



Storms expose need to improve wastewater infrastructure

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Communities from Virginia to Vermont are still reeling from the one-two punch delivered by the storms Irene and Lee.

In New York, Hudson Valley homeowners are repairing damaged property, Southern Tier residents are watching the Susquehanna River recede from its 41-foot crest, and local officials are wondering what cleanup costs will do to already strained budgets.

Tropical storms like these do not batter the area often, but when they do, they provide us with important lessons. Scientists say the Northeast will continue to experience increased rains and more powerful storms like this as a result of climate change. As intense weather events become more frequent, we have to ask ourselves if our communities are ready to face them.

Flaws are exposed

Irene and Lee revealed one of our communities' biggest vulnerabilities: our aging water infrastructure. They also underscored the value of the next generation of water solutions.

Right now, our water treatment plants and sewer systems are outdated and overburdened. In 770 communities nationwide —such as Yonkers, Binghamton, Albany, and New York City —stormwater gets passed through the same pipes as sewage, and when the system gets swamped by a downpour (or often even just a modest rainfall), sewage bypasses the treatment plant and gets dumped raw into our waterways and beaches, carrying with it infectious bacteria, viruses, and parasites. In other cities

across the nation, the piping system works differently but the results are often similar: a witches' brew of pollutants swept off city streets and sidewalks and into local waters.

Severe storms make this problem worse, and we end up with even more sewage and polluted urban runoff in our water. In 2010, there were more than 24,000 days where beaches were closed or swimmers were advised against going in the waves nationwide, including 956 days in New York, due in large part to this pollution. In the aftermath of Irene, some Northern New Jersey residents were told to boil the water coming out of their taps because public health officials were concerned about bacteria levels. After Tropical Storm Lee, the Catskills Aqueduct that carries water to New York City had to be temporarily shutdown to keep water with high bacteria levels out of the drinking water supply.

A national problem

This isn't just a problem for the Northeast. From Nashville to Detroit, Boston to St. Louis, cities are pushing old infrastructure to the limit. As climate change brings more rains, these systems may no longer hold. In Chicago, for instance, the frequency of very heavy rainfall is expected to increase by 50 percent in the next 30 years. If the city does not invest in improving its infrastructure, there will be a dramatic spike in the amount of untreated sewage and dirty stormwater that ends up in the Chicago River and Lake Michigan.

Fortunately, many cities are making a commitment to updating their water infrastructure. In a recent report called "Thirsty for Answers: Preparing for the Water-related Impacts of Climate Change in American Cities," the Natural Resources Defense Council looked at what 12 cities of various sizes around the country are doing to prepare for the diverse impacts they're expected to face.

The report points to New York City as a leader in many ways, identifying its own vulnerabilities to climate change and scoping out ways to make its infrastructure more resilient. For instance, it is beginning to implement common-sense measures like raising pumps and circuit breakers at the Rockaway Wastewater Treatment Plant from 25 feet below sea level to 14 feet about sea level, as waters rise. It has also begun to embrace green infrastructure, one of the most effective solutions for reducing dirty stormwater and sewage overflows (and something Philadelphia is leading the nation in implementing).

Pushing 'green' fixes

Green infrastructure captures rain where it falls — before it has a chance to flood storm drains and swamp sewage treatment plants. It achieves this with things like increased park space, grassy medians, green roofs, street trees, and other permeable surfaces that absorb, rather than repel, water.

These tools generate a wide range of benefits. They have proven highly successful at curbing stormwater across the nation. They are cost-effective: For new development projects, upfront costs are most often lower for green infrastructure developments than for conventional projects and savings range from 15 percent to 80 percent, according to the Environmental Protection Agency. They also bring much-needed green space to dense neighborhoods making them better and more beautiful places to live: In fact, studies have found that green infrastructure increases property values and lowers crime rates.

New York State is starting to bring these benefits to more communities. Last year, the state issued green infrastructure standards for new development and redevelopment projects. It also requires some communities in water pollution hotspots to begin retrofitting with more green infrastructure. Similar approaches in states around the nation have proven so effective that the federal government has adopted them for federal facilities and is now working on standards that would apply nationwide.

Later this year, EPA will issue new draft standards for reducing stormwater runoff, and we expect the agency to single out green infrastructure as one of the best ways to achieve those reductions.

This next-generation water solution won't replace all our concrete pipes, nor will it prevent all hurricane damage. But it will make our towns and cities more resilient in the face of a changing climate and more frequent rainfalls — so we can sleep easier the next time a record storm is headed our way. And in the meantime, we can enjoy the added benefits that come with it — from leafier neighborhoods, to cleaner beaches, and safer drinking water.

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