Water Resources Thought Leaders Workshop

NC Botanical Garden, Chapel Hill

May 12, 2015

How can we protect drinking water supply while supporting a prosperous economy and high quality of life for people in the Jordan Lake Watershed?

Desired Workshop Outcomes

- ✓ Participants develop a common understanding of and share ideas for innovative alternative strategies for protecting drinking water that integrate social, economic, and environmental values.
- ✓ Participants from multiple disciplines are energized to work together on advancing the ideas discussed.
- ✓ Participants learn about business and local leadership roles in developing innovative strategies that link drinking water management to community well-being.

Potential Future Outcomes (if participants choose to move forward)

- ✓ Generate ideas for integrating drinking water management strategies with economic and quality of life objectives addressing multiple community needs in the Jordan Lake watershed.
- ✓ Provide institutions with innovative and interdisciplinary research ideas for water management.
- ✓ Implement potential pilot and/or research projects for local governments or partnerships (including public-private partnerships) aimed at protecting drinking water in the Jordan Lake watershed.

Agenda

11:15 AM	Participants arrive, get lunch, find assigned tables, network
11:40 AM	Welcome and Keynote Address *Susan White, Christy Perrin, WRRI* *Trevor Clements, Tetra Tech*
12:15 PM	Participant Q&A
12:30 PM	Break
12:40 PM	Small Group Discussions
2:00 PM	Discussion Highlights
2:25 PM	Wrap-Up and Next Steps
2:30 PM	Adjourn

Table Ethics For a Productive Conversation

- ❖ We are starting from a place of agreement that we are here to look for solutions for the future, not discuss the past.
- ❖ This is a creative space. Focus on positive, forward thinking.
- ❖ Stay on topic.
- ❖ Keep an open mind.
- ❖ Focus on new ideas, not issues or constraints.
- ❖ Respect tablemates and listen as they are speaking.

Small Group Discussion Questions

- ✓ What are ideas, examples or local successes (specific or broad) for innovative drinking water management in the Jordan Lake watershed that consider the principles for sustainable water management?
- ✓ What resources do we have in the region that we can build upon to advance these innovative approaches, specifically those that link innovative drinking water management to community well-being?

PRINCIPLES FOR SUSTAINABLE WATER MANAGEMENT

Your guide to the keynote presentation – check off principles as you hear about specific project examples that relate to that principle. Consider about how it applies to innovative practices or projects of which you are aware.

OVERARCHING PRINCIPLES that aspire to integrate a breadth of social, environmental, and economic values into water resources management:

- ✓ Recognize all water as a valuable resource including stormwater and wastewater
- ✓ Consider context at multiple scales: site, neighborhood, community, watershed, regional, global
- ✓ Integrate water management decisions with all aspects of community planning and development
- ✓ Build intellectual infrastructure – foster and support research/innovation, development of new ideas
- ✓ Engage stakeholders in a transparent and inclusive decision-making process from the onset
- ✓ Recognize life-cycle costs and maximize triple-bottom-line benefits
- ✓ Choose smart, clean and green technologies and approaches
- ✓ Adapt and evolve (make it better, stronger)

PLANNING AND DESIGN APPROACHES that incorporate these principles include:

- ✓ **Design for Multifunctionality**: Design water management systems to have functions in addition to those specifically related to water. By strategically stacking elements in space and time, connections between diverse components can be leveraged to create a stable system that provides multiple services.
  Example: Public open space areas used to treat and infiltrate stormwater designed with low maintenance perennial food systems that simultaneously provide recreation, occupation, community interaction, education, natural habitat, and other ecosystem goods and services without redundancy in land and resource inputs.
- ✓ **Recover/Reuse Renewable Resources**: Recover and reuse resources (e.g., water, nutrients, energy) embedded in wastewater and stormwater in order to minimize release into the environment and minimize the amount of resources that need to be imported into the watershed.
  Examples: Extracting fertilizer from municipal waste streams and integrating product with region's urban agriculture movement maintaining nutrients within watershed and replacing imports; Using fit for purpose reclaimed wastewater and stormwater to provide a safe and efficient irrigation supply or for other nonpotable uses, while saving money by treating to a lower standard.
- ✓ **Leverage Benefits of Community and Ecosystem Transition Zones**: The intersections of environments are diverse places in systems, and locations where energy and materials accumulate or transform. Example: Maximizing the use of soil/water edges (streams, ponds, open channels, riparian areas) as natural habitat and connectivity, pedestrian access/greenways, WQ/flood control, and riparian food forests.
  Example: Establishing and protecting urban, suburban, and rural boundaries, while facilitating the economic exchange of labor, resources and capital that are interdependent among the three land use types.

- ✓ Achieve Diversity in Scale: "Don't put all your eggs in one basket." Multiple small scale, intensive systems that support one or more functions can provide increased resiliency compared to larger, single-purpose systems. Important system functions should be synergistically supported by multiple elements, providing redundancy when one or more elements fail. Example: Distributed cluster or community wastewater systems using either surface or subsurface discharge help alleviate the demand on aging conveyance and treatment infrastructure, and provide a "pay-as-you-grow" option for suburban areas, as well as a more cost-effective option for beneficial wastewater reuse.
- ✓ Integrate Systems: Increase the number of connections among system elements, and not the number of elements in the system. Locating system elements in ways that create useful relationships and time/energy-saving connections among all the parts can lead to healthy, diverse ecosystems. Example: using shallow-placed subsurface drip irrigation to fertigate perennial agriculture supporting an agroecology-based housing development - effective wastewater treatment is provided supporting onsite food production, and further protecting water quality by precluding the use of imported nutrients (fertilizer).
- ✓ Work With and Mimic Nature: Design and manage water in a way that is informed by nature, which operates with patterns and principles that can be adapted accordingly, e.g., create order and build from the bottom up with modular units; be multi-functional in form; adapt/adjust to changing conditions; work with nature's cyclic processes; create beauty and abundance with little or no waste. Example: approaches such as green infrastructure and constructed wetland wastewater treatment.

Thank you to our facilitators: Michele Drostin, UNC-IE; Amy Keyworth, NRLI fellow; Gloria Putnam, NC Sea Grant; Christy Perrin, WRRI; Mike Schlegel, TJCOG; Nicole Wilkinson, WRRI. Notetakers: Anna Martin, WRRI, Haniyyah Chapman, NCSU, WRRI.

Notes: