Delta Flood Risk Management Assessment
District Feasibility Study

Introduction and Overview

For Workshop #3

June 15, 2016

Delta Protection Commission

Study Objectives

- Identify and evaluate potential financing mechanisms across a range of beneficiaries
  - Preparing stepwise screening guidance for stakeholders
  - Identifying plausible financing options, with rationale and key challenges
- Recommendations for legislative or agency actions to facilitate adoption of promising options
- Recommendations for further action

Study Steps and Stakeholder Involvement

- Workshop #1 (March 9, 2016)
  - Context and history
  - Introduce general approach—archetypes
- Workshop #2 (May 24, 2016)
  - Concepts for applying beneficiaries-pay principle
- Workshop #3 (June 15, 2016)
  - Cost allocation principles and constraints
  - Financing mechanism screening guidance and examples
- Workshop #4 (Tentative July, 2016)
  - Presentation of study findings

Structuring and Evaluating Finance Mechanisms

Workshop #2

1. Catalogue example project funding requirements (i.e., what cost need to be covered, such as levee construction);
2. Identify benefits and beneficiaries (e.g., what risks are avoided or value created by levees);

Workshop #3

1. Allocating costs using “beneficiaries pay” principle (i.e. who pays and how much based on the benefits accrued); and
2. Evaluating candidate financing mechanisms and associated financing structure (i.e., how will a levee investment program be paid for over time).

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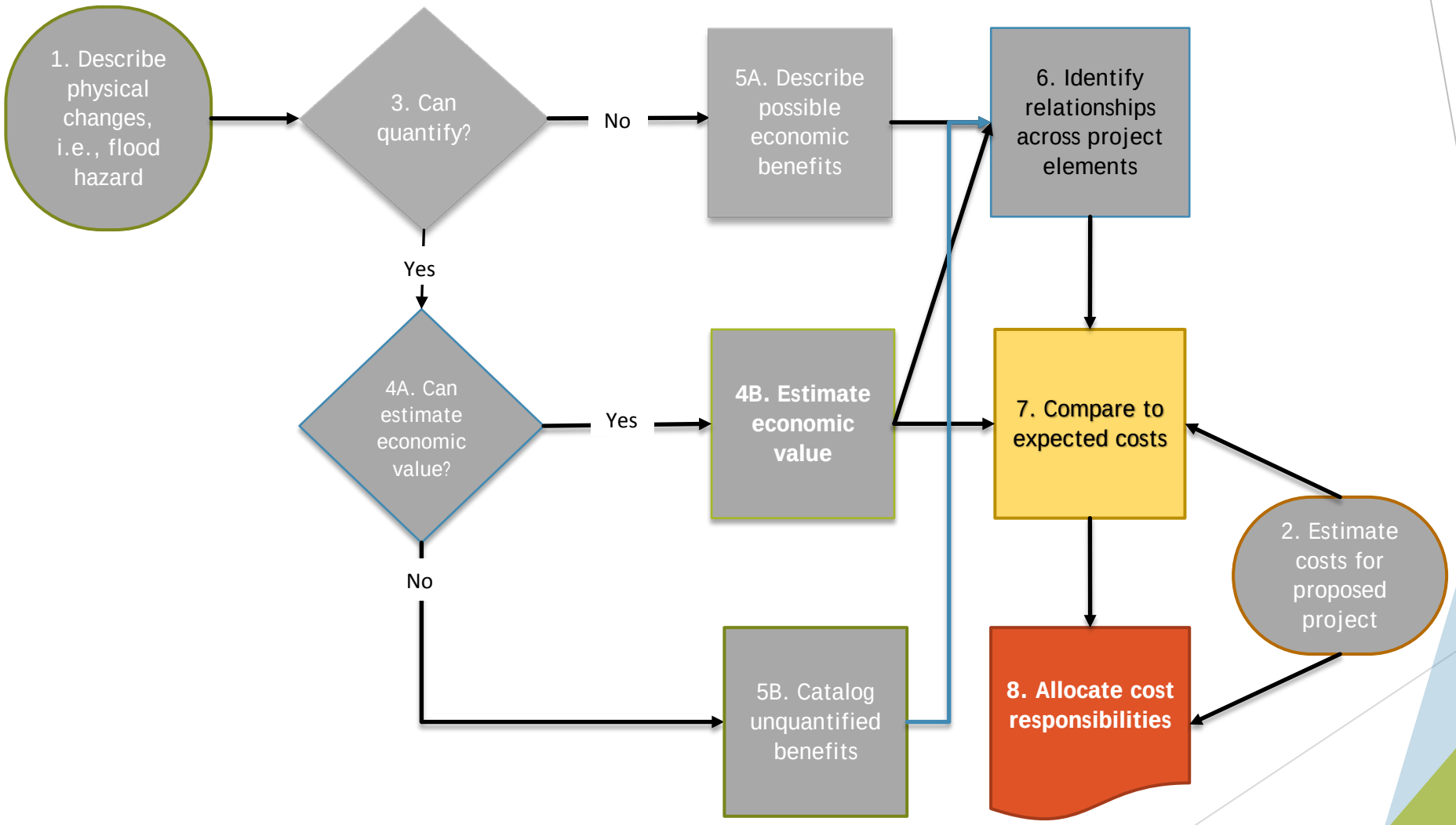
Workshop #3—June 15, 2016

Available Cost Allocation Methods

Delta Protection Commission

Moving from Costs & Benefits to Cost Allocation



Key Issues

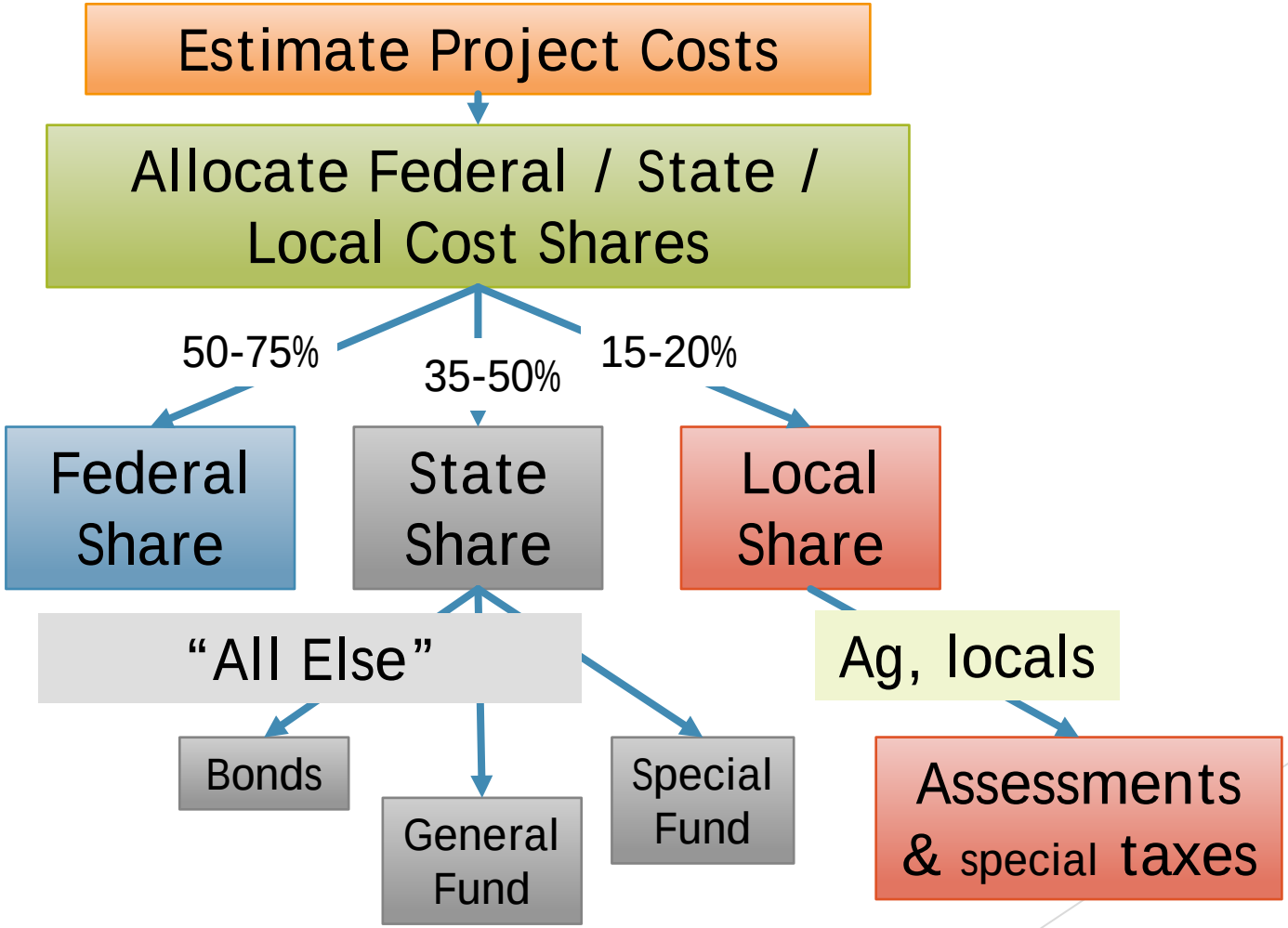
- Funding for Delta levees is in transition
- Transparency and common financing terms helpful

Flood Protection Finance/Cost Allocation to Beneficiaries		
Financing	Current	Possible Future
Public monies (State / Federal)	"All else" (>75%)	Public safety (e.g. 10%) Habitat (e.g. 20%) Indirect economic (e.g. 10%)
Assessments, Special taxes, User fees, Regulatory changes, et al	Agriculture + Local residents /businesses (<25%)	Agriculture (e.g. 20%) Local residents/businesses (e.g., 5%) *Water supply (e.g. 15%)* *Infrastructure (e.g., 10%)* *Recreation (e.g., 10%)*

Cost allocation often dictated by legal requirements

- Differing legal requirements for cost allocation in two-stage process:
  - for project and non-project levees among federal, state and local jurisdictions,
  - at the local level within a jurisdiction depending on the type of charge, tax, levy, assessment or fee.
- Different analytic methods used for cost allocation based on economic principles and policy practices.

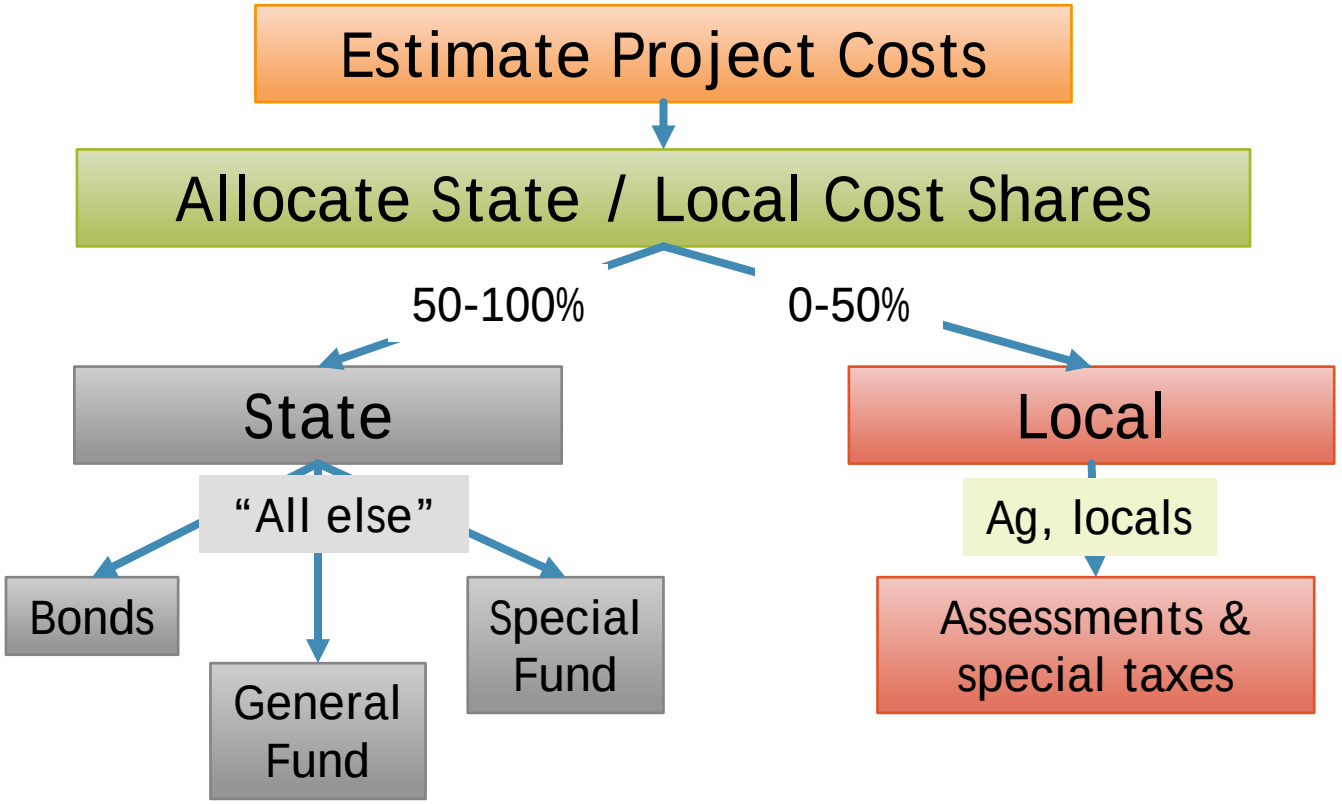
Current Flood Protection Cost Allocation Process: Project Levees



Project Levees: Federal-State-Local Cost Shares

	Cost Share	Notes
Total Costs		
Federal	50%-75%	Urban = 65%
State	35%-52.5%	70% non-Federal share
Local	15%-22.5%	30% non-Federal Share
Improvements		
Federal	<50%	50% maximum
State	>25%	50% Base
Disadvantaged + multiple benefits	>45%	Up to 90%: 1) the project serves a disadvantaged area community; 2) the project improves the system; 3) the project includes ecosystem enhancement and improvement; and 4) the project includes other multi-benefit features.
Setback Levees	>40% if setback	
Local	>25%	Net of state share
Disadvantaged + multiple benefits	>10%	
Setback Levees	>20%	

Current Flood Protection Cost Allocation Process: Non-project Levees



Non Project Levees: State and Local Cost-Shares

Type of Funding	Primary Zone	Secondary Zone	Notes
Construction			
State	<100%; <$10M		<20% preconstruction costs
Primary Zone	75%	50%-75%	Base up to Ability to Pay (ATP) or Local Agency Benefits Assessment (LABA) study max
Habitat	<100%	<90%	up to 40% over base funding
Enhanced Shares			
Specific Public Purposes	<95%	<70%	up to 20%
Net Habitat Improvement	<85%	<60%	up to 10% full mitigation
Subsidence Control	<85%	<60%	up to 10% control or reversal
Ecosystem Enhancement	<95%	<70%	10% additive to water supply reliability
Water Supply Reliability	<95%	<70%	10% additive to ecosystem enhancement
Third Party Match	<95%	<95%	50% state match
Local	25%-0%	50%-5%	
Maintenance			
State	75% for >$1K/mi		Subject to ATP to 7/1/2018*
Local	$1K/mi + 25%		

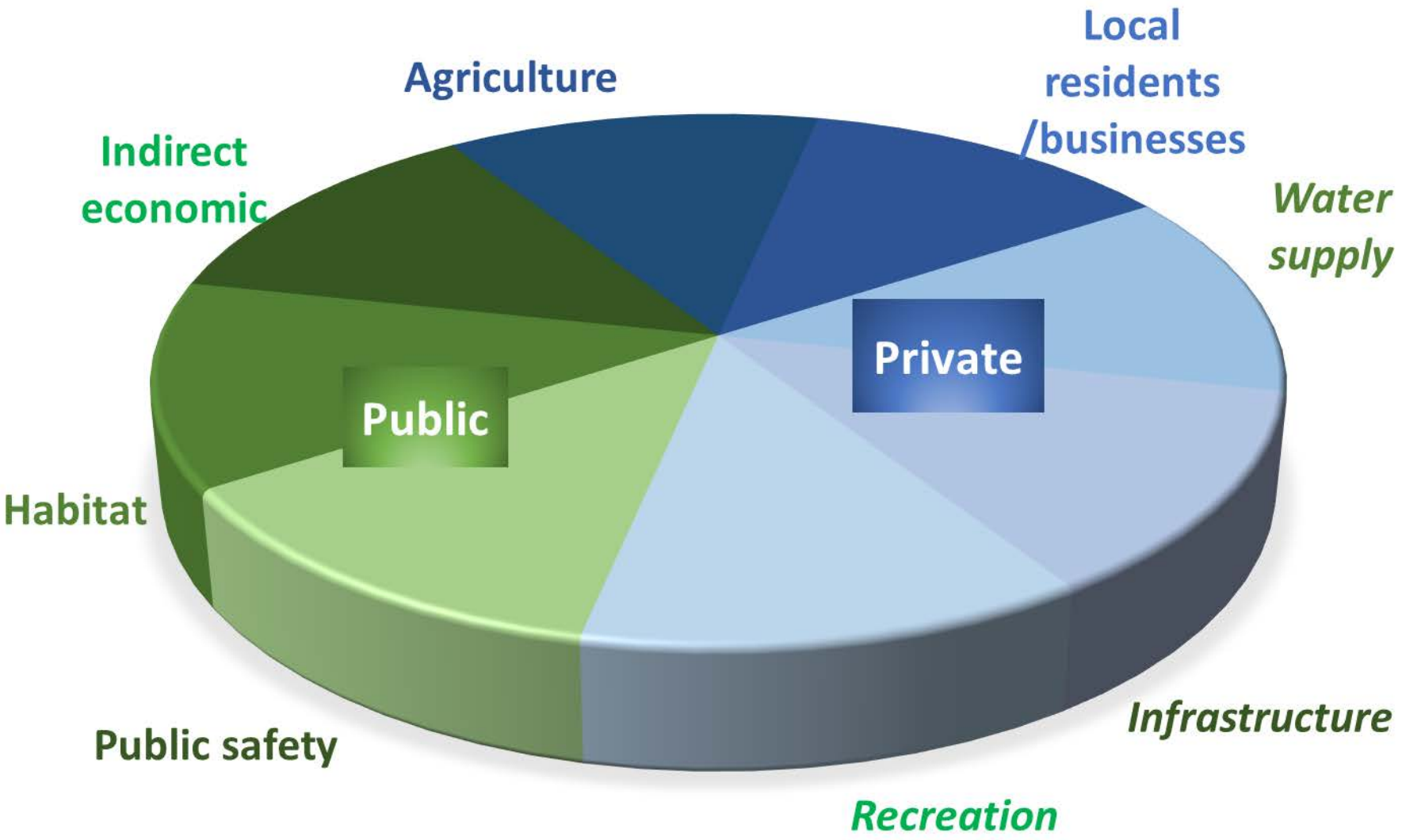
Cost allocation & beneficiary-pays principle

A benefits-based finance plan relies on identifying the benefits being generated and assigning the costs to achieve them among beneficiaries.

Key principles:

- Follow a benefits-based approach as applicable under current law or consistent with economic principles;
- Promote cost allocations that encourage participation;
- Promote cost allocations that avoid or minimize unintended subsidies.

BENEFICIARIES-PAY ALLOCATIONS



Added considerations for choosing cost allocation approach

- Achieving equitable allocations that reflect the circumstances of beneficiaries and other parties,
- Ease of application and administration, and
- Reliability of revenue collection.

Cost allocation methods

- Separable Cost – Remaining Benefits (SCRB)
- Alternative Justifiable Expenditure (AJE)
  - Equal Percentage Marginal Cost (EPMC)
- Proportionate Use of Facilities (UOF)
  - Embedded Cost of Service
- Benefits-Based

Criteria for Selecting a Cost Allocation Methodology		
Financing Mechanism Category	Corresponding Method	Current Prescribed Shares
Federal		
Project Levees	Separable-costs remaining benefits	50%-75%
State		
Project levees	Separable-costs remaining benefits (discretionary)	35%-52.5%
Non-project levees	Separable-costs remaining benefits (discretionary)	75%-100%
Local / State Agencies		
Assessment	Benefits-based / Alternative justifiable expenditures	
General & Special Taxes	Proportionate use of facilities / Alternative justifiable expenditures	
Property-Related Fees and Charges	Proportionate use of facilities / Alternative justifiable expenditures	
User Fees	Proportionate use of facilities / Alternative justifiable expenditures	
Impact Fees	Proportionate use of facilities / Alternative justifiable expenditures	
Regulatory Charges	Agency-discretion (any method)	

Cost allocation examples

- **<u>Example 1</u>**: Total project costs are $6 million
  - Beneficiaries class A
    - $5 million in flood protection benefits
    - $2 million cost with separate facilities costs of $1 million
  - Beneficiaries class B
    - $10 million in benefits
    - $5 million in costs with separate facilities costing $2 million
- **<u>Example 2</u>**: Total project costs are $3 million
  - Beneficiaries class A
    - $5 million in flood protection benefits
    - $2 million cost with separate facilities costs of $1 million
  - Beneficiaries class C
    - $45 million in benefits
    - $1 million in costs and no separable costs

Example 1 – Costs & benefits roughly proportional

- SCRB: *Mix of costs then benefits*
  - $2 million to A and $4 million to B
- Embedded costs: *Costs only*
  - $1.7 million to A and $4.3 million to B
- Benefits-based: *Benefits only*
  - $2 million to A and $4 million to B

Example 2: Large beneficiary with lower costs

- SCRB: *Mix of costs, then benefits*
  - $1.1 million to A and $1.9 million to C
- Embedded costs: *Cost only*
  - $1 million to A and $2 million to C
- Benefits-based: *Benefits only*
  - $0.6 million to A and $5.4 million to C

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Workshop #3—June 15, 2016

Screening Financing Mechanisms

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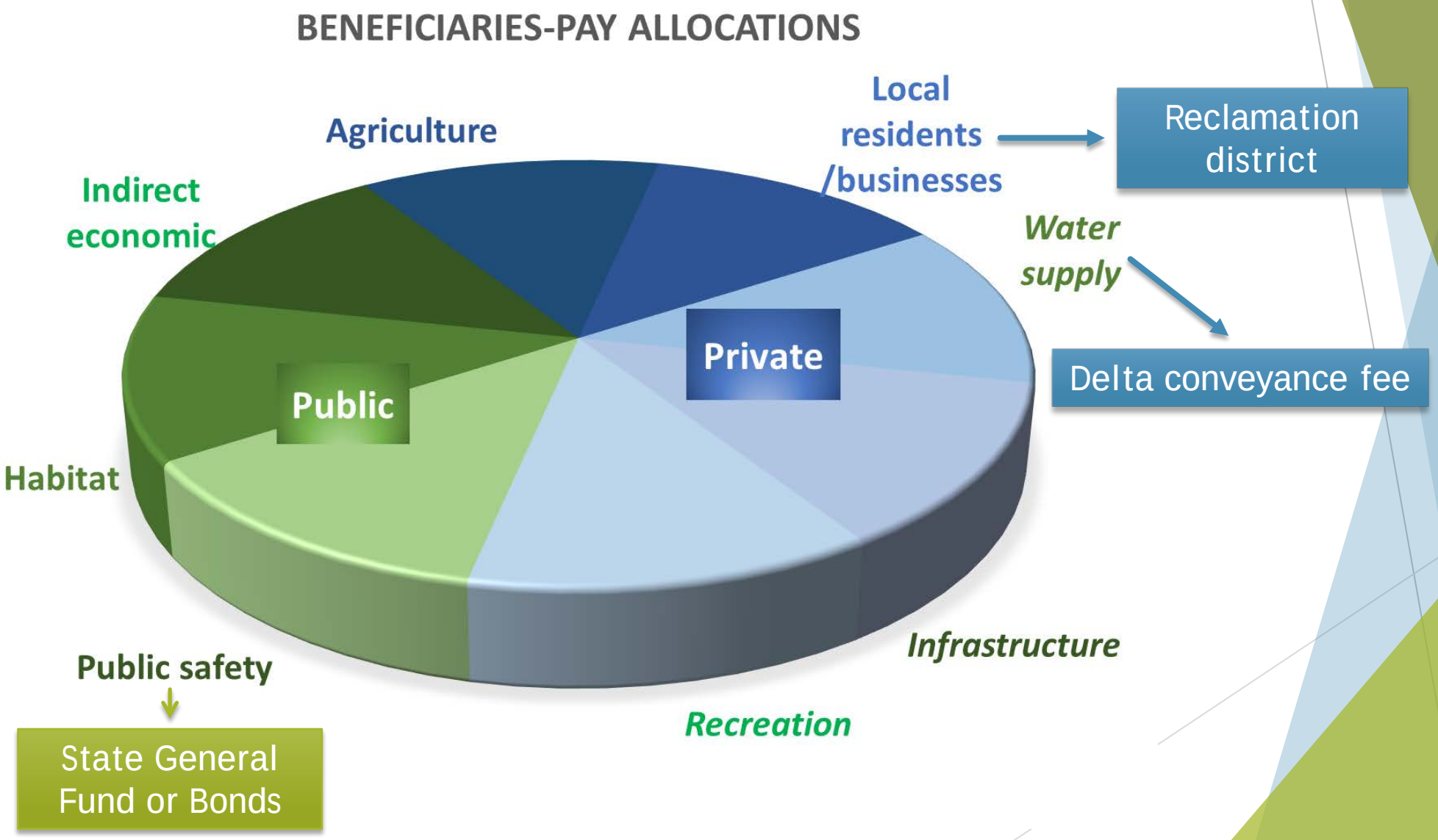
Our approach to identify and evaluate finance options

- Determine project funding requirements
  - What cost need to be covered (e.g., levee construction)?
- Identify benefits & beneficiaries
- Identify candidate financing mechanisms
- Match mechanism with beneficiaries
- Match cost allocation method to mechanism
- Identify and assign cost responsibility
  - Who benefits and should pay?
  - How much, based on the benefits accrued?
- Evaluate plausible financing mechanisms and associated structure
  - How will a levee investment program be paid for over time given various legal requirements?

Candidate financing mechanisms and relationships to beneficiaries

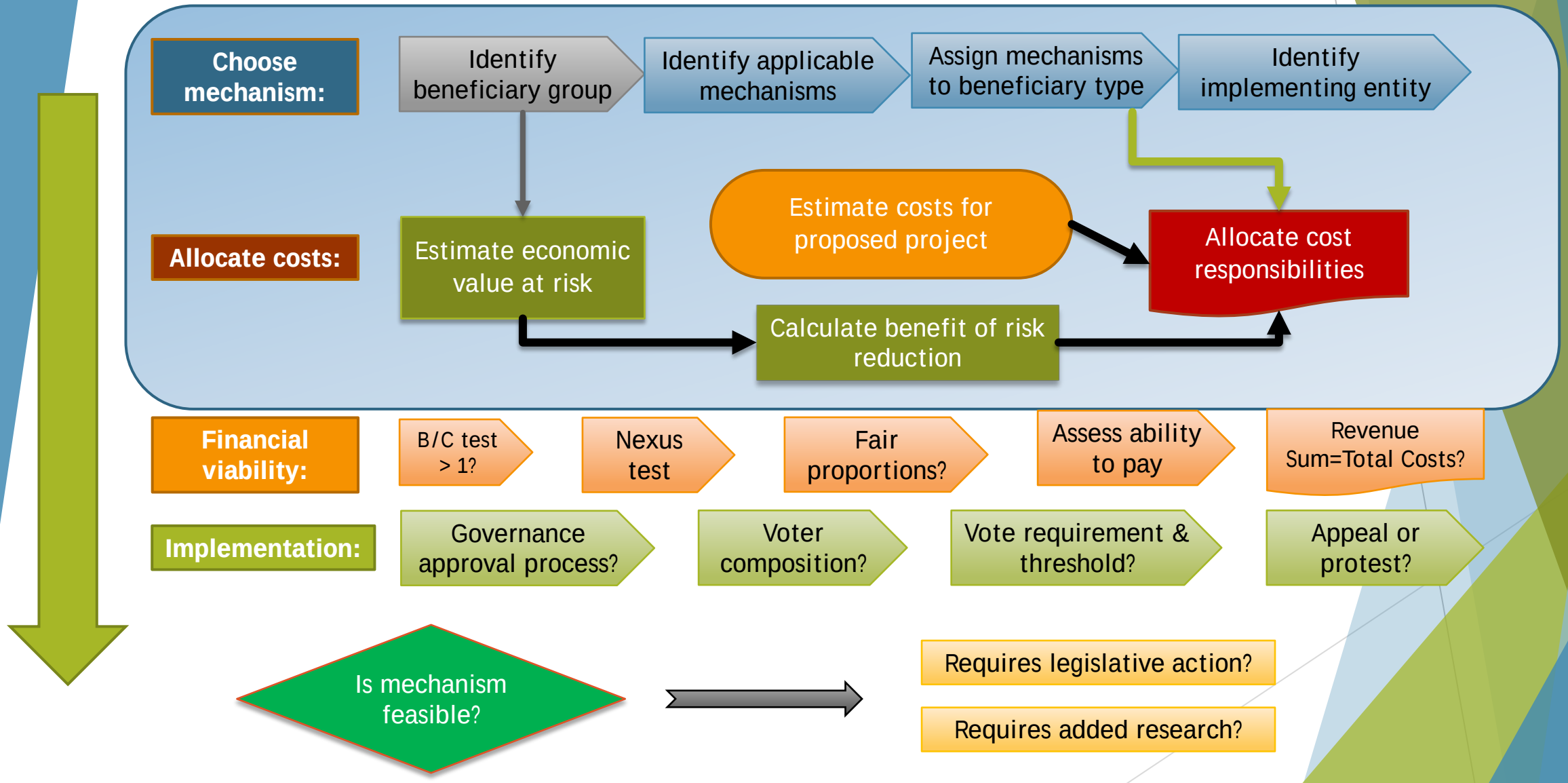
- A list of potential financing mechanisms, matched with the beneficiary groups
  - Based on different state and local statutes
- Mix of mechanisms predicated on the “beneficiary – pays” approach, as well as public benefits financing tools

Examples of linking beneficiaries to mechanisms



EXPLORING POTENTIAL MECHANISMS: By Archetype

By Beneficiary and Mechanism



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Screening Example: Archetype Three

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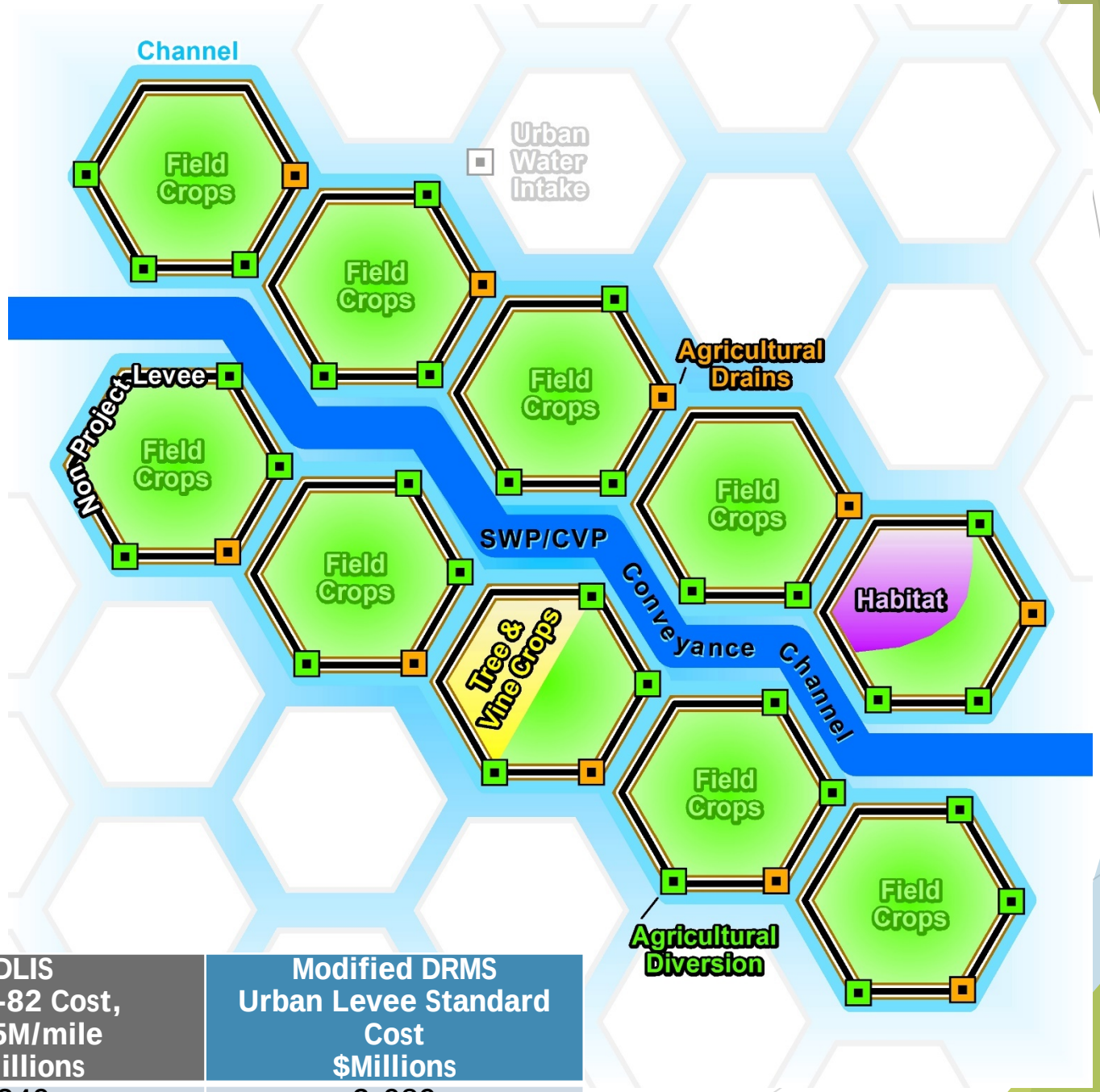
Archetype 3- Water Conveyance



	DLIS B192-82 Cost, $1.5M/mile $Millions	Modified DRMS Urban Levee Standard Cost $Millions
Archetype 3	240	2,089

Archetype 3 Beneficiaries and Assets

Sector	Beneficiary	Asset	Type of Benefit
private beneficiaries	In-Delta Agricultural Operators	Field crops (property)	capital
		Field crops (crop)	production
		Tree and vine crops (property)	capital
		Tree and vine crops (crop)	production
	South of Delta Municipal and Agricultural Water Users	Conveyance channel	production
public beneficiaries	Public interest in protection/restoration of Delta ecosystem resources	Ecosystem	habitat
	Local/State Economy	Field crops (crop)	indirect/ induced
		Tree and vine crops (crop)	indirect/ induced

		Funding Mechanism	Property Based		User Fees						Regulatory Charges	Impact Fee					Public financing					
	Beneficiary	Activity	Assessment District	Delta-wide Assessment District	Delta user fee	Agricultural Discharge Fee	Groundwater Pumping Fee	SWP/CVP Water Conveyance Fee	Water conveyance "capacity" pricing	Flood protection fee on cross Delta infrastructure	Commodity fee/Made in Delta fee	Habitat Conservation Plan	Flood control plan akin to HCP	Habitat mitigation assigned to beneficiary	Land Trust Support	Property covenants/set asides in exchange for investment	General Fund	General/revenue bonds	Water-related subventions	Federal Financing	Regional Financing Agency	Property tax forgiveness
Private	In-Delta Agricultural Operators	Tree/vine crop-production																				
		Field crop-production																				
		Tree/vine crop--In-Delta land value																				
		Field crop-- In-Delta land value																				
	South of Delta Municipal Water Users	Over Delta urban water conveyance																				
Public	Public concerned for ecosystem	Habitat																				
	Local/ State Economy	Indirect/induced--crops																				

		Funding Mechanism	Property Based		User Fees						Regulatory Charges	Impact Fee					Public financing					
	Beneficiary	Activity	Assessment District	Delta-wide Assessment District	Delta user fee	Agricultural Discharge Fee	Groundwater Pumping Fee	SWP/CVP Water Conveyance Fee	Water conveyance "capacity" pricing	Flood protection fee on cross Delta infrastructure	Commodity fee/Made in Delta fee	Habitat Conservation Plan	Flood control plan akin to HCP	Habitat mitigation assigned to beneficiary	Land Trust Support	Property covenants/set asides in exchange for investment	General Fund	General/revenue bonds	Water-related subventions	Federal Financing	Regional Financing Agency	Property tax forgiveness
Private	In-Delta Agricultural Operators	Tree/vine crop-production				X	X				X											
		Field crop-production				X	X				X											
		Tree/vine crop--In-Delta land value	X	X	X				X													X
		Field crop-- In-Delta land value	X	X	X																	X
	South of Delta Municipal Water Users	Over Delta urban water conveyance		X	X			X	X	X												
Public	Public concerned for ecosystem	Habitat			X							X	X	X			X	X	X	X	X	X
	Local/ State Economy	Indirect/induced--crops												X	X		X	X	X	X	X	X

		Funding Mechanism	Property Based		User Fees						Regulatory Charges	Impact Fee					Public financing					
	Beneficiary	Activity	Assessment District	Delta-wide Assessment District	Delta user fee	Agricultural Discharge Fee	Groundwater Pumping Fee	SWP/CVP Water Conveyance Fee	Water conveyance "capacity" pricing	Flood protection fee on cross Delta infrastructure	Commodity fee/Made in Delta fee	Habitat Conservation Plan	Flood control plan akin to HCP	Habitat mitigation assigned to beneficiary	Land Trust Support	Property covenants/set asides in exchange for investment	General Fund	General/revenue bonds	Water-related subventions	Federal Financing	Regional Financing Agency	Property tax forgiveness
Private	In-Delta Agricultural Operators	Tree/vine crop-production				X	X				X											
		Field crop-production				X	X				X											
		Tree/vine crop--In-Delta land value	X	X	X				X													X
		Field crop-- In-Delta land value	X	X	X																	X
	South of Delta Municipal Water Users	Over Delta urban water conveyance		X	X			X	X	X												
Public	Public concerned for ecosystem	Habitat			X							X	X	X	X		X	X	X	X	X	X
	Local/ State Economy	Indirect/induced--crops												X			X	X	X	X	X	X

Beneficiary Values at Risk

Beneficiary	Asset	NPV of Value at Risk (millions)	Share of Total Benefits
In-Delta Agricultural Operators	Field crops (property)	$1.0	2%
	Field crops (crop)	$8.9	17%
	Tree and vine crops (property)	$0.2	0.1%
	Tree and vine crops (crop)	$12.6	24%
South of Delta Municipal and Agricultural Water Users	Conveyance channel	$3.4	7%
Public interest in protection/restoration of Delta ecosystem resources	Habitat (excluding habitat value of agricultural land)	$13.2	25%
Local/State Economy	Field crops (crop)	$3.4	7%
	Tree and vine crops (crop)	$9.7	19%
Total		**$52.2**	

Current Cost Shares		Funding Mechanism	Property Based	User Fees			Impact Fee		Public financing				
	Beneficiary	Activity	Assessment District	Delta user fee	SWP/CVP Water Conveyance Fee	Flood protection fee on cross Delta infrastructure	Flood control plan akin to HCP	Habitat mitigation assigned to beneficiary	General Fund	General/revenue bonds	Water-related subventions	Federal Financing	TOTAL ($M)
Private	In-Delta Agricultural Operators	Tree/vine crop-production	30%										30%
		Field crop-production											
		Tree/vine crop-- In-Delta land value											
		Field crop-- In-Delta land value											
	South of Delta Municipal Water Users	Over Delta urban water conveyance									70%		70%
Public	Public concerned for ecosystem	Habitat											
	Local/ State Economy	Indirect/induced-- crops											
Total			30%								70%		

Current Cost Shares: $240 Million		Funding Mechanism	Property Based	User Fees			Impact Fee		Public financing				
	Beneficiary	Activity	Assessment District	Delta user fee	SWP/CVP Water Conveyance Fee	Flood protection fee on cross Delta infrastructure	Flood control plan akin to HCP	Habitat mitigation assigned to beneficiary	General Fund	General/revenue bonds	Water-related subventions	Federal Financing	TOTAL ($M)
Private	In-Delta Agricultural Operators	Tree/vine crop-production	$72										$72
		Field crop-production											
		Tree/vine crop-- In-Delta land value											
		Field crop-- In-Delta land value											
	South of Delta Municipal Water Users	Over Delta urban water conveyance									$168		$168
Public	Public concerned for ecosystem	Habitat											
	Local/ State Economy	Indirect/induced-- crops											
Total			$72								$168		$240

Beneficiaries Pay in Archetype 3		Funding Mechanism	Property Based	User Fees			Impact Fee		Public financing				
	Beneficiary	Activity	Assessment District	Delta user fee	SWP/CVP Water Conveyance Fee	Flood protection fee on cross Delta infrastructure	Flood control plan akin to HCP	Habitat mitigation assigned to beneficiary	General Fund	General/revenue bonds	Water-related subventions	Federal Financing	TOTAL ($M)
Private	In-Delta Agricultural Operators	Tree/vine crop-production											
		Field crop-production											
		Tree/vine crop-- In-Delta land value											
		Field crop-- In-Delta land value											
	South of Delta Municipal Water Users	Over Delta urban water conveyance											
Public	Public concerned for ecosystem	Habitat											
	Local/ State Economy	Indirect/induced-- crops											
Total													

Low Cost Scenario: $240 Million		Funding Mechanism	Property Based	User Fees			Impact Fee		Public financing				
	Beneficiary	Activity	Assessment District	Delta user fee	SWP/CVP Water Conveyance Fee	Flood protection fee on cross Delta infrastructure	Flood control plan akin to HCP	Habitat mitigation assigned to beneficiary	General Fund	General/revenue bonds	Water-related subventions	Federal Financing	TOTAL ($M)
Private	In-Delta Agricultural Operators	Tree/vine crop-production	$92										$92
		Field crop-production	$30										$30
		Tree/vine crop-- In-Delta land value	$0.1										$0
		Field crop-- In-Delta land value	$3										$3
	South of Delta Municipal Water Users	Over Delta urban water conveyance			$11								$11
Public	Public concerned for ecosystem	Habitat									$9		$9
	Local/ State Economy	Indirect/induced-- crops							$93				$93
Total			$126		$11				$93		$9		$240

High Cost Scenario: $2,089 Million		Funding Mechanism	Property Based	User Fees			Impact Fee		Public financing				
	Beneficiary	Activity	Assessment District	Delta user fee	SWP/CVP Water Conveyance Fee	Flood protection fee on cross Delta infrastructure	Flood control plan akin to HCP	Habitat mitigation assigned to beneficiary	General Fund	General/revenue bonds	Water-related subventions	Federal Financing	TOTAL ($M)
Private	In-Delta Agricultural Operators	Tree/vine crop-production	$802										$802
		Field crop-production	$265										$265
		Tree/vine crop-- In-Delta land value	$1										$1
		Field crop-- In-Delta land value	$29										$29
	South of Delta Municipal Water Users	Over Delta urban water conveyance			$100								$100
Public	Public concerned for ecosystem	Habitat								$82			$82
	Local/ State Economy	Indirect/induced-- crops							$811				$811
Total			$1,096		$100				$811	$82			$2,089

High Cost / Fixed Local Shares: $2,089 Million		Funding Mechanism	Property Based	User Fees			Impact Fee		Public financing				
	Beneficiary	Activity	Assessment District	Delta user fee	SWP/CVP Water Conveyance Fee	Flood protection fee on cross Delta infrastructure	Flood control plan akin to HCP	Habitat mitigation assigned to beneficiary	General Fund	General/revenue bonds	Water-related subventions	Federal Financing	TOTAL ($M)
Private	In-Delta Agricultural Operators	Tree/vine crop-production	$92										$92
		Field crop-production	$30										$30
		Tree/vine crop-- In-Delta land value	$0.1										$0
		Field crop-- In-Delta land value	$3										$3
	South of Delta Municipal Water Users	Over Delta urban water conveyance			$1,024								$1,024
Public	Public concerned for ecosystem	Habitat								$846			$846
	Local/ State Economy	Indirect/induced-- crops							$93				$93
Total			$126		$1,024				$93	$846			$2,089

A Way Forward

- If public sector funding in deficit, new financing pathways need to be identified.
- Structured way to address revenue gaps, which requires:
  - transparency,
  - expansive set of financing choices,
  - beneficiary-pays, and
  - public benefit linkage.
- Different financing “monsters” may be necessary.

Next Steps in Screening

Financial viability:

B/C test > 1?

Nexus test

Fair proportions?

Assess ability to pay

Revenue Sum=Total Costs?

Implementation:

Governance approval process?

Voter composition?

Vote requirement & threshold?

Appeal or protest?

Is mechanism feasible?

Requires legislative action?

Requires added research?

Next Rounds of Analysis

- Conduct similar analyses of Archetypes 2, 3, 4, 5.
- Create alternative illustrative portfolios of mechanisms.
  - Calculate levy per unit for each beneficiary
- Evaluate feasibility of mechanisms.
- Present results to public workshop.