

California Water Commission
Public Benefits of Conveyance

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Beneficiary Pays Principle & Water Conveyance

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A brief introduction

M.Cubed has worked on water, utility and environmental economics in California since 1992

Water resource planning and conservation evaluation

- Clients: Public water supply agencies, investor-owned utilities, SWRCB, CDWR, DSC, DPC, environmental NGOs
- Examples: Bay-Delta options, WISP application, dam relicensing and decommissioning, flood MAR

Electricity rates and regulation, climate change actions and adaptation, air quality control, habitat conservation

Today's questions

How does the beneficiary-pays principle apply to water conveyance projects?

What are the public benefits to state taxpayers that may justify state financing of conveyance projects?

How should the state determine whether a state investment is warranted?

Linking benefits to financing options

Identify benefits & beneficiaries

Determine project funding requirements

- What cost need to be covered (e.g., levee construction)?

Identify and assign cost responsibility

- Who benefits and should pay?
- How much, based on the benefits accrued?

Identify candidate financing mechanisms

Match mechanism with beneficiaries

Evaluate plausible financing mechanisms and associated structure

- How will a conveyance project be paid for over time given various legal requirements?

What are benefits? Who are beneficiaries?

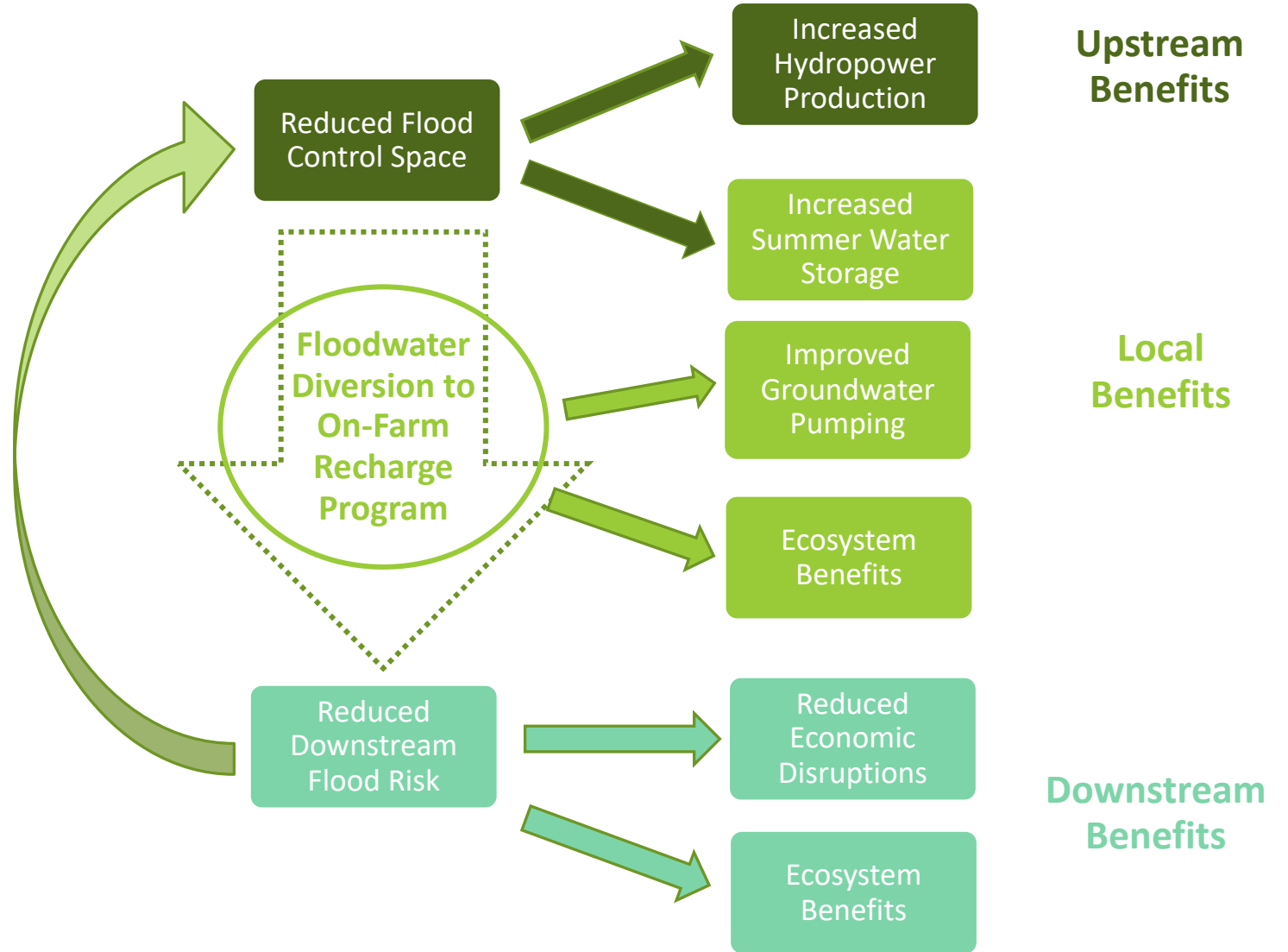
Beneficiaries are entities that generally own, use, or control assets used for specific purposes (i.e., activities) that benefit from a project (e.g., water conveyance).

Can attach monetary estimates of benefits to purposes or activities through different economic analytic methods.

- Some of these purposes are part of individual or private transactions or activities for which economic value can be readily estimated (e.g., buying and selling of agricultural products);
- Other purposes create more broad public benefits for which a value is not easily determined because we cannot observe prices (e.g., public enjoyment of habitat and all of the various concurrent benefits from enjoying species existence).

Example of Identifying Benefits

On-farm Recharge for Floodwater Managed Aquifer Recharge



Examples of conveyance beneficiaries

- ▶ Local Communities in Export Region – *residential, commercial*
- ▶ Agriculture – *farmers*
- ▶ Municipal Water Users – *exported water users*
- ▶ Upstream Dischargers – *stormwater & floodwater releases*
- ▶ Instream Water Diverters – *upstream diverters*
- ▶ Downstream Communities – *flood control*
- ▶ General Public – *ecosystem, legacy communities*
- ▶ Government agencies – *emergency responders*
- ▶ Regional or State Economy – *secondary jobs creation*
- ▶ Other Indirect - *hydropower*

Classifying beneficiaries

Linking benefits, and therefore beneficiaries, to water conveyance involves tracing economic relationships

Use categories as a means to capture potential beneficiaries and their relationships

Categories:

- Private and public
- Primary and secondary
- Direct, extended and peripheral
- Tangible and intangible

Private vs. public benefits: Who pays?

Private benefits accrue to specific entities and individuals and can be individually priced

- Private benefits can pay for commodities and services provided
- The only justification for subsidizing provision of private benefits is if beneficiary is income or asset limited

Public benefits accrue to a larger group and cannot be separately priced

- Public benefits can be divided into society-wide vs. specific geographies and classes
- Environmental and ecosystem generally are society-wide
 - *Can be paid from state funding sources*
- Regional development generally limited scope and range unless a state interest in developing a specific region
 - *Paid from regional or class-specific sources*

What categories of benefits accrue from water conveyance?

Private benefits

- Direct, primary, and tangible: *municipal and agricultural uses*
- Extended, primary and tangible: *hydropower*

Public benefits

- Direct, extended and peripheral, and tangible: *ecosystem in receiving region*
- Extended, secondary and intangible: *coordination, reliability and resilience*
- Peripheral, secondary and tangible: *local job creation and regional economic development*

What level of analysis is used to analyze benefits to beneficiaries?

Category of Beneficiary	Level of Analysis of Benefit Assessments		
	Quantitative with high-level of monetization	Quantitative with potential for limited monetization	Mostly qualitative
Communities	XX		
Agricultural landowners, producers and water users	XX		
Municipal water providers and end users	XX		
Upstream dischargers		XX	
Instream water diverters		XX	XX
General public			XX
State and local government and special districts		XX	
Regional or State economy		XX	
Other indirect beneficiaries		XX	XX

Considerations for public funding

Fiscal orphans

- Private or quasi-private benefits and costs that are difficult to collectively finance
 - *Examples: poorer rural communities, flood protection, collaborative management*
- A private benefit accrues to a budget-constrained entity
- A regional public benefit accrues where resources are insufficient or benefits too diffuse to coordinate funding
- (Ecosystems are a pure public benefit that requires a policy choice on funding)

Regional economic development opportunity

- Private and public beneficiaries have not yet arrived

Keystone for interregional reliability and resilience

- Interlocking benefits require a balanced investment

State funding criteria

Water Storage Investment Program clearly specified and structured

- Add some considerations for other public funding criteria

Do not fund private benefits for entities with sufficient resources

- Include payments from indirect private beneficiaries e.g., hydropower

Fund society-wide public benefits

- Environmental and ecosystem benefits most obvious

Consider funding or lending funds for regional benefits if resource constrained

Fund coordination, resilience or reliability if interdependent between regions and a region is resource constrained

Questions and comments

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