

Benefits to CWW of an IWCM Approach

Anne Barker

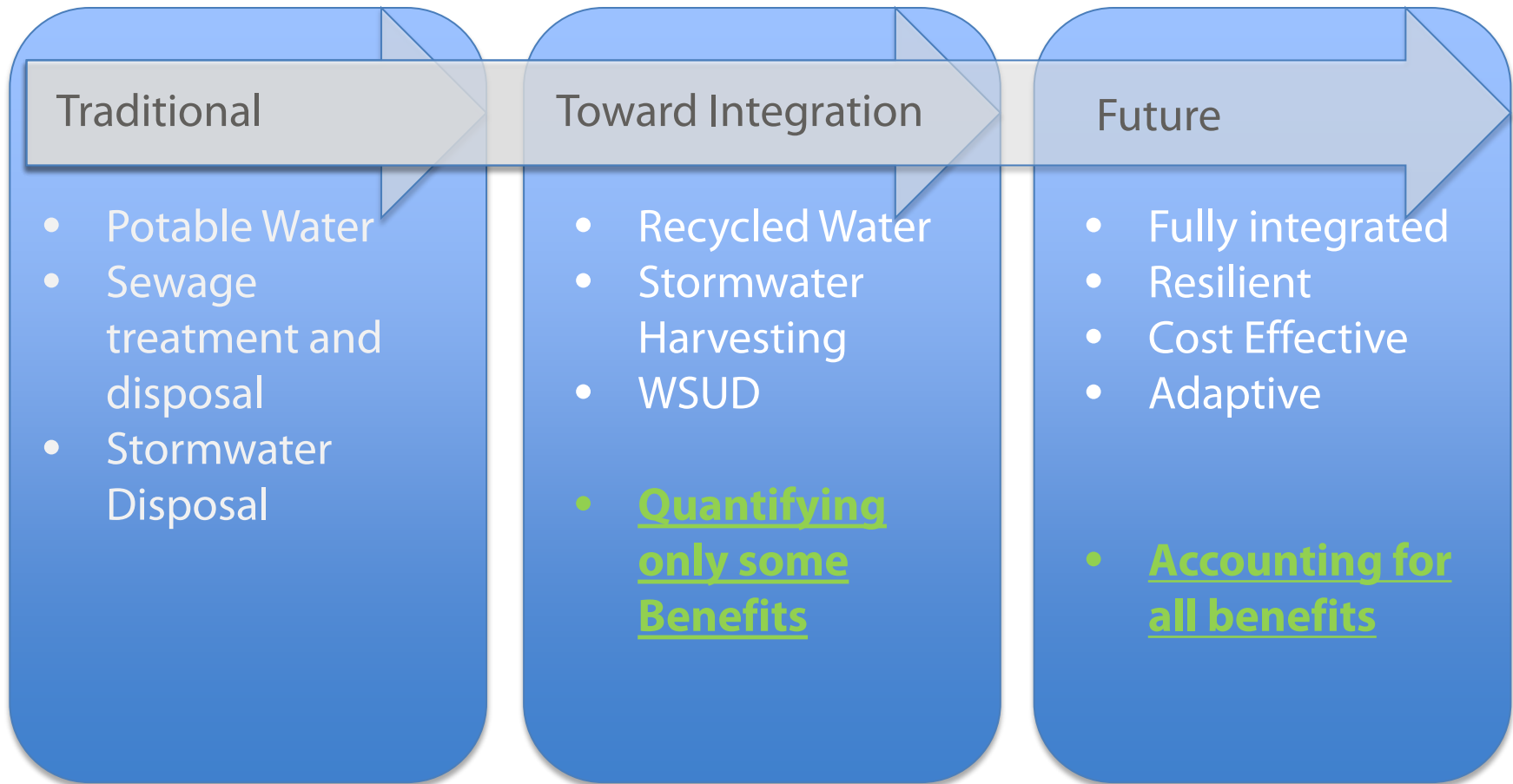
City West Water

26 February 2015



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History



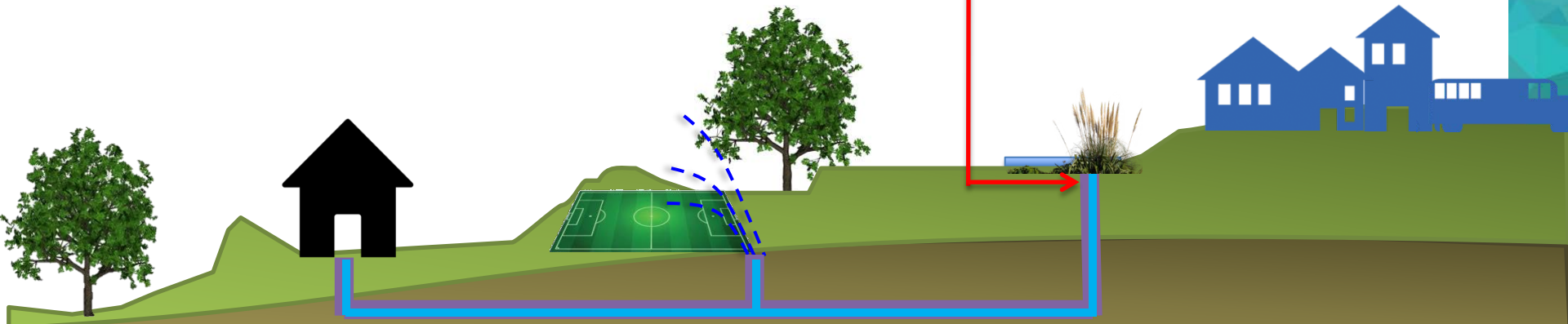
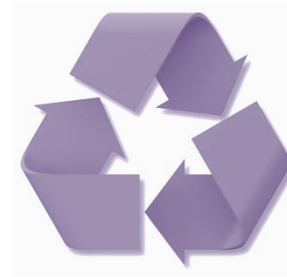
Integrating Water Supply

- When it rains, stormwater may be harvested locally, stored and used to irrigate parks and gardens.



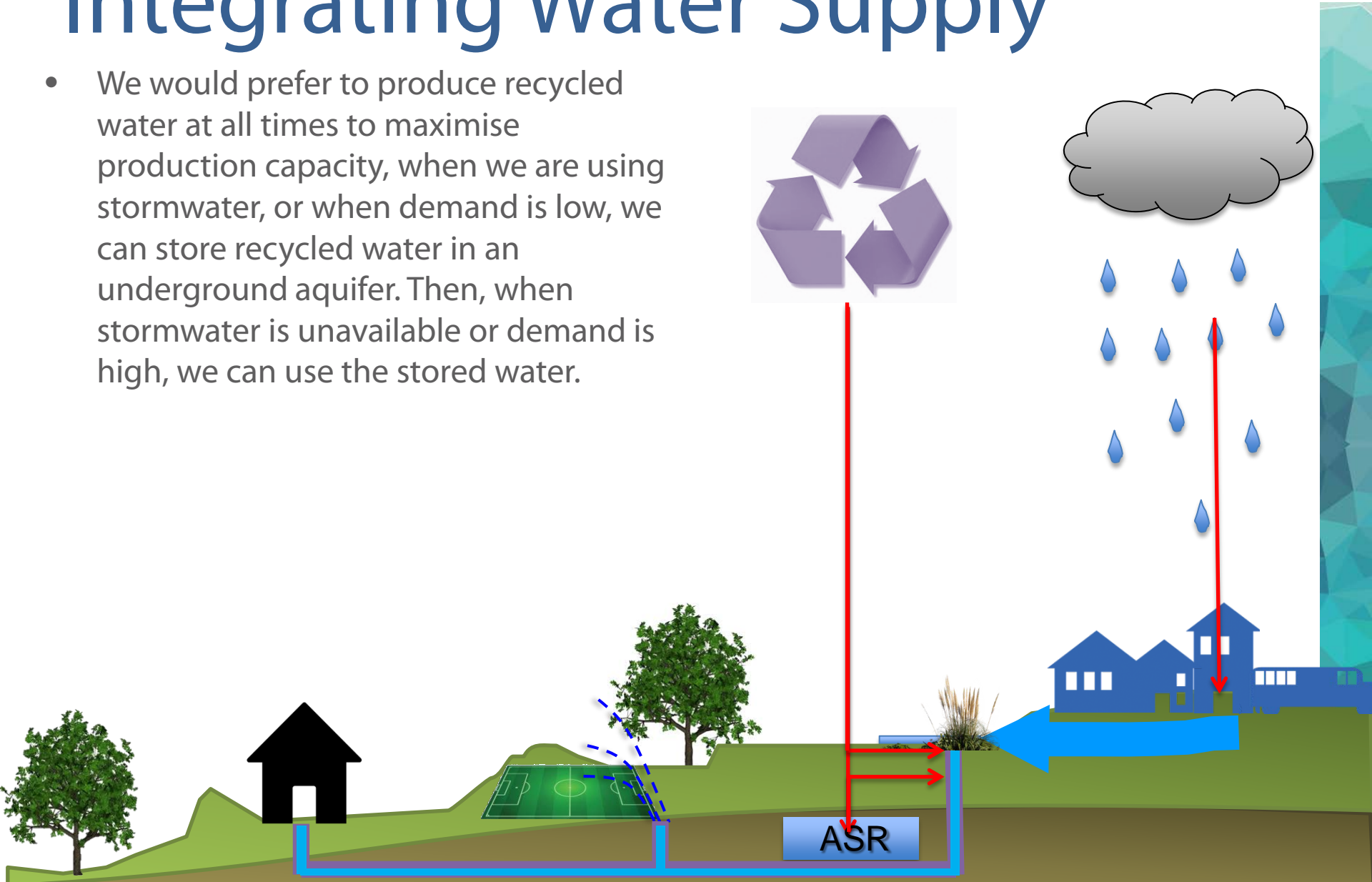
Integrating Water Supply

- If stormwater is unavailable, we can use recycled water to provide the irrigation water, as well as supplying surrounding houses with recycled water as well.

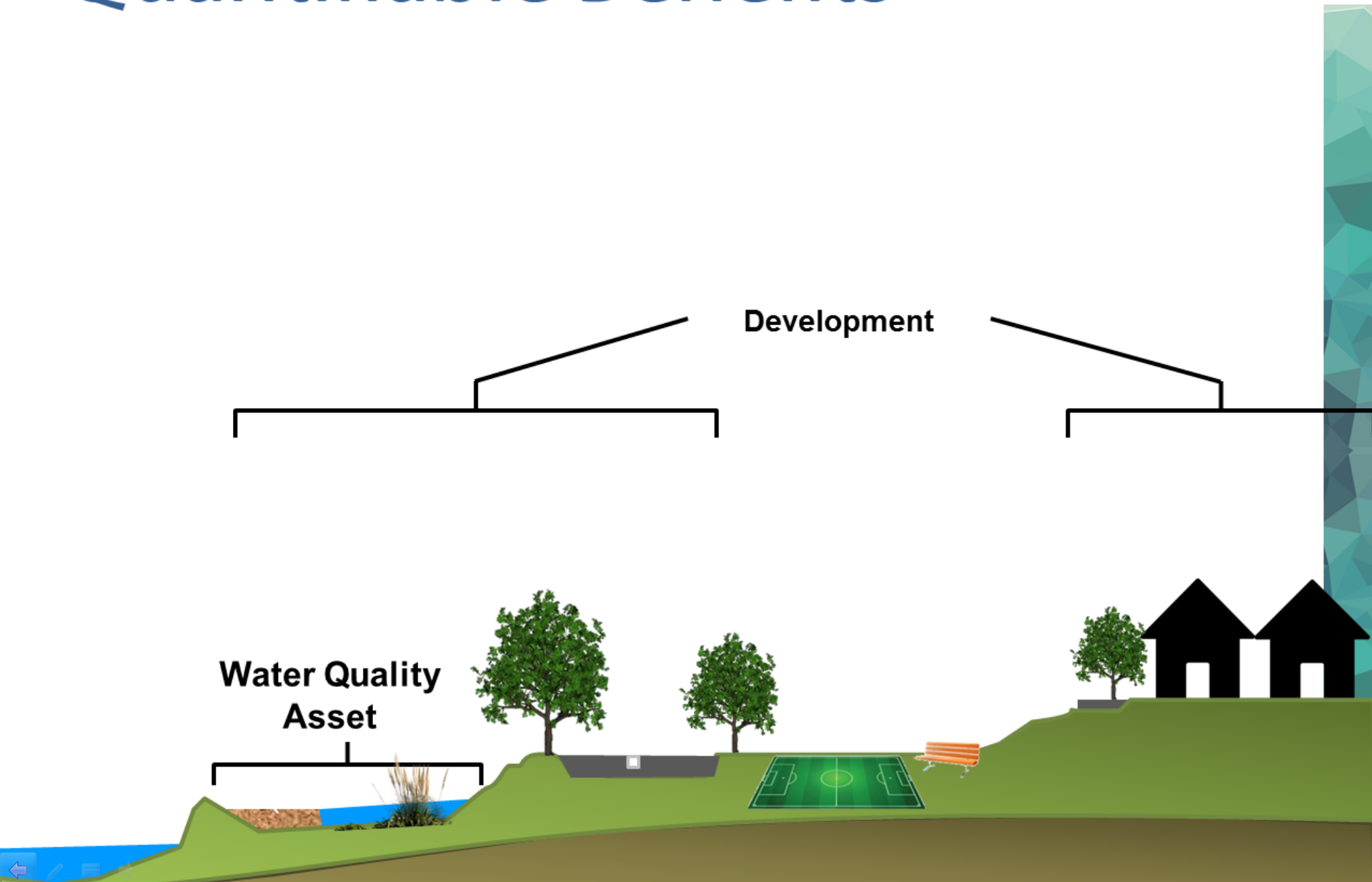


Integrating Water Supply

- We would prefer to produce recycled water at all times to maximise production capacity, when we are using stormwater, or when demand is low, we can store recycled water in an underground aquifer. Then, when stormwater is unavailable or demand is high, we can use the stored water.



Quantifiable Benefits

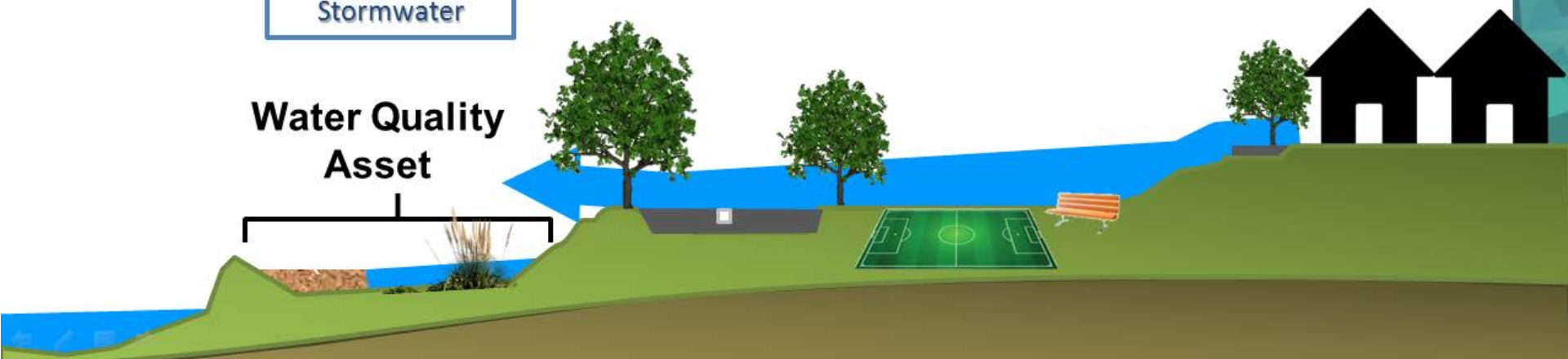


Quantifiable Benefits

No Stormwater harvesting

WQ Asset has to
treat all the
Stormwater

**Water Quality
Asset**



Quantifiable Benefits

- SW is applied to irrigate open space and gardens. SW contains pollution, nitrogen and phosphorus, which acts as a fertilizer. The plants take up the pollution meaning WSUD assets may be downsized.

With Stormwater harvesting

WQ Asset
size now
reduces →
treats less
Stormwater

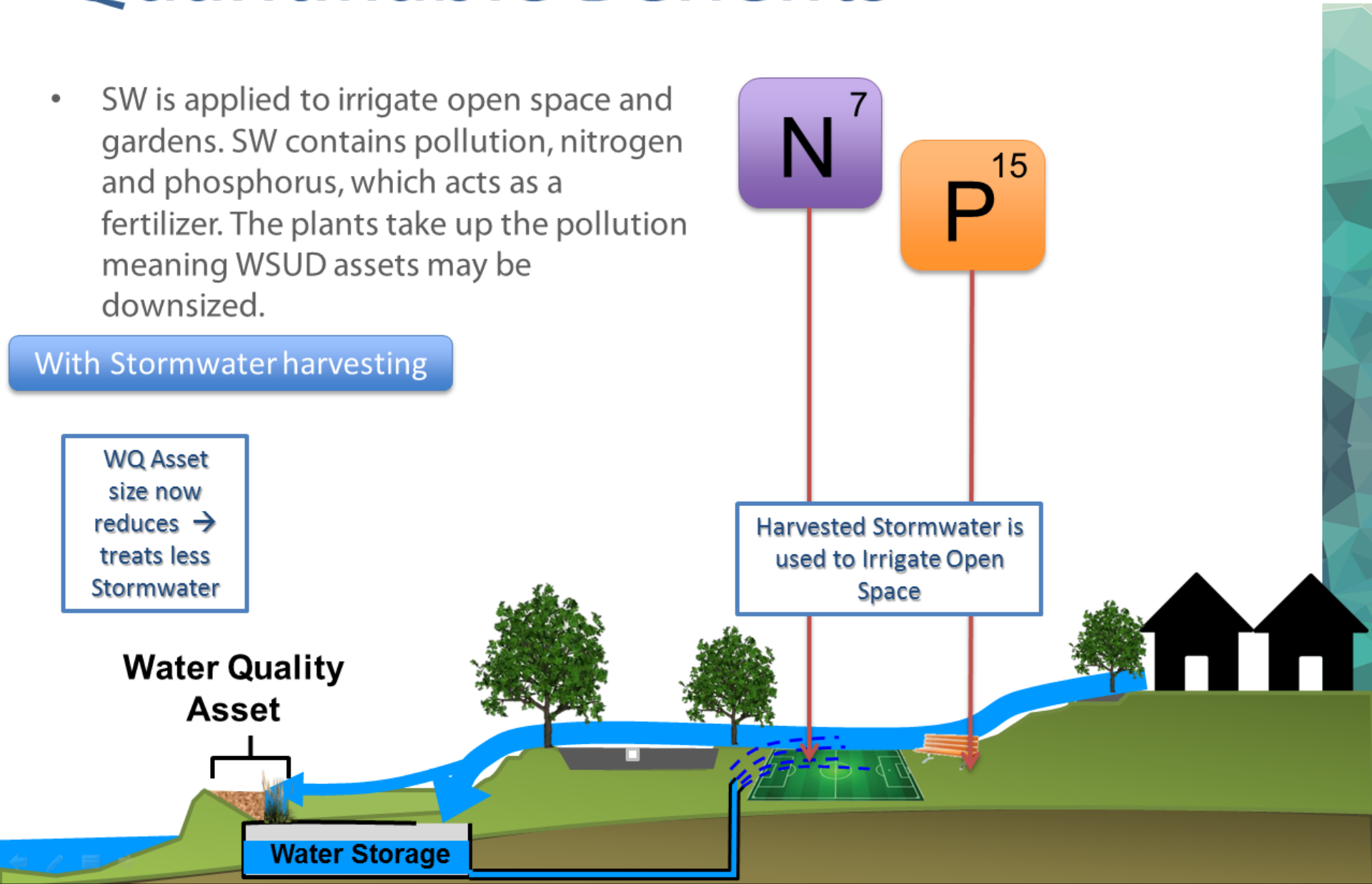
Water Quality
Asset

Water Storage

N⁷

P¹⁵

Harvested Stormwater is
used to Irrigate Open
Space



Difficult to Quantify Benefits

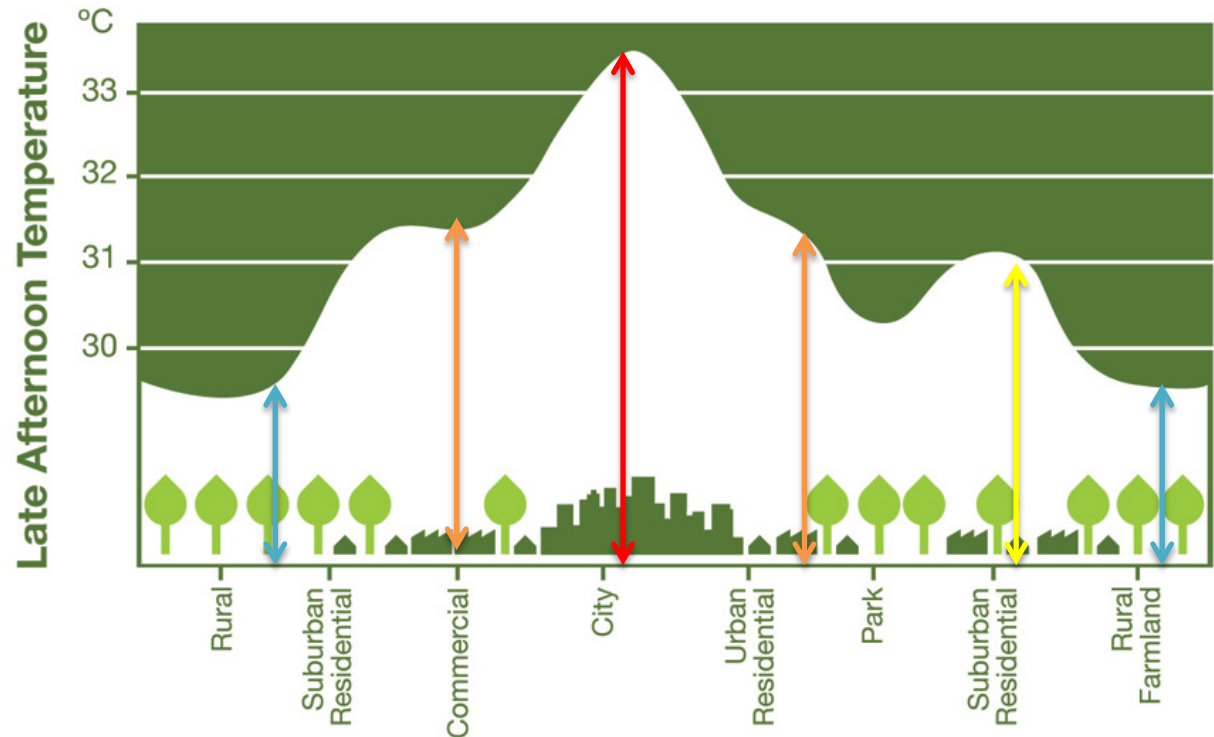
- Keeping water in catchment
- Mental and Physical Health
- Visual Amenity
- Reducing Heat Island Effect
- House Prices increase
- Avoiding the costs associated with water restrictions.



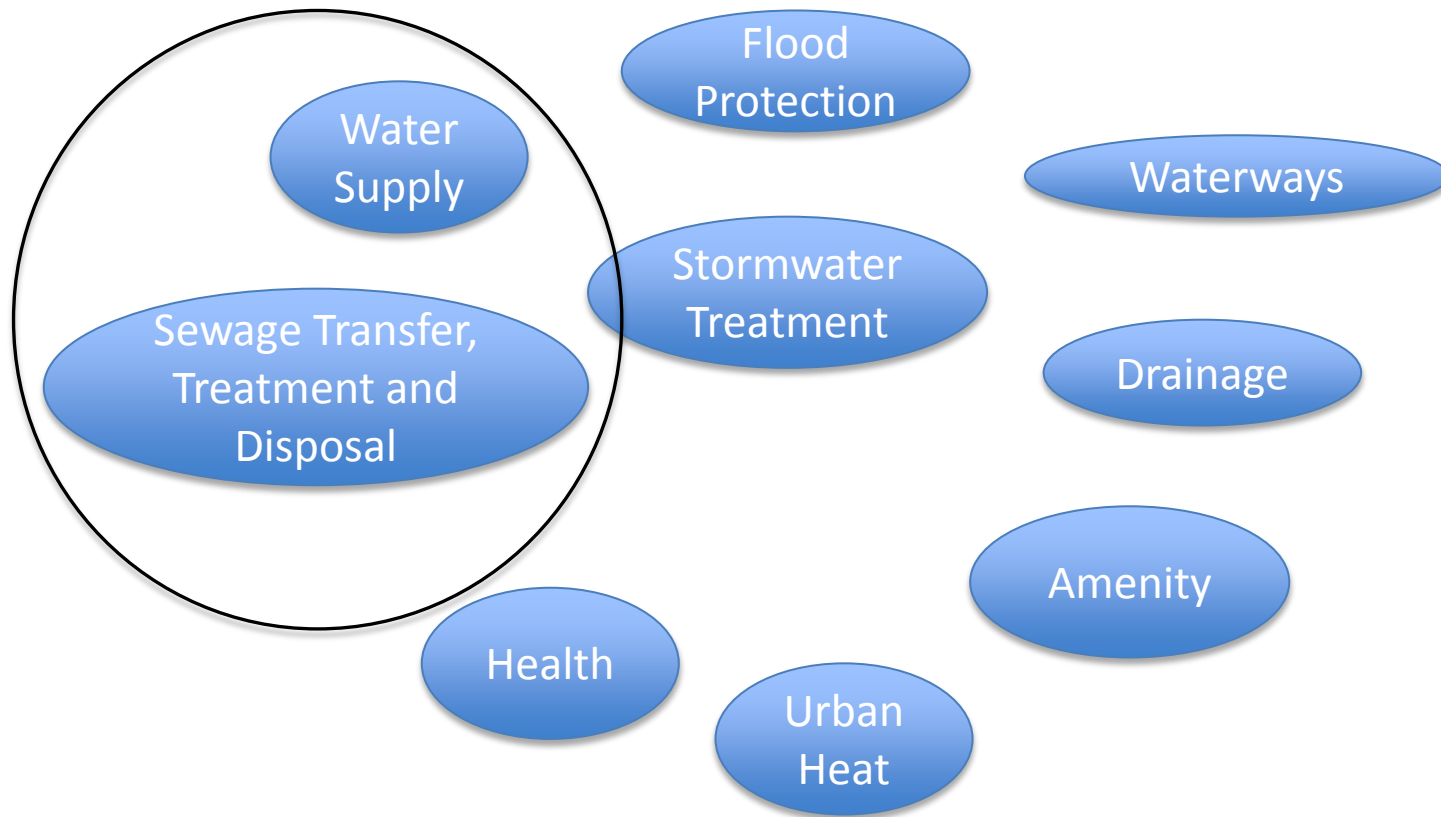
Research and Studies



- Reduced demands equals smaller pipes
- Avoidable systems costs – interactions with Melbourne Water
- Working towards measuring other benefits and facilitating change



Cost Benefit Apportionment

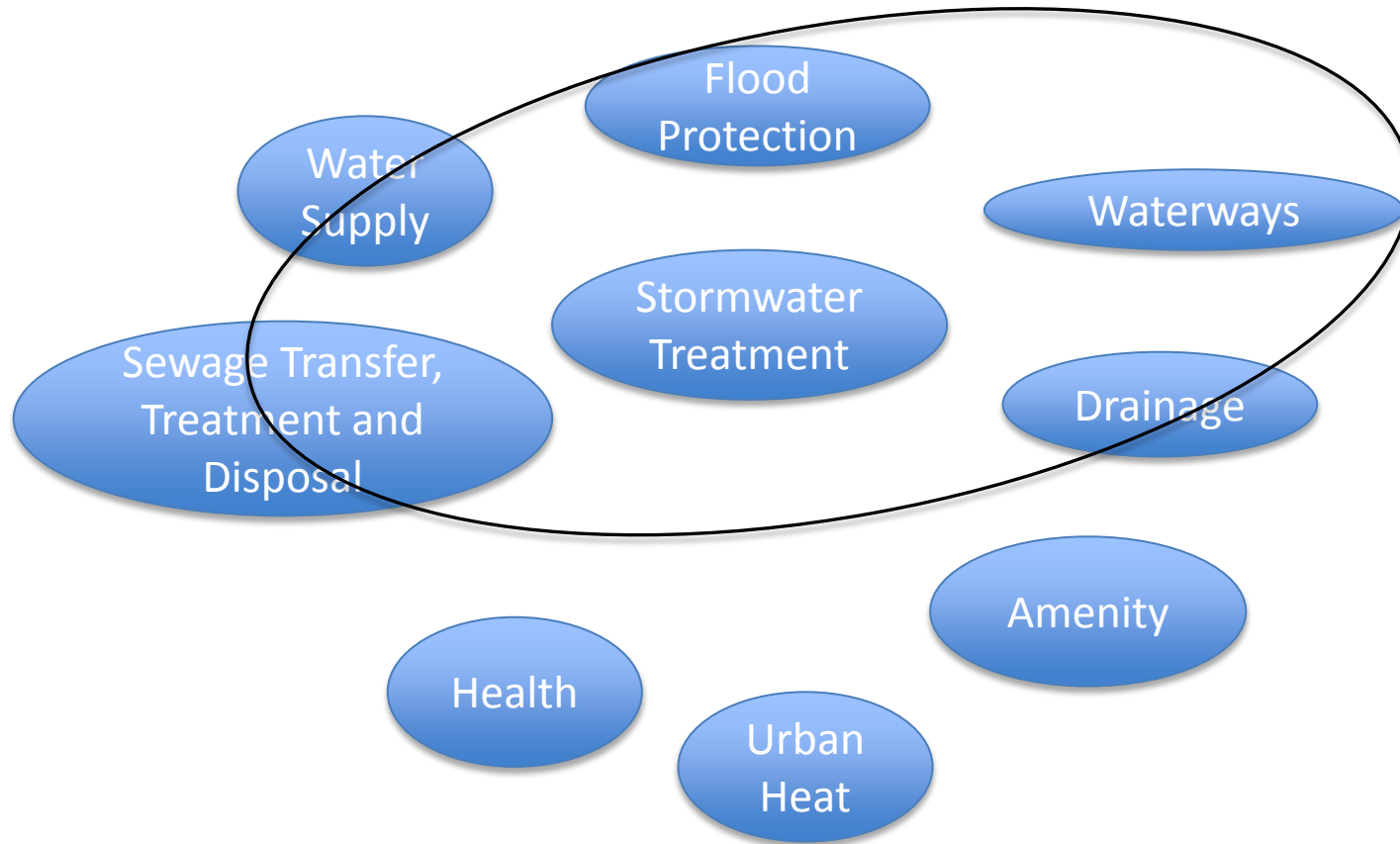


Water Retailers



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Cost Benefit Apportionment

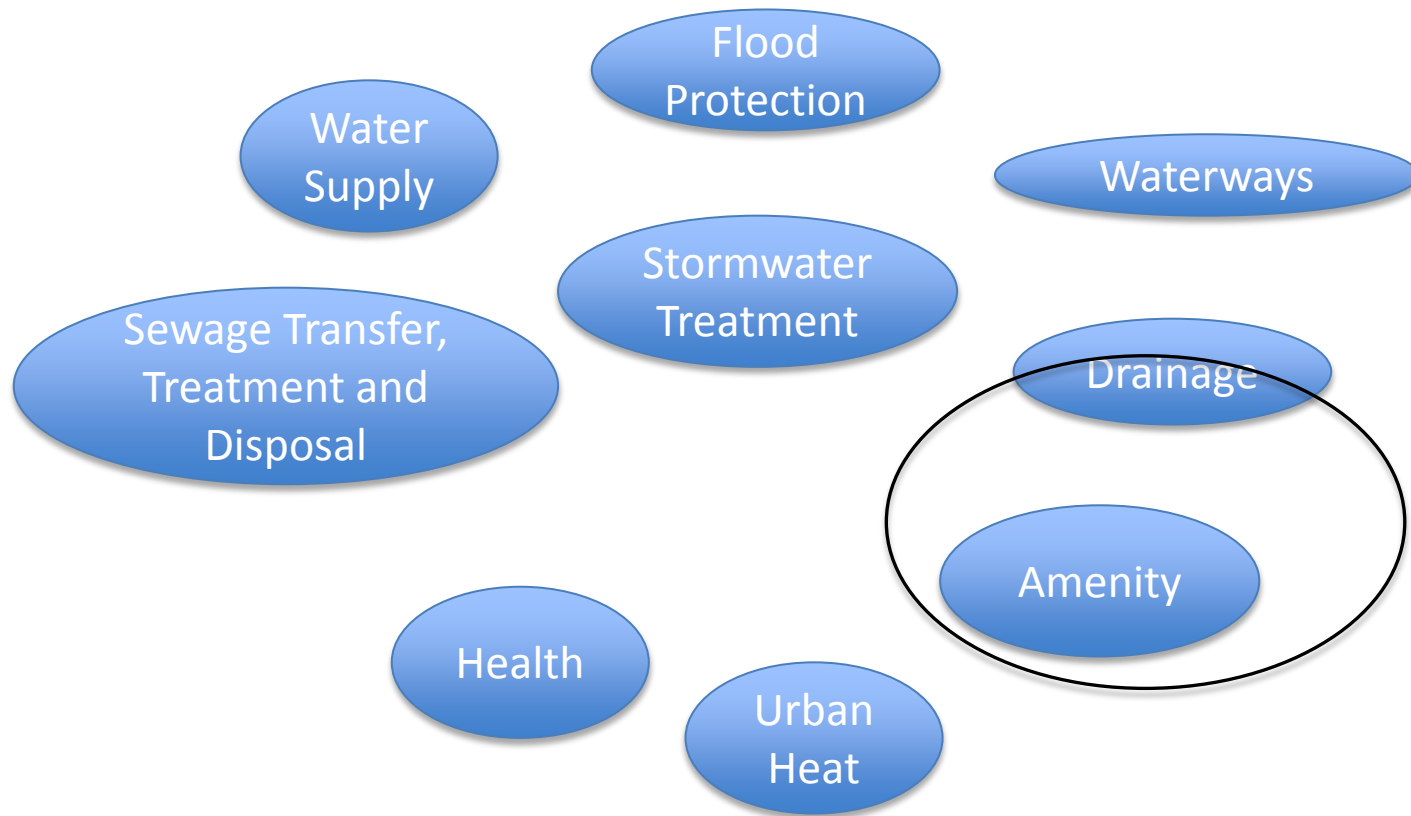


Melbourne Water



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Cost Benefit Apportionment

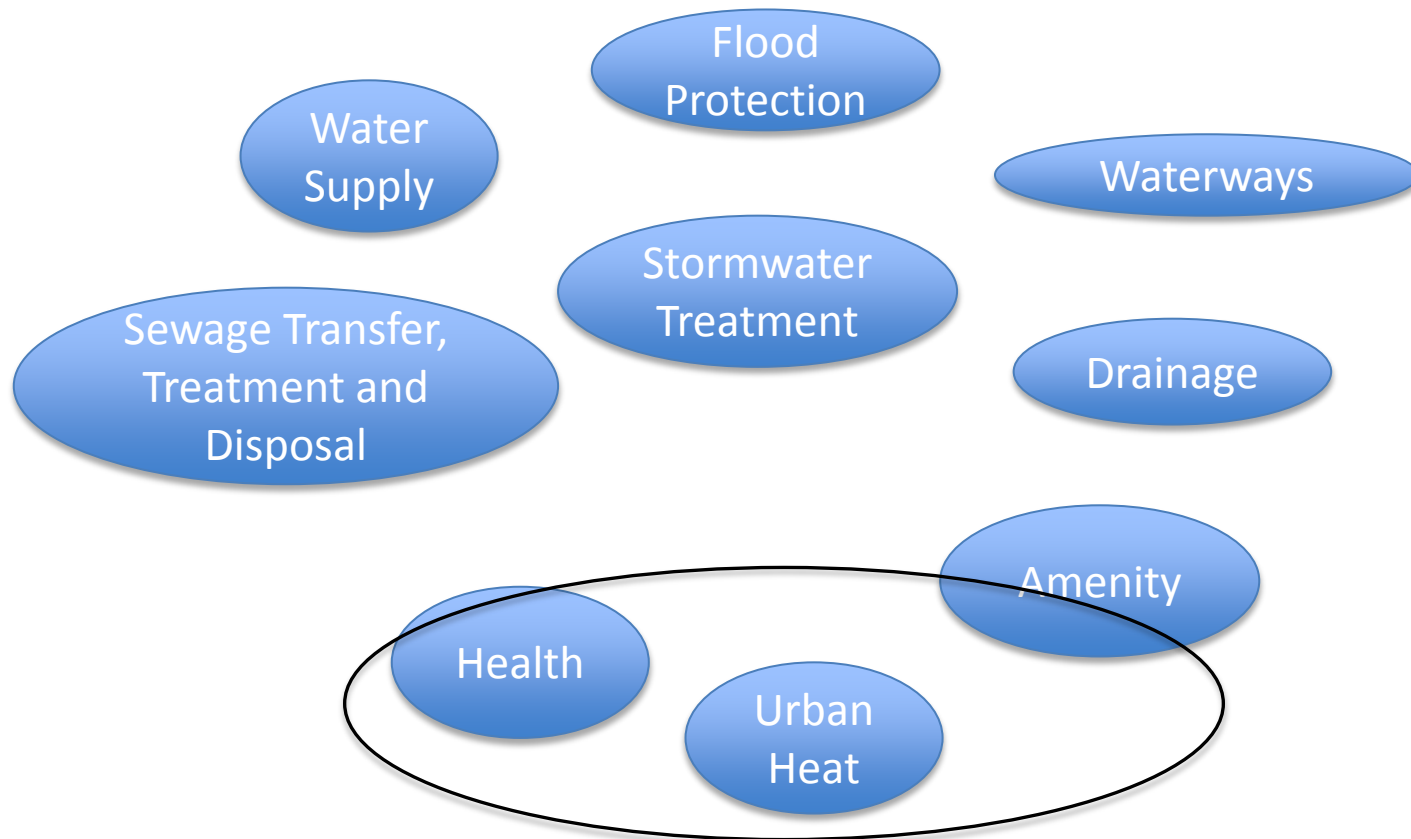


Local Councils



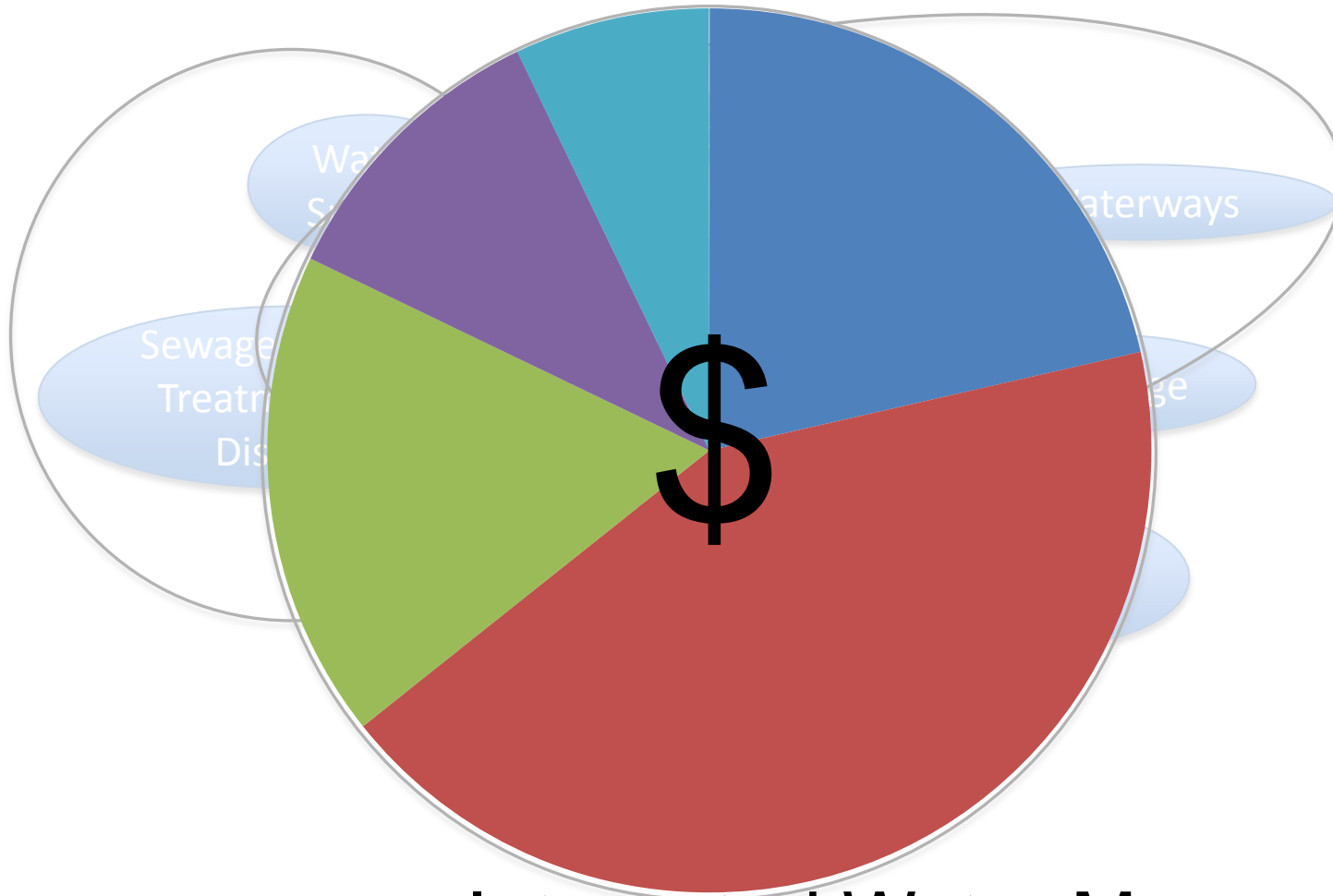
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Cost Benefit Apportionment



Other Stakeholders

Cost Benefit Apportionment



Integrated Water Management



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Example: Stony Creek



- Degraded heavily modified waterway
- Low socio economic and low health index community
- Poor amenity
- Flood Issues
- Abundance of polluted stormwater
- Water demands nearby

Example: Stony Creek

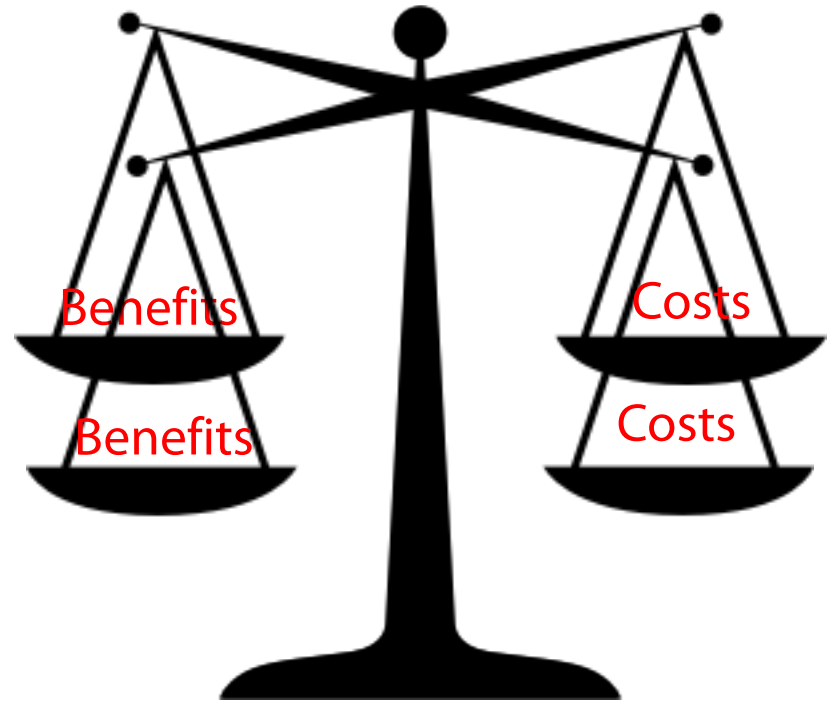


- Remove concrete, restore waterway
- Treat stormwater through wetlands
- Supply water through stormwater harvesting
- Encourage utilisation with access, pathways, gardens, etc
- Create urban coolth sink with abundant water and evapotranspiration



Example: Stony Creek

- **Costs**
 - Capital Costs
 - Operating Costs
- **Quantifiable Benefits**
 - Water Supplied
 - Pollution Removed
 - Avoided System Costs
- **Unquantifiable Benefits**
 - Health Improvements
 - Temperature Reduction
 - Liveability Improvements

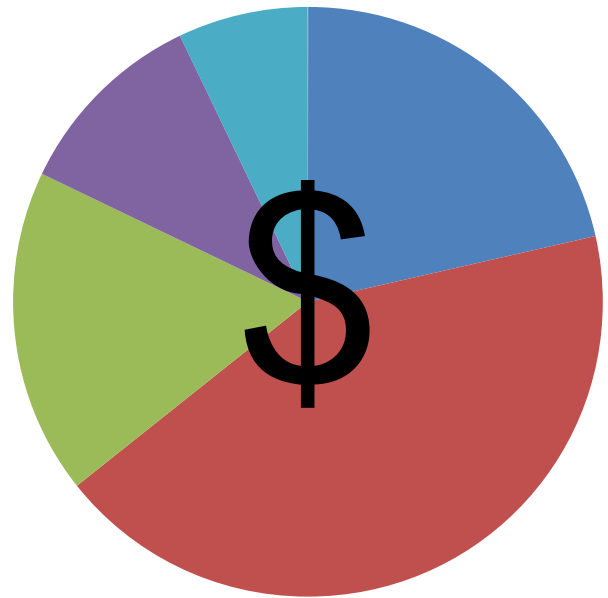


With Quantifiable Benefits



Example: Stony Creek

- Benefits accrue to whole community
 - Government Contributions
- Benefits accrue to regional community
 - Developer offsets
 - Council Rates
- Benefits accrue to local community
 - Community Infrastructure Levy



Laverton Reserve



Laverton Reserve



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Laverton Reserve



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Green Gully Reserve



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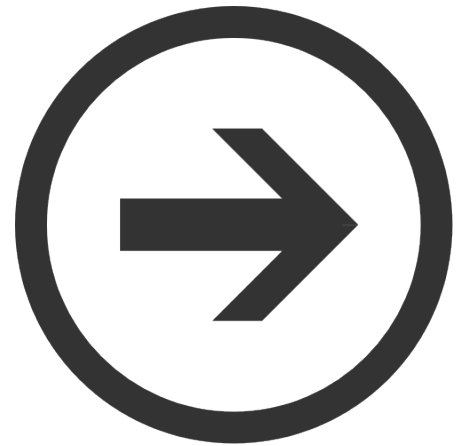
Green Gully Reserve



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What's Next?

- Ongoing cooperation and coordination amongst managers of the water cycle to identify IWM opportunities
- More work needs to be done in order to measure the quantity of the multiple benefits that integrated water cycle management brings, this can justify investments leading to achieving a truly sustainable and resilient water cycle system.



Thank You



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