



# CLEAN WATER ACTION

## **Testimony to Pennsylvania Sustainable Water Infrastructure Task Force**

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*Sustainable Water System Management from Site to Watershed*  
*The 21<sup>st</sup> Century Sustainable Clean and Safe Water Challenge*  
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Secretary McGinty, thank you for the invitation to address the topic of innovative solutions to Pennsylvania's water infrastructure and other interconnected water and infrastructure issues. Governor Rendell deserves much credit for taking leadership, thinking nationally, thinking across the built infrastructure platform, and by his willingness to take on sacred cows so that we can chart a course for environmentally and economically sustainable communities.

Governor Rendell is at the center of America 2050 and the Building America's Future conferences this spring and has reached out across the political divide to local governments, water utilities and conservationists to begin an honest, adult conversation about the nature of the problems facing us.

CWA has over one million members in 20 states and over 35 years of policy and community based work on a myriad of water issues. In Pennsylvania we are joined by over 100,000 members and have professional staff in Allentown, Philadelphia, and Pittsburgh. Our engagement with water issues starts with helping people in communities solve concrete problems and carrying lessons from that work to the state and national levels where we work in both the legislative and regulatory arenas.

CWA wants more money to fill the \$30 plus billion PA needs to meet its water infrastructure obligations but we want the money to be better spent. We are often at the front lines of supporting rate increases or putting our political muscle behind additional state and federal appropriations or bond measures. This is our demonstrated history. But I am here to say today in unequivocal terms that the big-pipe era is over:

- Big-pipe, centralized infrastructure for water, stormwater and wastewater services is not sustainable for Pennsylvania or the United States over the long-term.
- These municipal systems consume too much water, disrupt too many ecosystems and use too much energy to move water and wastewater around.
- Growing populations, increasing land development and climate change will make these problems much worse.
- Sustainable water systems in the future will use, treat, store, and reuse water efficiently at a small scale and will blend designs into restorative water hydrologies.

- Federal and state legislation to promote these designs would include:
  1. funding for research and demonstration projects;
  2. tax incentives for builders and homeowners;
  3. development of national standards for water efficiency;
  4. green collar job education and training programs;
  5. funding for state and local governmental entities to prepare long-term integrated water resource management plans that meet minimum criteria such as including all of the following criteria:
    - a. wastewater,
    - b. water supply, treatment and distribution,
    - c. stormwater,
    - d. source water protection,
    - e. floodplain protection,
    - f. protection of wetlands, forested lands and riparian buffers
    - g. and other aquatic resources;

and involving a cross-agency implementation plan, and would prioritize for all types of federal and state funding those investments identified through a long-term integrated water resources management plan.

As many have already stated today, our current water infrastructure is critically underfunded and on the path to failure. Many big pipes transporting water to and wastewater away from our cities are old and under capacity. Existing methods of water use and wastewater treatment are wasteful and environmentally disruptive. But could this big problem be an opportunity? If you had a ten year old car with \$ 7,000 worth of repairs what would you do?

***Why not do what you would do with your car? Why not use the reality of the deteriorating and deteriorated infrastructure as a rationale for investing in 21<sup>st</sup> Century next-generation technologies and designs?***

There is a concept in asset management – one of EPA’s “Four Pillars” called “run to failure,” where it is efficient to stop repairing the old system and eventually to replace it with something new. Since much of our old and outdated water and wastewater infrastructure is, according to EPA, at the end of its useful life and ready to break down, we have a golden opportunity to leapfrog into the future – as developing countries such China, India – are beginning to do. I know, that calling our essential infrastructure’s failure an “opportunity” may strike many of you as counter-intuitive, but if we had kept these systems in good shape, we would actually have fewer opportunities to shift to new solutions.

Let me be the first to acknowledge that our old paradigm has saved lives by reducing pathogen exposures and preventing some periodic flooding. But this 19<sup>th</sup> century, Victorian era solution set of piping clean water into cities and building drainage and sewer pipes to take away stormwater and wastewater consume too much water, disrupt too many ecosystems, and use too much energy to move water and wastewater around. Growing populations, increasing land development and climate change are making these problem areas increasingly problematic.

As for the “sunk” costs of our aging infrastructure, we need to shift our state and national investments toward the future. We do need to keep old pipes working well enough at critical points to protect public health but instead of using federal and state funds to repair and replace these pipes and treatment plants in the old way, it may be wiser to pivot state and federal investments into the new infrastructure. What would this new infrastructure paradigm look like?

### **Potential Hybrid (Decentralized and Centralized) Infrastructure of the Future**

If you were a hawk flying up at the 20,000 foot level what would a birds-eye view of the future infrastructure in cities look like? It would be substantially greener. Rain gardens and trees would be used to retain stormwater. Streams and habitat would have been restored by reducing the groundwater flows into sewers, minimizing stormwater runoff into streams, and reducing the overall demand for potable water.

The actual infrastructure would be a combination of enhanced performance of the aging centralized infrastructure and multiple decentralized installations across the city. Water-efficient appliances might be found in scattered homes or buildings across the city, while integrated water/stormwater/wastewater/reuse systems might be found in urban infill developments designed around the specific challenges and opportunities of the site.

Municipal utilities would also decommission large wastewater treatment plants that reach the end of their service life. They would build satellite facilities that treat wastewater for reuse and aquifer recharge and recover energy and nutrients from the sewage – no longer thought of as waste water but as potentially wasted water.

A trio of decentralized technologies and designs would be used to reduce the flows of water in the aging water lines by stressing efficiencies and reuse of stormwater and wastewater and to reduce the flows of stormwater and wastewater in the drainage and sewer systems as well.

In rural and suburban areas this birds-eye view would be continued reliance on onsite and cluster water, stormwater, and wastewater systems. Water-centric subdivision planning, in particular would push toward “off-the-grid” efficiencies and a minimal impact on natural water flows and hydrologies in the watershed.

Most importantly, both the urban and Greenfield infrastructure would be integrated with energy and nutrient recovery from the wastewater.

### **Our Governments Perpetuate Unsustainable Water Infrastructure**

The federal government and to some extent its state and municipal partners have played a significant role in perpetuating the hard-path (centralized) approach. Regulatory structures were devised that assumed that modern sanitation and safe drinking water could only be provided in big cities and emerging metropolises through centralized distribution or collection and treatment. Federal and state subsidies to local projects from a host of mostly federal and some state agencies were built around those assumptions as well.

Progress in small towns was achieved, for example, when public water lines were extended to all homes, or when failing private septic systems were replaced by public sewers and point-source

treatment plants. Therefore, local water protection advocates typically have to ask their communities to buck federal and state regulators, as well as give up federal subsidies, if they are to advance a sustainable water systems (decentralized) solution.

Multiple federal and state agencies have also gotten involved in a piecemeal fashion in one or another aspect of water infrastructure – through water supply or water quality concerns, flood control, housing, rural development, etc.... But, rarely is a serious integrated water perspective taken at **any** level. This “siloing” of mission and the lack of coordination among agencies have led to a federally mandated and federally funded projects, which have collectively overstressed the environment and wasted resources.

### **Solutions**

But national, state and local agencies can promote the development and adoption of sustainable water systems by moving aggressively on several measures:

#### **Short Term Strategies**

The public sector can help promote innovation now through a series of low-cost, short-term measures to facilitate and coordinate better information to assist local decision makers and community stakeholders in the water sector. These include:

- Pilot and demonstration projects
- Guidance materials
- Evaluation of new products and design
- Education through conferences, newsletters, websites and training
- Labeling and standard setting initiatives
- Lower hanging fruit legislative and regulatory changes such as requiring riparian buffers or implementing stormwater plans that are ready to go.

Alongside its federal partners, Pennsylvania might want to consider establishing an interagency project to articulate a vision for state action to achieve long-term sustainability in the water resource infrastructure sector.

#### **Long-Term Research**

Some states and the federal government are uniquely positioned to take the lead in long-term research in many areas. Collaborative funding of research projects can include public agencies, private companies and academic institutions. Key agencies for support of long-term research at the federal level include NSF, NOAA, and DOD, which can:

- Fund the formation of several Centers of Excellence and universities or research institutes
- Stimulate private and non-profit foundation investments in research by signaling a long-term commitment to greater efficiencies and a lighter footprint in the infrastructure

#### **Financing Incentives**

Governments are typically financing large-scale public water supply, drinking water, wastewater, stormwater and flood control projects without considering decentralized system alternatives or the disruptive externalities of these “siloed” systems. Financial reform might include:

- Requirements for sustainable water system management planning and evaluation for all direct and indirect costs and benefits

- Subsidies and tax incentives for water capture, conservation, treatment, and reuse, which are usually on private property
- Installation of efficient “closed-loop” water systems at all government facilities
- Financial incentives for utilities to adopt sustainable water system approaches with subsidies from EPA’s Clean Water and Drinking Water State Revolving Funds, and USDA, HUD, Commerce and other federal and state grant and loan programs.

### **Regulatory Reform**

Historically, regulations and ordinances have been written to require and set standards for large, centralized systems in separate parts of the water cycle. Regulations should be reformed to include:

- Permits to utilities for oversight of privately-owned decentralized systems to meet statutory requirements
- Integrated standards for utilities to meet water supply, water quality public health and ecosystem needs
- Models for state and local design codes, as well as for oversight of pricing and service by new design-build-operate companies, so that expanding private markets are equitable and consistent with broader water resource plans

### **Long-Term Sustainability**

As externalities of existing settlements on the state and nation become more apparent, and the benefits of a “lighter footprint” decentralization and integration emerge, communities across the country should be looking across the board to more sustainable infrastructure in water, energy, transportation and housing.

For synergies and multiple benefits to emerge, the federal financial disincentives and regulatory barriers must be replaced by sustainable infrastructure incentives and, potentially, minimum standards for long-term sustainability of public infrastructure should be required by federal and conforming state legislation.

In the short-term, projects on federal and state property that are using federal and state funds such as federal-state-local government supported housing projects, should be energy efficient, required to implement sustainable infrastructure plans – including rain or roof gardens, water-efficient fixtures and reuse – and use renewable energy sources.

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