

# Good Science Good Decision Making Good Policy

San Antonio Area Chapters TAWWA and WEAT  
Summer Seminar - Emerging Issues in the Water /  
Wastewater Industry

July 26<sup>th</sup>, 2013

# Closing Remarks

- A Watershed Approach
- Proactive and holistic thinking
- Emerging issues
  - Instream Flows
  - Emergent Contaminates
  - Surface water/ ground water interaction
  - Nutrients
  - Low Impact Design (LID)
- Good decision making for maximum public value using the Triple Bottom Line (TBL)

# THE SAN ANTONIO RIVER



## San Antonio River Facts

**Length:** 240 miles.

**Starts:** "Blue Hole" spring, University of the Incarnate Word, San Antonio.

**Runs through counties:** Bexar, Wilson, Karnes, Goliad, Refugio.

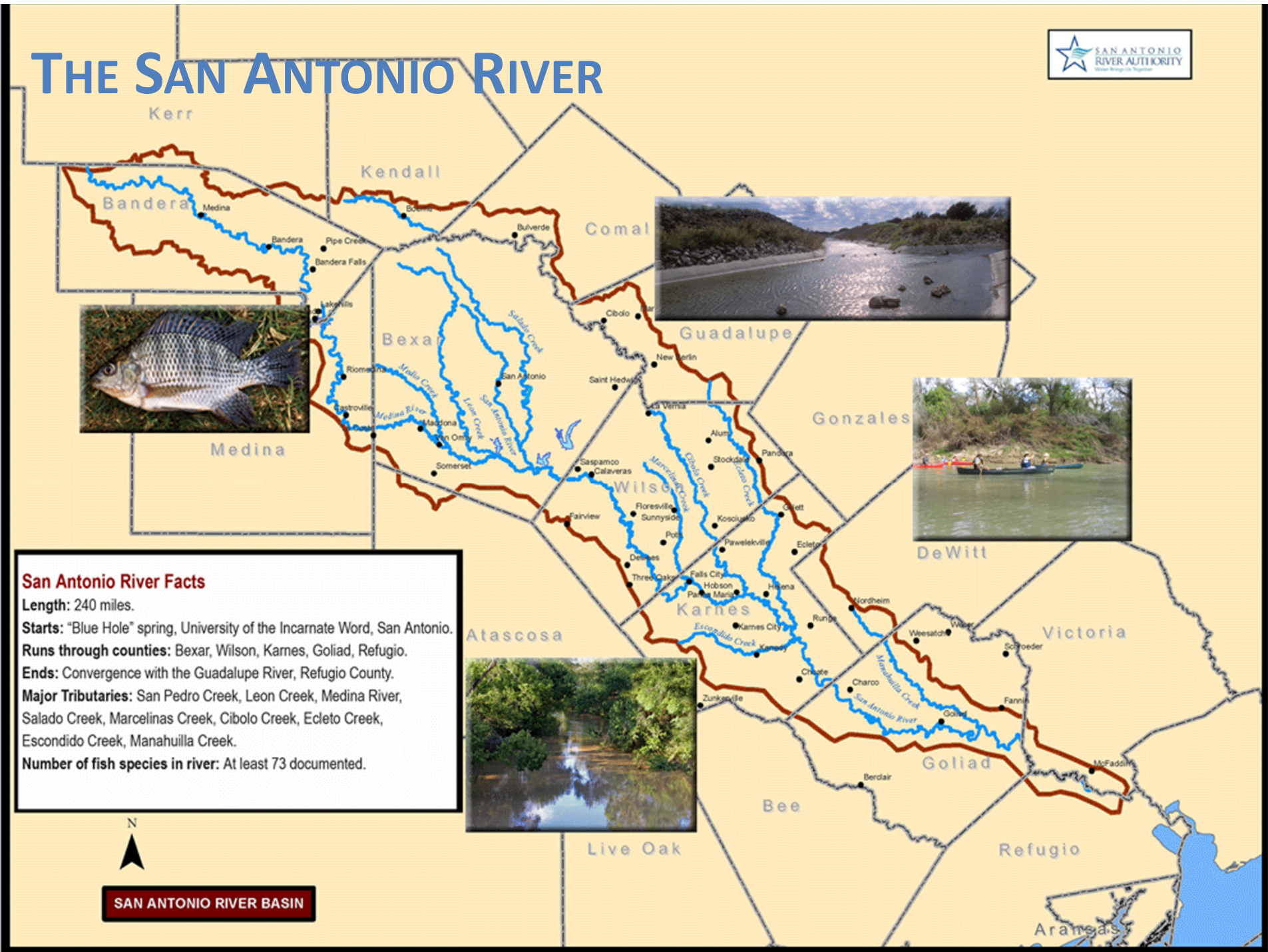
**Ends:** Convergence with the Guadalupe River, Refugio County.

**Major Tributaries:** San Pedro Creek, Leon Creek, Medina River, Salado Creek, Marcelinas Creek, Cibolo Creek, Ecleto Creek, Escondido Creek, Manahuilla Creek.

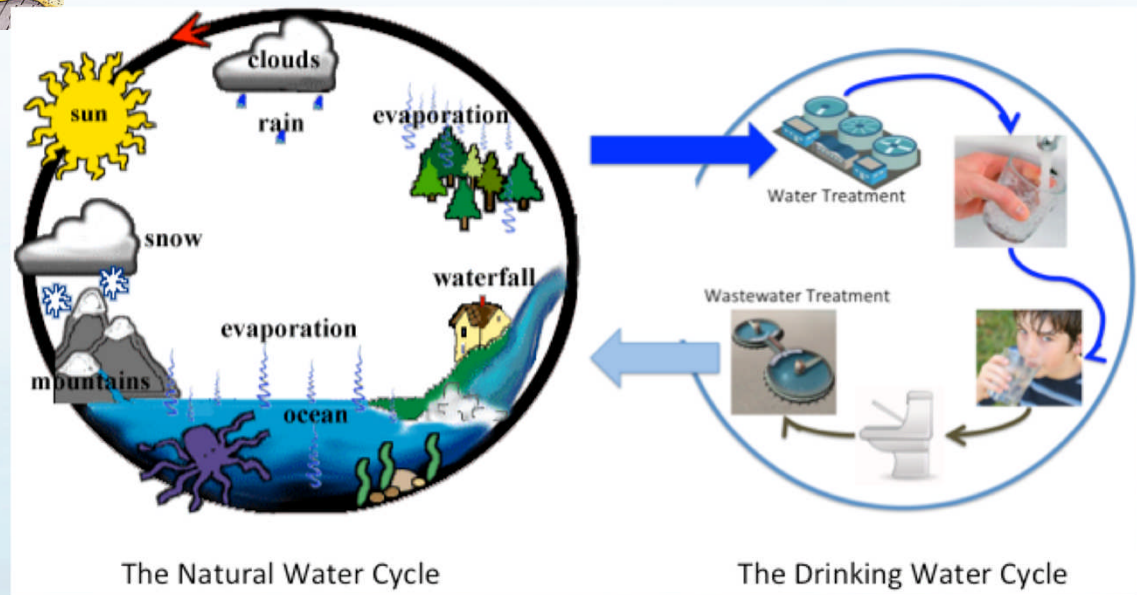
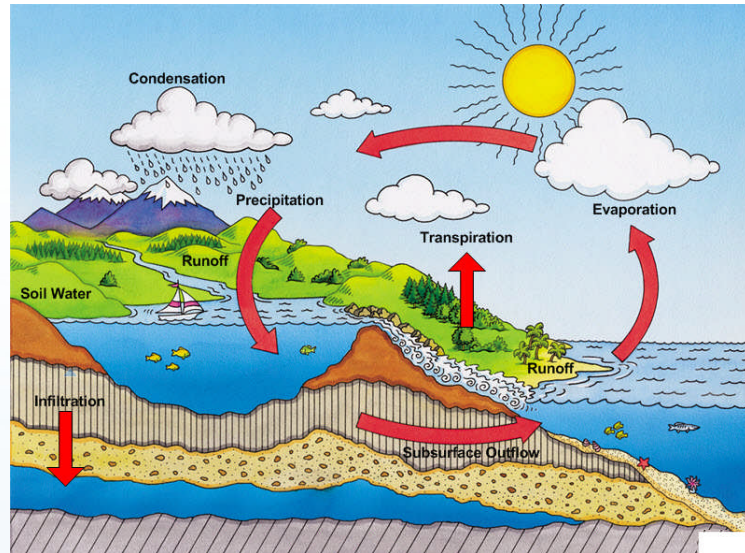
**Number of fish species in river:** At least 73 documented.



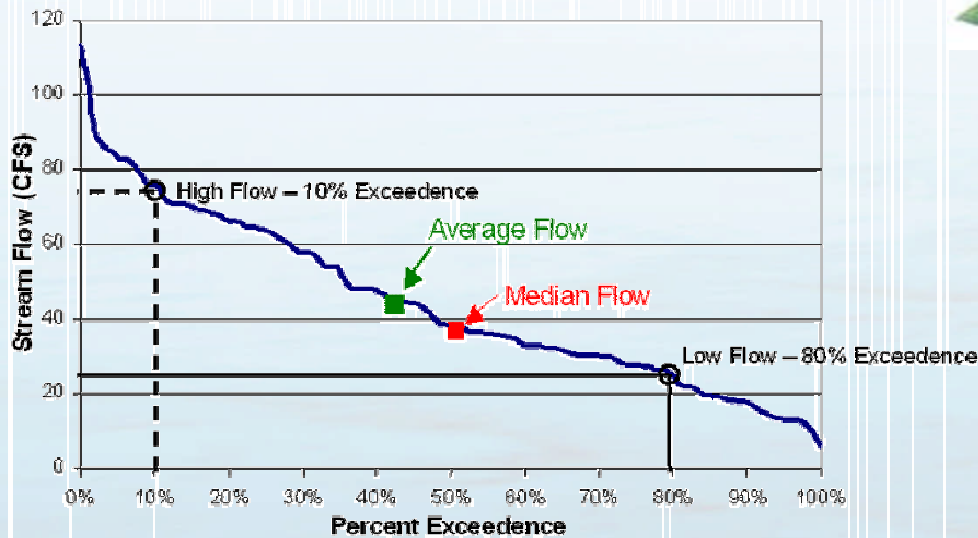
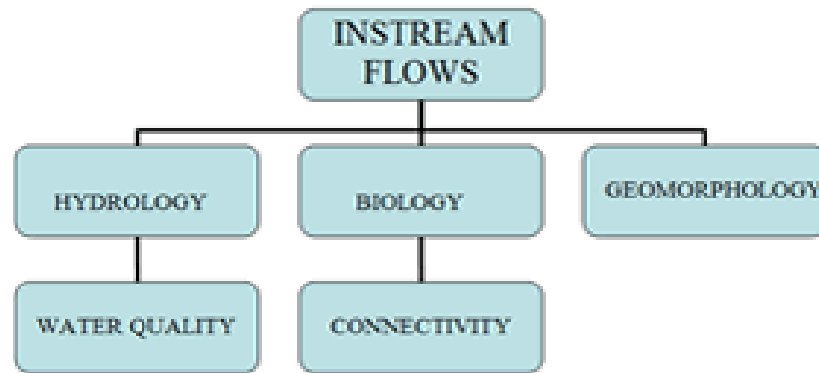
SAN ANTONIO RIVER BASIN



# Proactive and Holistic Thinking



# Emerging Issues – Instream Flows

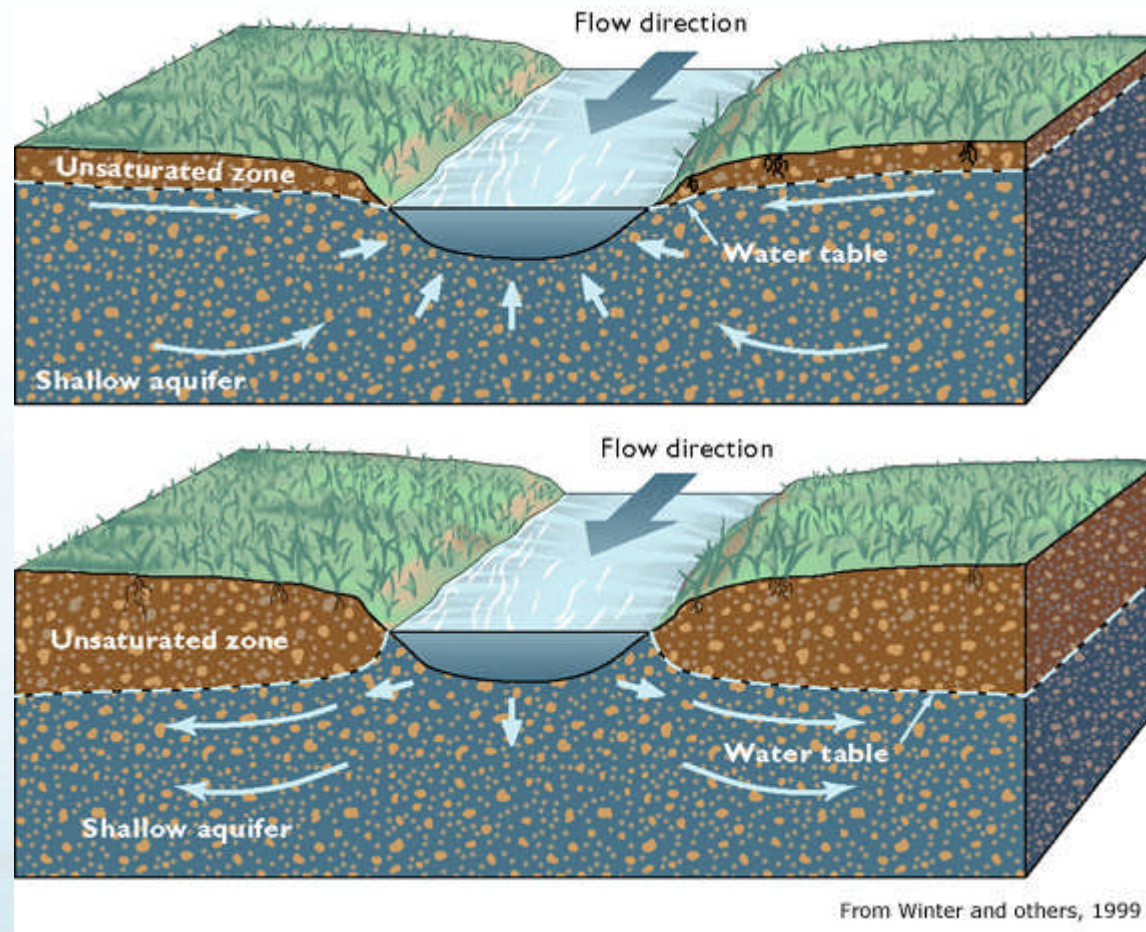


# Emerging Issues – Emergent Contaminates (Substances of Concern)

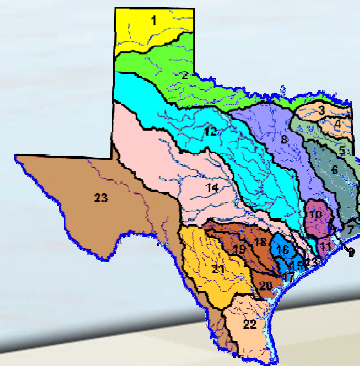
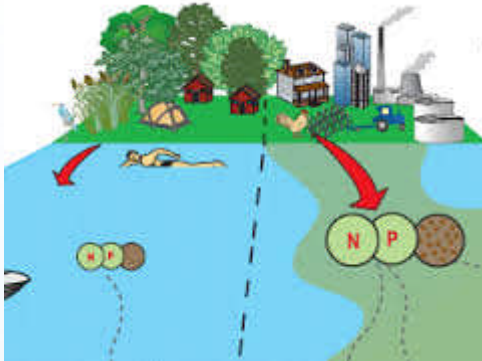
- Global Organic Contaminants
- Pharmaceuticals and Personal Care products
- Nanoparticles
- Industrial Chemicals (new and recently recognized)
- Biological Metabolites and Toxins



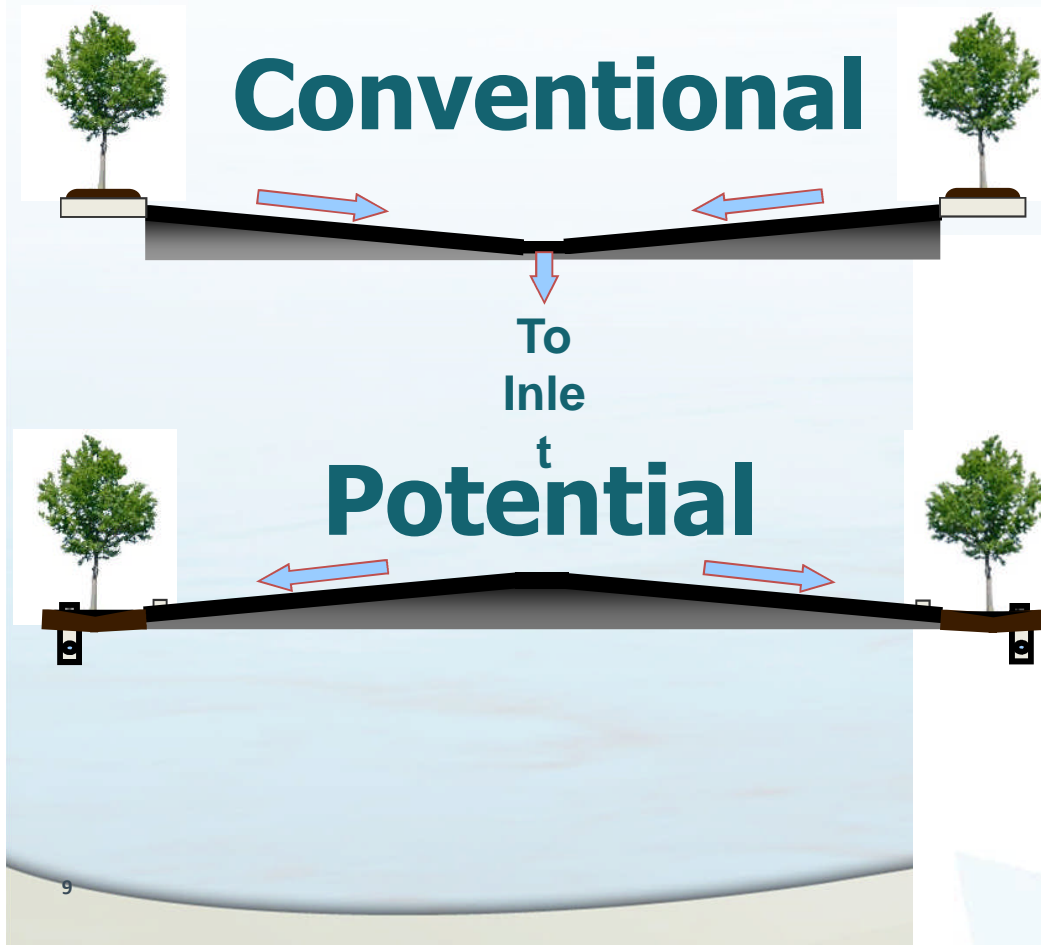
# Emerging Issues – Surface Water/Groundwater Interaction



# Emerging Issues – Nutrients



# Emerging Issues – Low Impact Development (LID) for stormwater





**Natural Channel Design**



**Rainwater Harvesting**

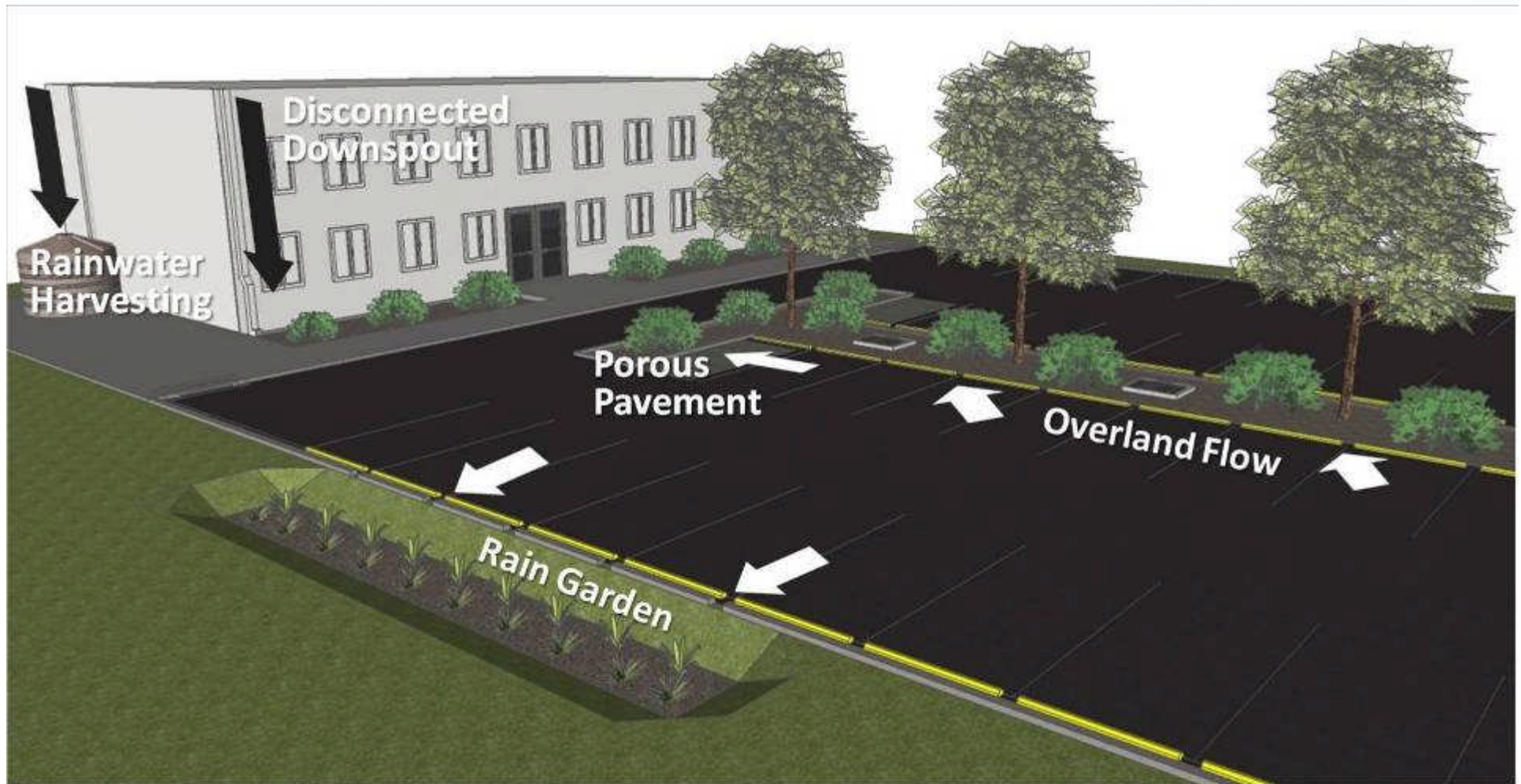


**Rain Garden**



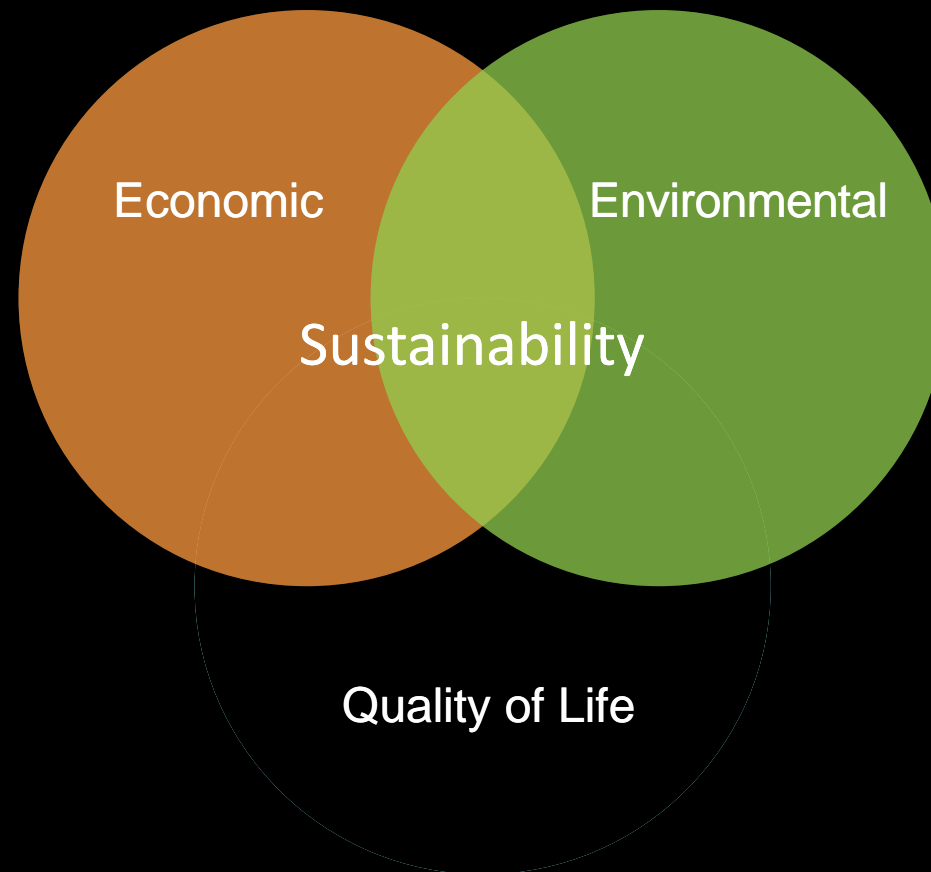
**Disconnected Downspout**

# Many Conveyance Options



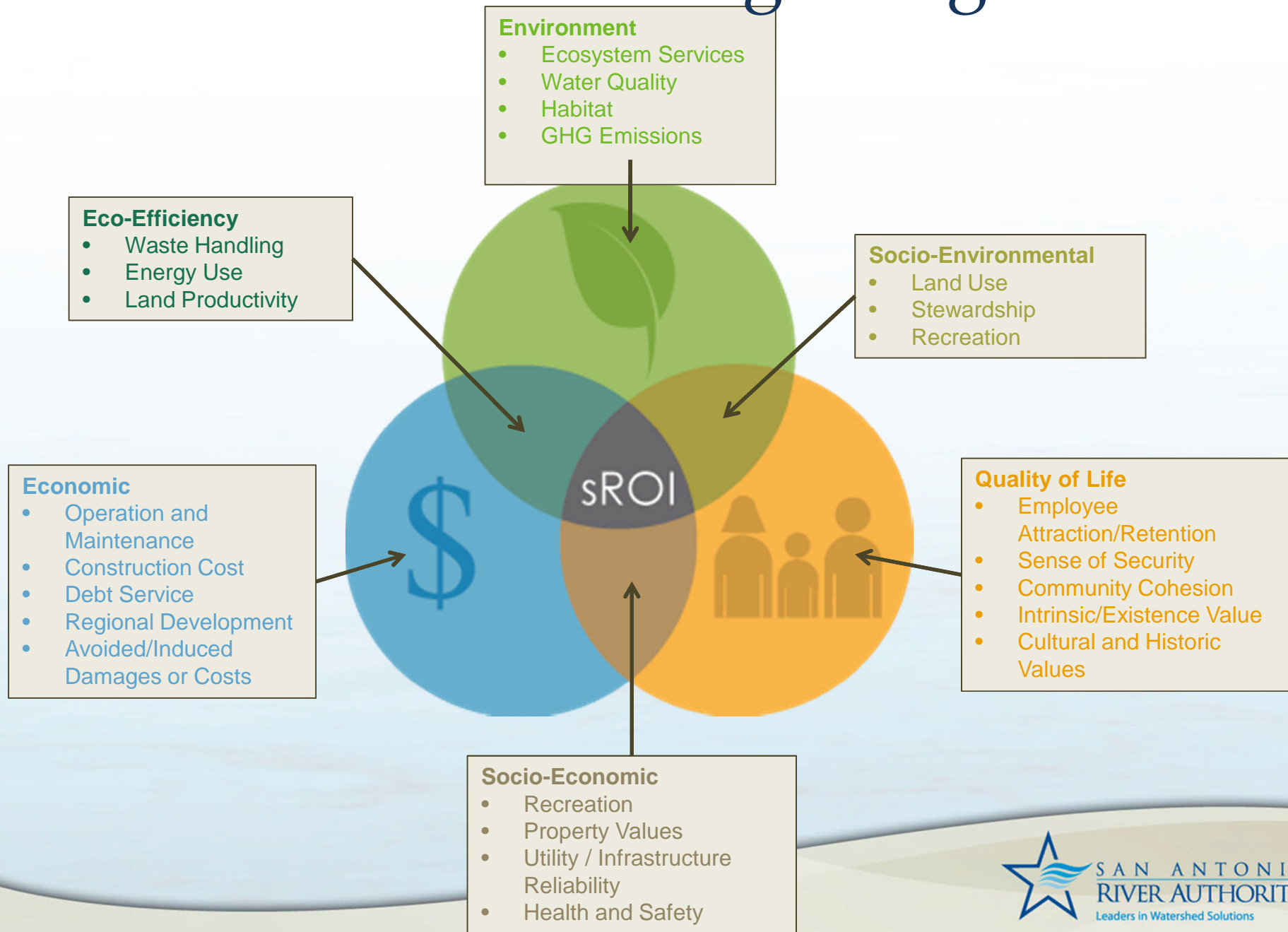
# The Triple Bottom Line

Economic • Environmental • Quality of Life



\*Diagram adapted from [www.gcbl.org](http://www.gcbl.org)

# Good decision making using the TBL



# Summary

- A Watershed Approach
- Anticipate and be proactive
- Good science leads to good decision making and policy.
- Good decision making for maximum public value using the Triple Bottom Line (TBL)

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