural Land Conservation (SALC) Program	State	Statutory (AB 32 et al)	California Legislature	Legislature	Majority	No	[Specified in AB 32]	Not specified	Medium	Dependent on SGC action for eligibility and allocations. Allowance funds decreasing recently.	Competition with other applicants. Would need to include permanent preservation of agricultural land
Public benefits financing tools											
General Fund	State; Local	Requires legislation	California Legislature	Legislature	Majority	No	No	Separable costs / remaining benefits	High	High	
General/revenue bonds	State	Requires legislation; public vote	California Legislature / Electorate	Legislature / state voters	Majority	No	No	Separable costs / remaining benefits	High	High	Episodic issuances, usually tied to a broad range of issues.
Regional financing agency	State	Requires legislation	California Legislature	Legislature	Majority	No	No	Not specified	Medium	Medium, but requires outside contributions.	Akin to Delta Conservancy, and large scale urban flood control agencies.

Funding Mechanism/Groupings	**Institutional**	**Legal**						**Cost Responsibility & Limits**			**Stakeholder / Political Support**
	Implementing entities with legal authority / potential capacity	Governing statues and/or key restrictions / requirements	Governance approval	Voter composition	Vote requirement	Appeal or protest	Benefit-cost test	*Cost allocation method*	*Revenue capacity*	*Revenue-generating potential, including timing; risks*	*Potential Feasibility/Prospects for Successful Implementation*
Sales tax	State/Local	Prop. 26	Voters	State/local voters	Majority	No	None	*Taxes can be established independent of cost allocation*	High	High	Requires effective ballot campaign. Nexus tenuous.
Certificate of Participation	State/Local with private participants	Statutory	Local or State agency	Local board / State agency	Majority	No	No	Not specified	Project specific	Dependent on separate underlying financing source. Needs to be tied to specific projects, as it is leased back. Can avoid a vote on an assessment or a bond.	May have limited applications
Tax dedicated zones, with revenues redirected to Central Valley (e.g. sales; tobacco)	State	Requires legislation; Prop. 26 would apply to a new tax	California Legislature	Legislature	Two-thirds to create new tax obligation	No	No	Not specified	Low	Low	Nexus tenuous.
Agricultural property tax redirection	State	May require California Constitutional amendment	California Legislature	Legislature/ state voters	Majority	No	No	Not specified	Low	Low	Nexus tenuous.