

Water Resources Sustainability – the Role of Communities and Utilities in Better Water Resources Management

Oregon Association of Clean Water Agencies, Bend OR

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- Thank you for the introduction. And thank you for having me back again to join in your annual dialogue of sharing and comparing.
- Do you feel it? There is a water transformation underway. Across the entire water sector. And you folks are right in the middle of it... helping to lead it!
- Just look at this agenda... the themes resonate: *change, leadership, sustainability, integration, collaboration, partnerships and innovation. And IP IPA!*
- I get so jazzed up coming to this event. Great people sharing great ideas. Alright... it helps a little that it's here in Bend. And always great to be with the pioneers of change in the water sector at the local, state and Federal level. We share a common vision and passion... water.

Historical Reflections of the Water Sector

- I would like to begin with some reflections of where we have been in the last forty years... How much we have accomplished... But also how much the water world is changing
- And to make the case that our old thinking is not likely to solve the new water resource challenges we face. We have water resource challenges that simply did not exist... and technology innovations that we have... that we could not even imagine 45 years ago when the Clean Water Act was passed.
- The water future before us... is very different from the past.
- The next phase of water transformation will involve many more partners and people but *will be substantially lead by you... at the community/utility level... at a watershed scale... with the principles of change, leadership, sustainability, integration, collaboration, partnerships and innovation. And IP IPA!*

Let's look back...

I grew up on four bodies of water... they helped to define me and frame my career: the Hudson River, Lake Champlain and Lake George... all in upstate/the Adirondacks of NY. The fourth was the small stream in my backyard that was the source water for the Town's drinking water supply!

As a kid, I remember the Hudson River being a different color... every day. Every day a different color... red, black, green, yellow...

Paper mills, paint and pigment manufacturers, capacitor manufacturers all lined a five mile stretch of the river, using for it waste disposal. My hometown, Hudson Falls, named after the river, and all the other towns nearby, lacked the most basic treatment and straight piped sewage into the river.

Situations like this, and the infamous Cuyahoga River catching fire in the late 1960s, led the public and Congress to rally around the Federal Water Pollution Control Act of 1972... now commonly referred to as the Clean Water Act. Imagine that... Congress actually working together to solve problems!

Fast forward forty five years, and the progress is rather remarkable:

- A massive financial investment in Federal, state and local resources, help fueled by the construction grants program and the “secondary treatment regulation” helped drive much of the municipal wastewater infrastructure that we have today
- Effluent guidelines (technology based standards) for every major industrial category... implemented through the NPDES program or through your pretreatment programs have dramatically protected receiving streams and your wastewater infrastructure, effluent and biosolids quality
- Development of a stormwater program in the 1990s has helped us begin to address SW impacts and green infrastructure, championed like folks in Portland, helps us understand that concrete is not always the best solution.
- The technical expertise in this room is just a small piece of the water and wastewater infrastructure expertise that exists across the US
- And perhaps the best indicator of progress of all is that you can drink, fish and swim almost universally across the entire US, without fear of waterborne disease. Contrast that other developed and developing countries, and our progress toward clean water (and clean air) is quite striking.
- So when we think of the Clean Water Act and yesterday’s challenges, we might think of common phrases such as:
 - o Restore the chemical, physical and biological integrity of the Nations’ waters
 - o Point sources like municipal and industrial sources
 - o Nonpoint sources of pollution
 - o CSOs, CAFOs, Biosolids, and Pretreatment

The New Water Risks

- So let’s consider the water risks and issues of today and looking forward.
 - o Ecosystem integrity...the chemical, physical, biological integrity of the Nation’s waters will always remain at the top of the list.
- But also think of the issues today that we facing that were not on the radar screen 45 years ago:
 - o Unprecedented drought... leading us to the need to rethink water reuse
 - o Harmful algal blooms that threaten public health, drinking water and recreation
 - o Extreme weather and climate change
 - Super storm sandy that incapacitated hundreds of drinking and wastewater facilities on the east coast
 - Sea level rise... for example the overtopped the Embarcadero in San Francisco seven times last year
 - o Aging infrastructure... pipes and treatment facilities
 - o Invasive species are also transforming our traditional understandings of our ecosystems
 - o Others?
- And often, these risks are geographically different... they can be watershed unique.

New World Order for Water Resources

- So I suggest to you that there is a New World Order for Water Resources... and that many of you are demonstrating the leadership and driving action. This new world order for water has many facets:
 - o Sustainability – The Value of Water transcends the three pillars of sustainability
 - Environment – Ecosystem integrity
 - Social – the public’s increasing appreciation for how water enriches their lives in so many different ways

- Economy – a growing recognition of the value of water for food, energy and a strong and vibrant local economy that is driven by water
- Integration – There is only one water.
 - Surface and groundwater are one
 - Wastewater and drinking water are one
 - Programmatic distinctions (wastewater, surface water, stormwater, groundwater are simply becoming less
 - and Water and beer are one
- Collaboration and Partnerships – we can no longer “do it alone”. We must collaborate across the levels of government and with others who share the understanding of water risk. You folks, the water and wastewater utilities, have tremendous standing in your communities and the ability to partner and influence
- Technology and Innovation – Wow... how technology and innovation are changing transforming how we view water resources management.
 - Take this book... my old “textbook” for wastewater treatment plant operation. Everything you needed to know... in one book... and a mere 193 pages.
 - When I go to technical conferences, I feel like I need to go back and get a new environmental engineering degree... so much has changed!
 - Take the Simple Term Wastewater – many of you are helping to reinvent the business model around wastewater... both in name and in practice. Wastewater is simply water that is wasted. WEF has banned the term from its vocabulary. NACWA, WEF and WaterReuse Association have framed the “Utility of the Future” ... as a resource recovery facility... one that creates clean water, energy, recovered nutrients, and other not yet created products.
 - EPA understands the importance of technology and innovation to achieve sustainable water resources.
 - In 2013 and 2014, EPA issued our Blueprints for Technology and Innovation to help make the business case for technology and innovation, to frame 10 “market opportunities” and to highlight some of the pioneering efforts being taken. We also framed some of the actions EPA can take, with States, with you and others.
 - I would also like to introduce you to our latest effort... our Progress Report on Water Technology and Innovation. <http://www2.epa.gov/innovation/innovation-and-technology>
 - Let’s take a moment to look at this...
 - Page 1 quote from Ken
 - Examples of four works from 2014 that describe how the future of water is changing
 - Our ten market opportunities and a set of new examples of water pioneers
 - Gresham
 - And on the back page... some highlights of actions and progress to embrace water technology, innovation and sustainability.
 - EPA Administrator quote
 - Oh... and EPA is releasing this Progress Report today. You are the very first folks to receive it a hard copy.

- Local Leadership – Utilities here in Oregon and across the US is leading by example
 - Clean Water Services 2004 Integrated Watershed Permit is a groundbreaking example of how DEQ and CWS partnered to achieve a new model for watershed management.
 - Kudos ... You folks championed pharmaceutical take back programs way ahead of others.
 - Medford's efforts to partner with diverse partners for the WISE, Water for Irrigation, Streams, and Economy recognizes the many facets of sustainable water.
 - Your collective pursuit of energy conservation training and workshops in 2011 has resulted in cost savings and created the path for Gresham's energy neutrality, the second in the country, following East Bay MUD. (Jeff's blog post about the visit appeared on Thursday July 23: <https://blog.epa.gov/blog/2015/07/sustainable-water-future/>)
 - Portland helped to champion early and advanced green infrastructure techniques

Looking Forward – The Role of Communities and Utilities to Better Water Resources Management

I want to leave you with some tangible examples next phase of water transformation and the ways the ways the partners in this room will shape our sustainable water... *at a watershed scale... with the principles of change, leadership, sustainability, integration, collaboration, partnerships and innovation. And IP IPA!*

- Integration of Water Programs to Achieve Multiple Benefits and Greater Efficiencies – the principle of One Water will help us see the opportunities for integration of our various water “stove pipes” (drinking water, wastewater, stormwater). We will truly integrate considerations and interrelationships of surface and groundwater. Utilities will help make this happen.
- Integrated watershed monitoring will allow us to combine data on water quality and water quantity information on a real time basis from a multitude of sources and be widely accessible to facilitate better water resources management. You will help make this happen
- Water Reuse... including direct potable reuse will become common. More products will embrace water reuse. You will make this happen.
- Energy, nutrients and other products from wastewater. Advances in technology will allow every utility to become producers of energy, nutrients and other products. Resource recovery may be possible at every utility.
- Creative Tools and Permits – We are looking ways that our regulatory programs can foster innovation and create incentives integrated water resources management and advancing water sustainability. Across the US, and here in OR, we have seen many great examples such as NPDES permits that embrace:
 - Integrated water resource planning reinforced through watershed-based NPDES permits.

- A single permit (bubble) that integrates multiple sources/treatment plants/discharges and other approaches that can create pathways to innovative and collaborative approaches such as trading
 - Integrated watershed management and actions with nontraditional partners to improve watershed integrity
 - Consider a broader spectrum of water and nonwater quality benefits
 - Embraces new technology and approaches (i.e. green infrastructure) rather than the traditional grey infrastructure.
- Comprehensive metrics for water sustainability – Imagine if you could display the full spectrum of how your utility supports water sustainability in a simple concise way. Such a water sustainability dashboard would reflect the full spectrum of your efforts to:
 - Improve ecosystem and water resources protection
 - Energy use and recovery
 - Nutrient management and recovery
 - GHG reduction
 - Economic measures (jobs, economic activity)
 - Social measures (access to water resources)
 - Can you offer other examples?

Closing

- We have made huge advances in the last forty years in water infrastructure and water resource restoration and protection.
- We also face a myriad of new challenges that will take new thinking and approaches. We will need to embrace *change, leadership, sustainability, integration, collaboration, partnerships and innovation*.
- Kudos to all of you for your leadership... to this great forum that effectively brings together utilities, DEQ and EPA in such a productive and stimulating forum.
- And a little IP IPA can help lubricate the transactions!

(1) *These were prepared remarks by Jeff Lape. Jeff is the Deputy Director of the Office of Science and Technology in the Office of Water, USEPA, Washington DC. Jeff also serves as the Office of Water's "Chief Innovation Cheerleader". The views expressed do not necessarily reflect the views of the USEPA but do draw on Jeff's 40 years' experience designing and leading water resource restoration and protection actions at the local, watershed, state and Federal level.*