Policy Considerations of Nature-Based Solutions in Water Management

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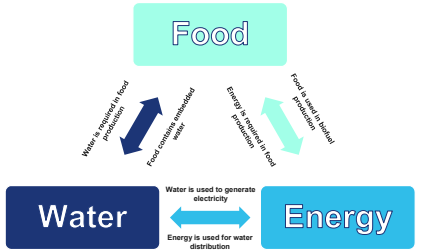
Introduction

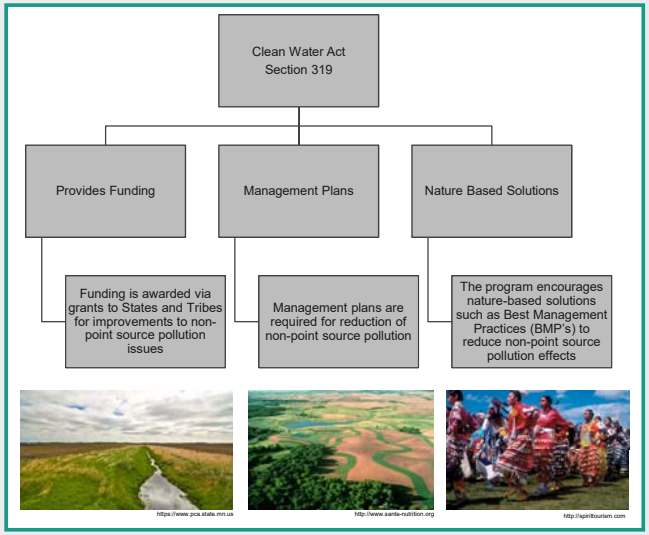
- Water resource management is a complex process spanning multiple sectors such as agriculture, energy production, industry, transportation, and domestic.
- There are legal and political factors to account for when addressing current water management issues such as urbanization, infrastructure decay, water stress, population growth and climate change.
- There is a growing demand for clean water globally, and the scarcity of this resource drives up cost. Vulnerable groups and people of lower socioeconomic status are most impacted by high water costs. Public water districts as well as private authorities control water pricing.
- While water meters and water efficient equipment can reduce water consumption in the face of high demand, nature-based solutions can also be implemented.
- This poster summarizes the policy process and highlights examples of nature-based solution implementation at the federal, state, and local levels.

Nexus Implications

- Water is a highly embedded (i.e. virtual) component of society; it's most prevalent toward the agriculture sector for the sake of food, feed, and biomass production.
- Local water policies often affect energy consumption used to build infrastructure, pump, filter, and treat water.
- Food production significantly affects water quality as agricultural runoff contains pollutants.
- Nature-based solutions can be implemented to improve water quality and quantity concerns which will affect the food and energy components of the nexus.

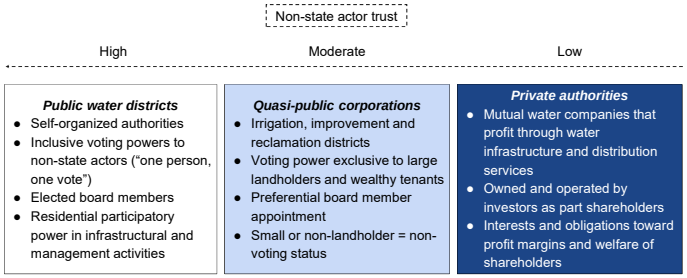


Federal



State

- Water is a commodity; water is shared (i.e. a usufruct); water is held in public trust; it's ownership and right to use is complex and highly political.
- *Prior Appropriation* and *Riparian Rights* (i.e. common-law) doctrine dominate state policy landscapes.
- Water demands/behavior are highly individualized; water is price inelastic.
  - Failure of the "*push-culture*" paradigm → instill "*pull-culture*" (e.g. opt-in).
  - Raise water literacy; emphasize consumer preferences, participation, and sustainability.



Local

- Residential irrigation and lawn watering are behaviors that are commonly targeted by local policies focused on reducing water consumption.
- These policies may not be heavily enforced, and generally encourage residents to think about shared water supplies and water use practices.
- Policies may incentivize and educate homeowners on xeriscape yards, the planting of native vegetation, and the maintenance of shade trees.
- Constructed wetlands offer a nature based solution to dealing with issues related to stormwater and flooding that would be effective at the local level.

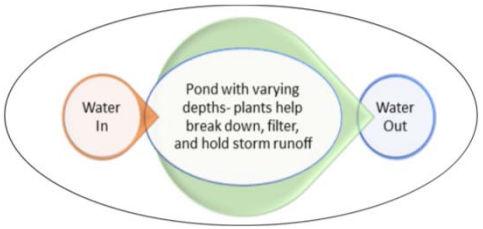


Diagram of Constructed Wetland

Conclusions

- The overarching goal of water quality policy is to ensure that clean, safe, freshwater is available for supplying humans and the environment.
- Federal, state and local policies each have unique roles to play in protecting water resources.
- Nature based solutions should be integrated into the decision making process because their implementation helps meet multiple water management objectives.

References

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