Toward a Multi-Benefit Approach for Water Management

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Water managers have a lot of options.

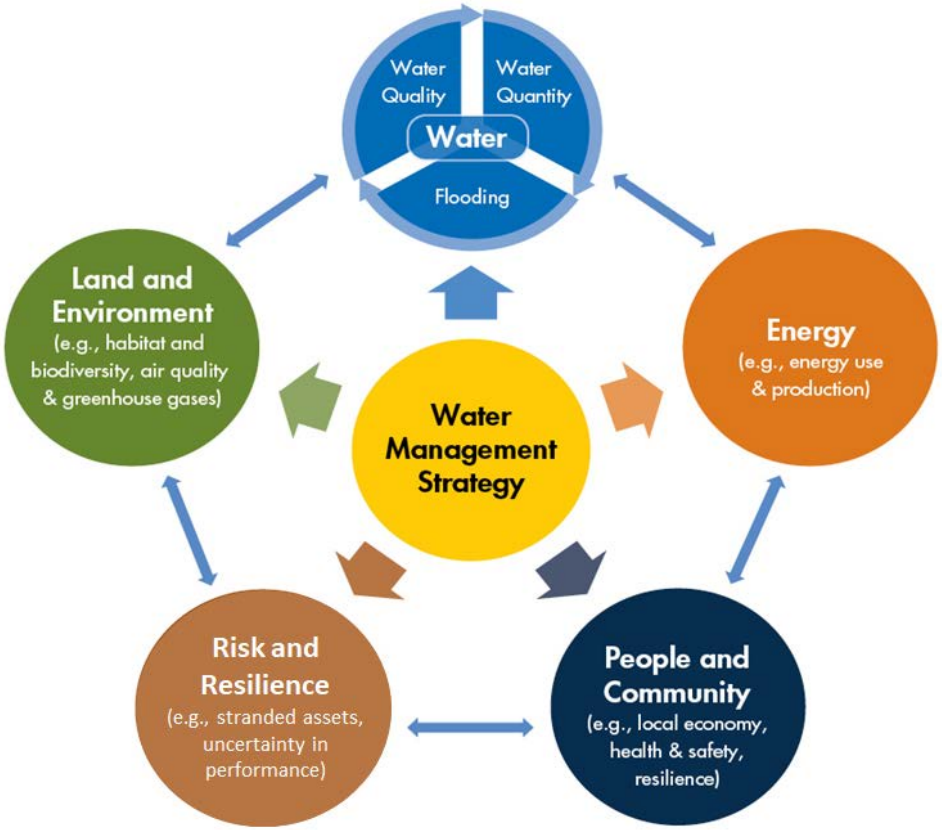
- Dams and reservoirs, groundwater recharge
- Desalination
- Potable and non-potable water reuse
- Urban and ag water efficiency
- Watershed protection, green stormwater infrastructure





Water efficiency managers also have a lot of project options!

Multiple benefits and trade-offs are the total impacts of a project or program.



Multiple benefits can help with water management decisions

- Optimize investment of time, money, and resources
- Identify opportunities to share costs
- Building community support for a project or program
- Minimize adverse and unexpected outcomes
- Promote equitable and transparent decisions

Expand the usefulness, reach, and uptake of multiple benefits in water management decisions.

Project Team

Pacific Institute,
Bren School of
Environmental Management,
and Advisory Group

Funders

Pisces Foundation
Mitchell Foundation
Resources Legacy Fund
Disney Conservation Fund

A multi-benefit framework for incorporating benefits into decision-making

Step 1: Define water management goals and project options

Step 2: Identify benefits and trade-offs for water, energy, land, people, and resilience

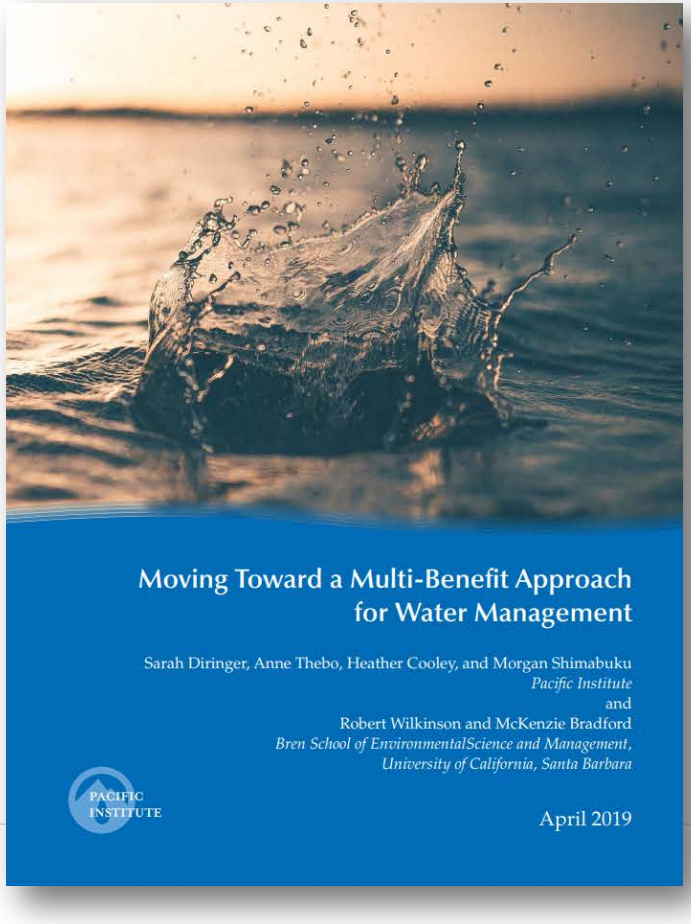
Step 3: Characterize key benefits and trade-offs

Step 4: Inform decision-making

Key Features of the Framework

- Modular and flexible for different decisions and water management options
- Supports stakeholder and community engagement
- Helps incorporate equity into the analysis

Putting the Framework into Action



- Advancing sustainable landscapes
- Maximizing benefits of stormwater project funding
- Building collaboration through rainwater capture

Building collaboration through rainwater capture in Austin, Texas

Incorporate multiple benefits to engage with residents and build partnerships

Project Partners

Austin Watershed Protection Dept

National Wildlife Fund

Texas Water Trade

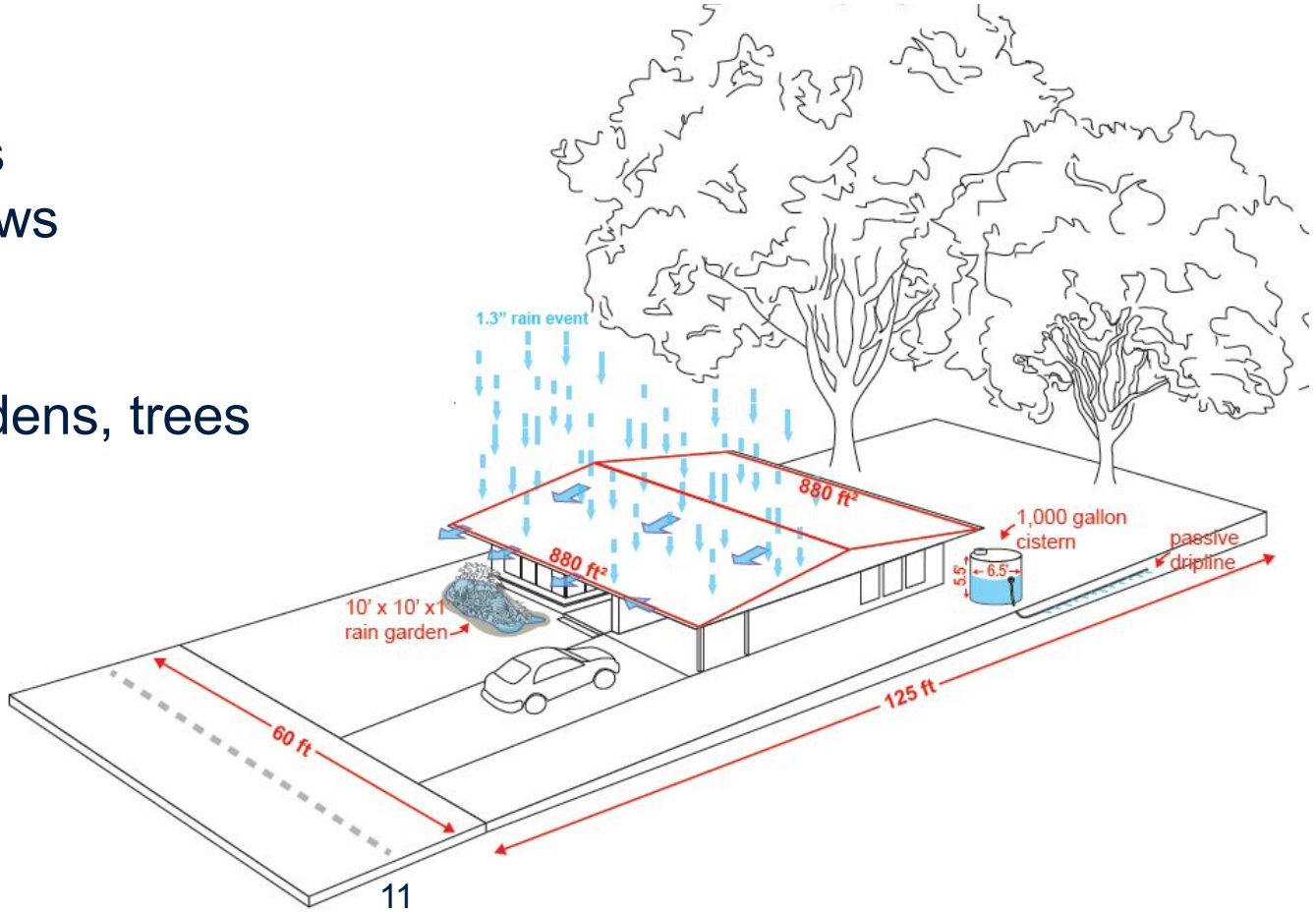
Bren School of Environmental Management

Step 1: Defining Project Goals and Objectives
Austin's Rain Catcher Pilot Program

<u>Project Goals</u>
Reduce erosive events
& improve instream flows

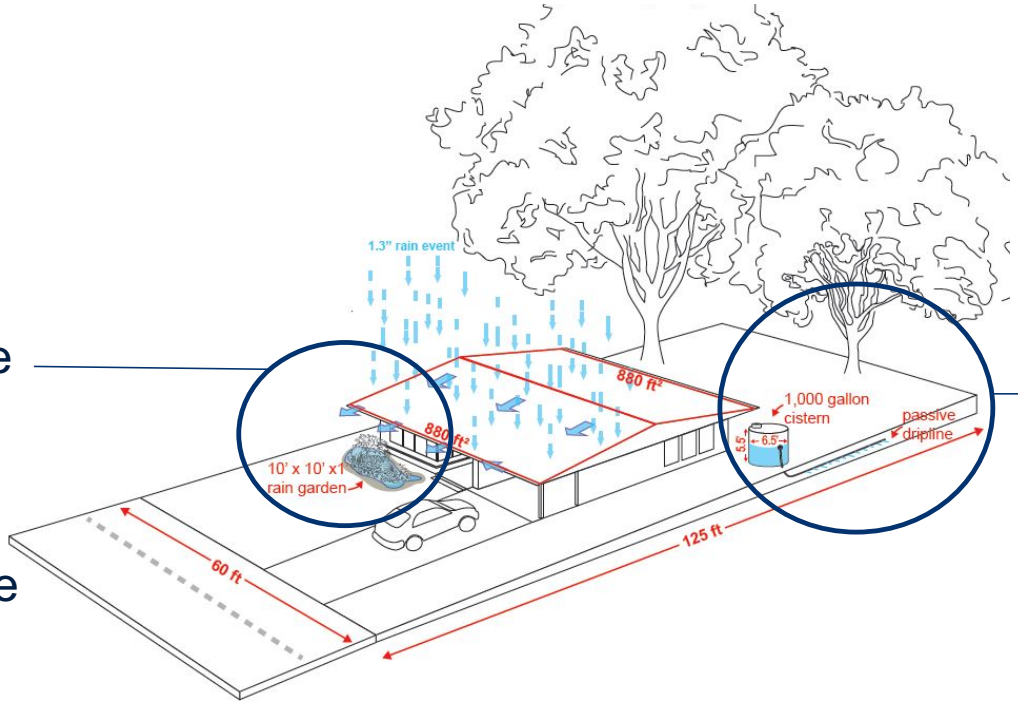
<u>Project Options</u>
Rain cisterns, rain gardens, trees

<u>Project Partners</u>
Austin Water
Austin WPD
Local NGOs



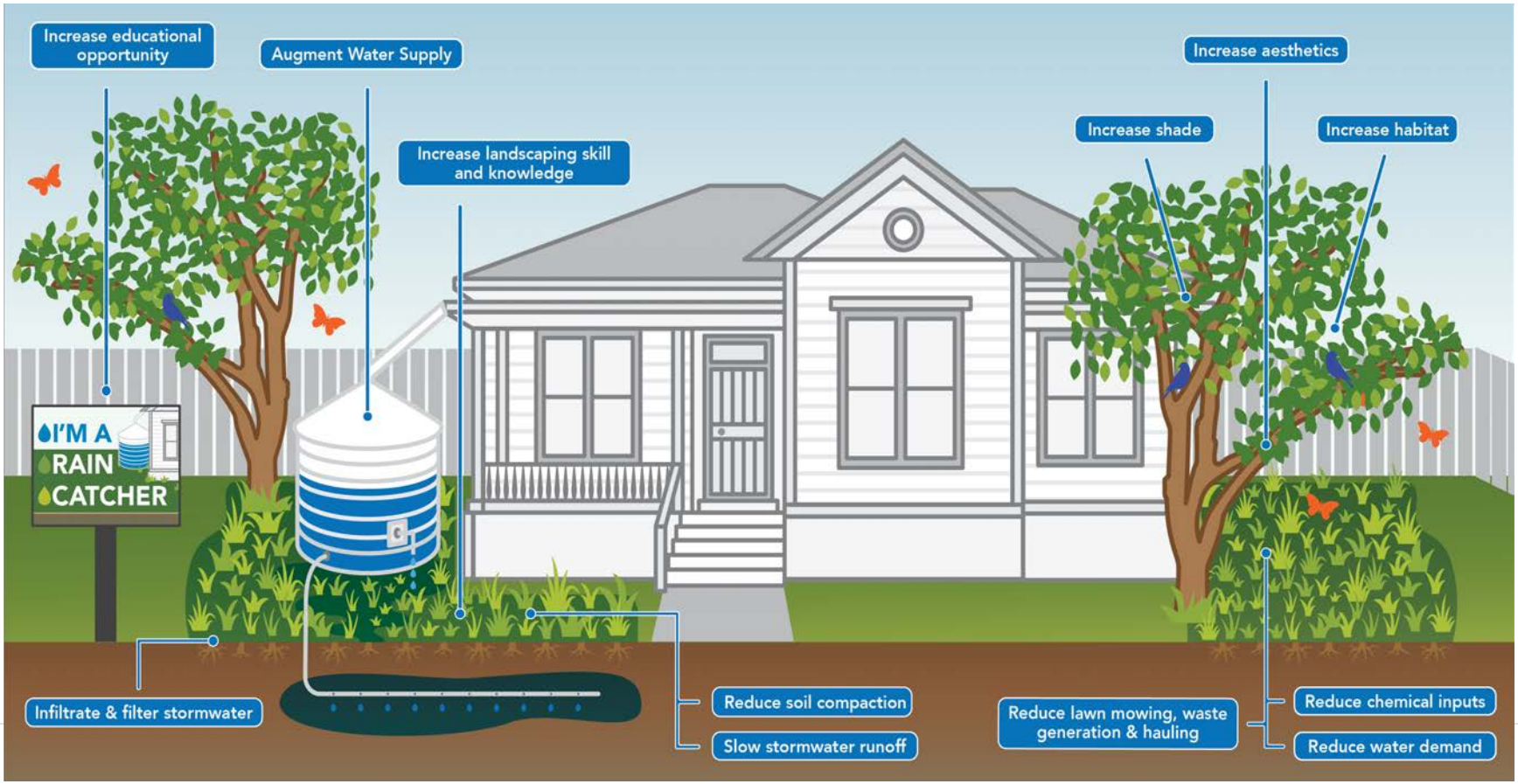
Outcome #1 of considering multiple benefits: Stackable rebate incentives

Austin Water's Rainscape Rebate
$0.30 per sq. ft.
PLUS
Austin WPD stormwater rebate
$1 per gallon



Austin Water's Rainwater Harvesting Rebate
$0.5 - $1.00 / gallon
PLUS
Austin WPD stormwater rebate
$1 per gallon

Step 2: Identifying Benefits and Trade-offs



Step 2: Key Benefits and Trade-offs

Water

Impact on erosive events
Nuisance flooding on-site
Reduce water pollution
Augmenting water supply

Energy

Energy for water
Energy for cooling buildings

Land and Environment

Improve air quality
Improve in-stream flows
Increase shade
Reduce GHGs

Community Benefits

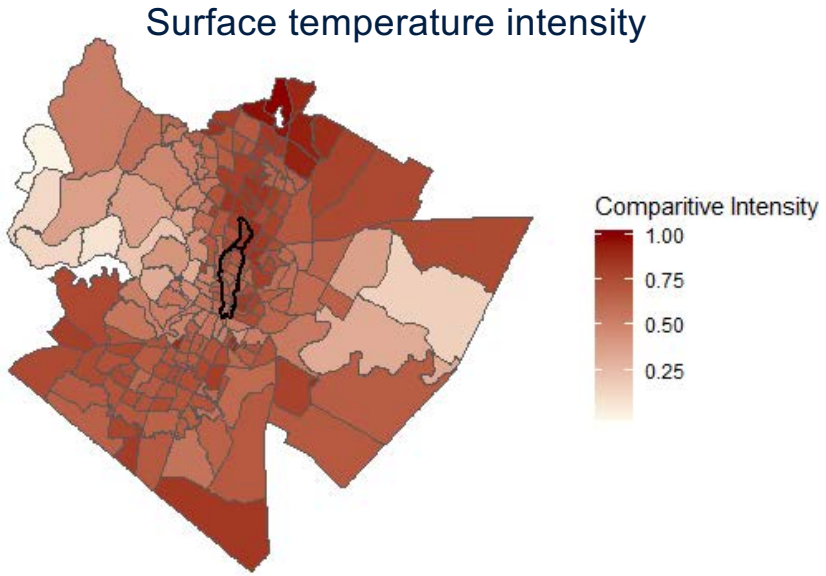
Urban heat island
Local economy
Educational opportunities
Reduce on-site maintenance
Aesthetics

Risk and Resilience

Improve reputation
Reduce drainage fees
Defer infrastructure investments
Climate resilience

Step 3: Characterizing Key Benefits and Trade-offs

Example: Urban Heat Island



Preliminary Results

4.5°C cooler

84 kWh / year saved

$9 per year saved per household

Outcome #1 of considering multiple benefits: Stackable rebate incentives

Urban Forestry provides $ for new trees

Reduced urban heat island effect

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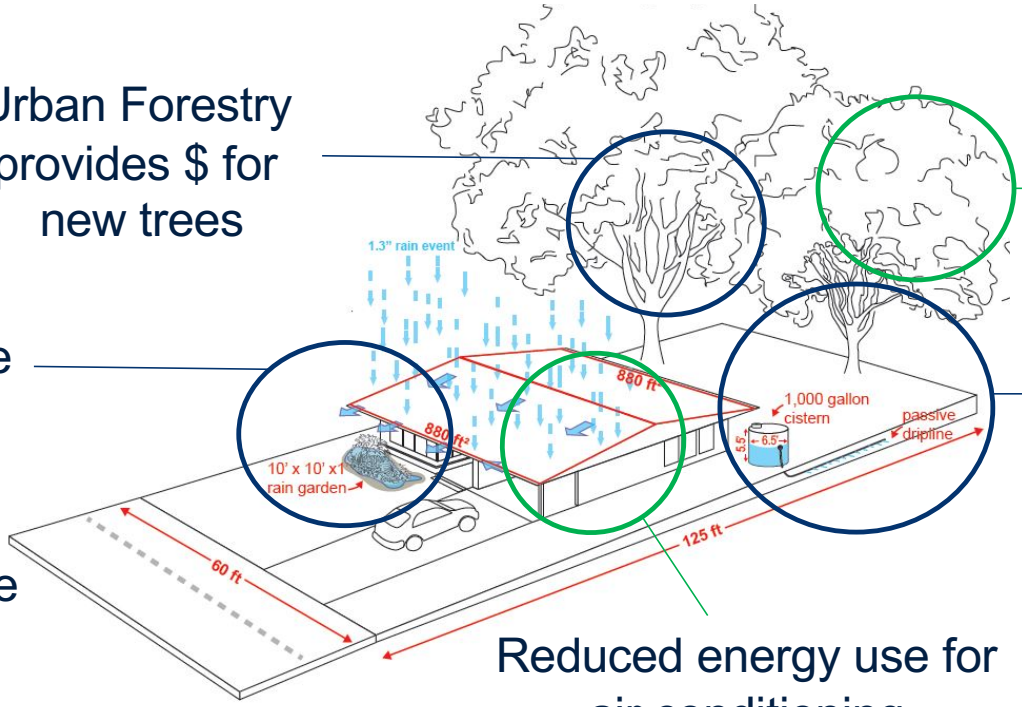

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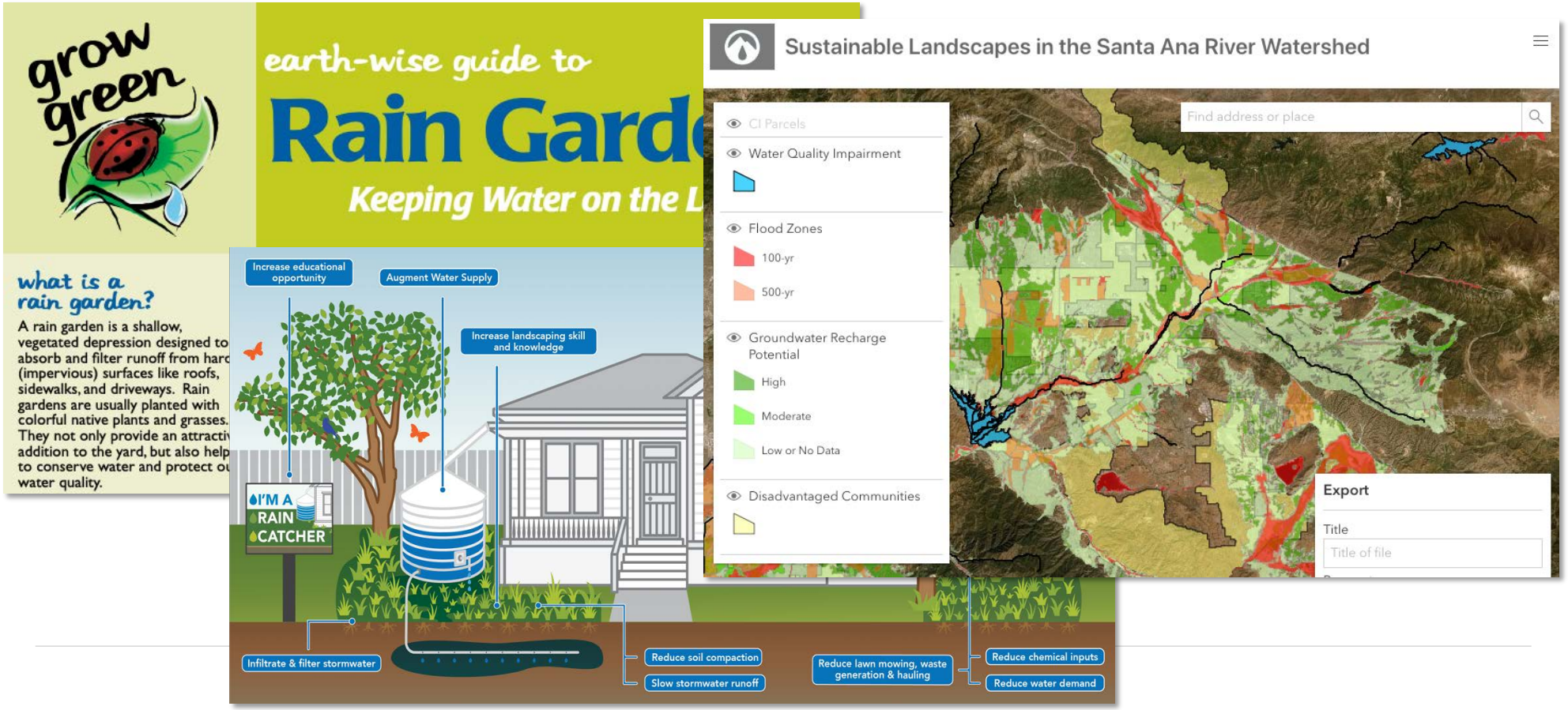
Reduced energy use for air conditioning

Outcome #2: Stronger relationships with stakeholders

- Water utilities and city staff
- Community members
- Non-profit organizations
- Businesses

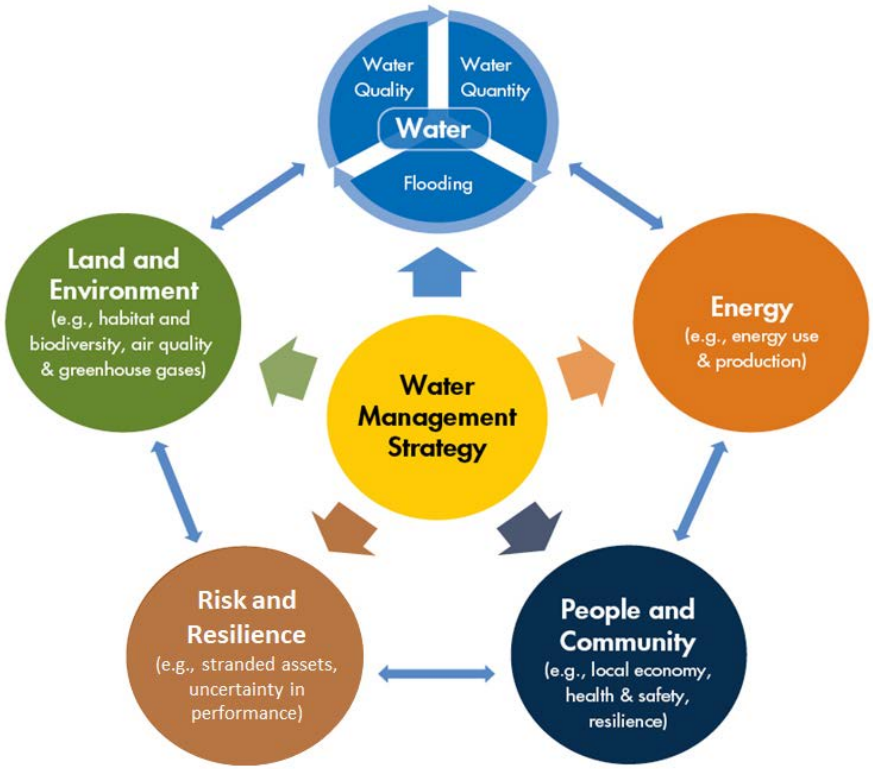
(Photo) Elementary School in Austin, Texas with rain gardens and cisterns

Outcome #3: Targeted outreach to decision makers



Outcome #4: Equity is incorporated into planning

- Are the same stakeholders receiving most of the benefits or incurring most of the costs?
- Can you adapt the project to maximize benefits for communities in need?
- What might prevent disenfranchised stakeholders from engaging?



Applications of a Multi-Benefit Framework

The Framework can help:

- **Cities** prioritize project options;
- **Businesses** develop sustainability targets;
- **Agencies** build relationships and co-finance projects;
- **Funders** streamline proposal guidelines; and,
- **Communities** engage in the decision-making process.

Next Steps for the Multi-Benefit Framework

- Developing guidebook for incorporating multiple benefits into water management decisions
- Applying the framework with partners throughout the U.S. for projects, programs, and policies

www.pacinst.org/multiplebenefits




Thank you!
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