

Original Op-Ed

"A Watershed Approach to Reducing Floods"

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Following the 2008 floods, the Army Corps of Engineers estimate of levee and pumping structures to "protect" Cedar Rapids from floods was \$1 billion. More recent estimates for smaller systems have been substantially less, but still in the hundreds of millions. These efforts would protect only parts of Cedar Rapids, while creating worse conditions for other residents of the watershed. Also, these so-called "protective" systems would do nothing to alleviate the causes of floods.

Another solution, and a parallel course of action, would be for the people of Cedar Rapids, and other flood prone cities, to focus on changes in watershed practices to reduce flooding. This can be accomplished through the spending of political capital on a new farm bill, rather than wasting monetary capital.

Historically, Iowa was covered by deep-rooted forests, prairies, savannahs, and wetlands. This floral/hydrological system created a vast sponge ranging some 15 to 30 feet in depth both below and above the surface. This sponge allowed rainwater to infiltrate at 7 to 14 inches per hour, while purifying and slowly releasing the stored water for plant uptake and recharging groundwater and aquifers.

Today's intensive, row-crop agriculture has virtually destroyed that sponge. Modern floods, although made worse by climate change's extreme rain events, are mostly caused because industrial agriculture has turned the historic landscape on its head and put bare soil at the surface. With this unprotected soil reaching saturation after as little as one inch of rainfall, rainwater simply sluices off the surface on its way into our waterways.

But other innovative, alternative agricultural systems - which are available now - would allow us to re-perennialize agriculture and rebuild the topsoil "sponge," with its flood mitigating capabilities. An Iowa State University study has shown that interspersing annual crop fields with strips of native prairie, which can soak up 7 to 13 inches of rain per hour, can eliminate up to 95% of erosion.

"The Land Institute" is breeding prairie plants to have large seed heads for human and animal consumption. The first of these should be ready for sale to farmers by 2020.

We will be able to eat the prairie, and these crops would help rebuild Iowa's historic sponge.

We also should take livestock out of confinement buildings, which are really dangerous sewage collection facilities. Confinements create untreated sewage, hydrogen-sulfide, ammonia, methane and particulates that damage human health and pollute the environment. And we should remove livestock from feedlots, which often are little more than open sewers. If we put animals on the land, fields now used for row crops could be converted to pasture. Utilizing intensive rotational grazing, that pastureland could store up to 7 inches of rain per hour.

Another important part of a rotational cropping system could be industrial hemp, which can need little or no commercial fertilizers, herbicides or pesticides. Hemp was important for food and fiber in early America, but its cultivation now is prohibited in the United States. (We are the only developed country to ban hemp.) Yet hemp ranks second only to soybeans in its protein content, and it can be used to produce food, fiber, textiles, paper, essential fatty acids, and other products. Other crops which would feed people and animals could include small grains, hays, vegetables, and fruits.

The declining supply of petroleum eventually will require a change from petro/chemical-dependent industrial/row crop agriculture to more sustainable crop rotations. That could mean the need for 40 to 60 million smaller, sustainable farmers. And that could revitalize our rural communities.

A more diverse, sustainable sponge agriculture would go a long way toward reducing future flooding for Cedar Rapids and the Cedar River watershed.

A farm bill that spends political capital to promote watershed changes to reduce floods. A levee and pump system to attempt to control the next "500 year" flood. These are parallel courses of action.

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