Got Flood?

If you said yes to this question, you're not alone. The names Frances, Ivan and Jeanne will not soon be forgotten in the Mid-Atlantic region, nor will the variety of "unnamed" storms, including the severe Burlington County, southern New Jersey storm that caused numerous dam failures.

Floods are the most common natural disaster in the United States, and the costs associated with flood damage continue to rise. Flooding has impacts on public health, safety, life and property – it is a very serious threat. You may find yourself thinking, "Well, what do people expect who live in the floodplain?" What you might not know yet is that the floodplain is growing, and might be coming to a tributary near you.

In our rush this year to rebuild, can we improve our planning and practices for the next time? The answer is a resounding "YES". Floods disrupt normalcy, and it is human nature to want to reconstruct quickly and restore familiar pre-existing conditions. Flooding is handled as an emergency but continued enlightenment and vigilance must rule the times between the major events. Are our towns encouraging rebuilding without thought to the next large storm?

The Federal Emergency Management Agency's (FEMA, now under the Department of Homeland Security) flood maps are often incorrectly interpreted as the whole truth on areas that flood. Flood Insurance Rate Maps (FIRMs) were produced to determine the most likely areas to flood for flood insurance purposes, but with limited time and funding given to the studies. There are numerous areas on the FIRMs that are floodprone or within the floodplain but have not been studied, and many of the areas studied are defined by dated modeling and do not reflect modern development and changes in the watershed (many studies were performed in the late 1970s). Municipalities should and must constantly update their mapping and documentation. FEMA did not intend the FIRMs to be static, stand alone documents. A lack of understanding of flood reference materials and allowing those materials to collect dust will not serve the interest and safety of the public.

Flooding is not just a local issue, but also a watershed issue that does not respect governmental boundaries. One must consider the cumulative impacts in individual towns, likewise, towns within counties, counties within states, and states within regions that can lead to whole area devastation. Have you looked at a full build-out of your watershed? You may be shocked at what you discover when you model the flooding impacts considering your municipal zoning districts, and most especially, the towns upstream of you.

Floodplain management standards mandated through the National Flood Insurance Program (NFIP) are beneficial in minimizing the risks to new development. However compliance with the minimum standards may not protect existing development from the increased risk of flooding due to new development. The NFIP encourages local governments (State, County, and Municipal) to adopt additional measures beyond the minimums that will reduce local flooding and benefit neighboring and downstream locales (Code of Federal Regulations, 44 CFR §60.1(d)). Local governments cannot expect the Federal government to manage and police actions in their town – the authority is vested in the local jurisdiction. One common concern about additional regulations is property taking, but, in fact, the legal system has upheld the vast majority of challenges to locally adopted floodplain management regulations.

No Adverse Impact (NAI), advocated by the Association of State Floodplain Managers (ASFPM), is a relatively new policy being promoted in the world of floodplain management. The policy insures that the action of one property owner does not adversely impact the rights of other property owners. NAI is a good neighbor policy that makes sure that proposed changes don't impose on others as measured by increased flood peaks, flood stage, flood velocity and erosion

and sedimentation. Why not make the source of the change accountable? This concept is consistent with the individual rights of property owners.

Implementation of NAI can include mitigation measures such as low impact development, which minimizes disturbance; open space preservation; compensatory floodplain storage; wetland protection, restoration, and creation; and stream buffering. While stormwater management has been considered and generally required for new development in recent years, local and state regulations have by and large not been stringent enough to eliminate the additional runoff volume and reduced time of runoff that results in increased flooding. Adding watersheds to the list covered by PA Act 167 and NJ Regional Stormwater Management Plans will certainly help reduce increased flooding since many plan requirements are consistent with NAI strategies.

One long overdue NAI practice is to stop filling in headwater streams. The filling of source water areas not only compromises our water supplies – it increases and speeds up runoff. An area that was previously not prone to flooding, when filled and piped, can become vulnerable to flash floods. Headwater streams are least protected by the NFIP minimum standards, but play a large role in buffering storm runoff. We cannot wait for regulations from on high to protect our towns' water resources - these sensitive areas may already be filled by the time new safeguards are adopted.

If you still need more convincing, consider this: It's not just what we are doing locally to our land that increases flooding. Precipitation totals are on the rise as evidenced by this year's revision by the National Weather Service (TP-40, first and last published in 1961). It's not just Hollywood that thinks flooding will get worse with climate change. Our federal government thinks so; this year, the Pentagon issued its own (slightly more scientific) version of The Day After Tomorrow

This article was intended to get you thinking and does not attempt to cover all the possibilities of sound floodplain management, including NAI. I strongly encourage you to visit the ASFPM website to learn more about how to improve your community's true progress for the uncertain future (but guaranteed to have more floods). Proper NAI planning takes a multi-disciplinary team, and I for one do not think that engineers know all the answers. Remember: any community may adopt more comprehensive floodplain management regulations and this is encouraged by the NFIP.

Now is a great time to make a difference. A floodplain management chapter is just starting to form in the State of New Jersey. If you are interested in being a part of this group, please contact me at jmiller@princetonhydro.com. You do not have to work or reside in New Jersey to be a member of the organization: remember, flooding knows no political boundary.

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