

Water quality & quantity session

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June 17, 2019*

Would you please pick up the teaspoon I placed at your seat? Why are you holding a teaspoon? Consider this: if all of the world's water fit into a 50-gallon barrel, one teaspoon would be fresh, accessible water. That is the water we are discuss today.

Water transcends all boundaries, including governmental and private. How do we provide collaboration and oversight higher than the individual landowner? How do we encourage local governments to take responsibility? What is the right structure to regulate water? The answer may lie in three words: collaboration, innovation and accountability.

First of all, let's all understand there is no one magic bullet. There are thousands of tiny silver bullets that collectively will make a difference.

This year, the World Economic Forum listed water scarcity as one of the largest global risks in terms of potential impact over the next decade. Demand is expected to outstrip supply by 40% in 2030, if current trends continue. The increasing world population, improving living standards, changing consumption patterns, and expansion of irrigated agriculture are the main driving forces for the rising global demand for water. Altered weather-patterns (including droughts or floods), deforestation, increased pollution, greenhouse gases, and wasteful use of water can cause insufficient supply.

Look again at your teaspoon and think about this. One teaspoon of healthy soil has more living microbes than there are people on earth. Those microbes interact closely with each other, decomposing organic materials, cycling nutrients and improving soil structure.

If soil organic matter can be increased 1% on the cropland within the Red, Minnesota and Big Sioux watersheds, then those watersheds could store enough water to supply Winnipeg, Fargo, Sioux Falls and the Twin Cities for 565 days. Another way to measure this would be that it could provide the annual water consumption for another 26 million persons within these watersheds.

Are we adaptive to dynamic conditions? My ah-ha moment regarding climate change came when it occurred to me that in South Dakota we are either standing on the top of a glacier in the east or the bottom of an ocean in the west. Our climate has changed, is changing and will continue to change. Who in South Dakota, the land of infinite variety, hasn't heard from their elders, "If you don't like the weather now, just wait five minutes."? It appears we are now in a cycle of extreme swings and we must be prepared to adapt. As just mentioned, increasing the soil organic matter by 1% on the cropland in the Red, Minnesota and Big Sioux watersheds increases its water holding capacity by 775 billion

gallons. This amount would be ½ the size of Lake Erie. Improving our soil health is much more cost effective and resilient option than building reservoirs and levees that deteriorate and fail. As a Nebraskan said this spring, “We can argue with Mother Nature but she always gets the last bat.”

Should our agriculture policy pay producers to produce commodities OR should we reward producers who operate for environmental stewardship? Can we change our emphasis from short-term cash flow to long term sustainability?

Ecosystem Services Market Consortium (ESMC) seeks to advance the development of a market-based approach to promoting land stewardship to build healthy soils, sequester soil carbon and conserve and improve the nation’s water. ESMC is focusing its attention on providing the necessary transparency and rigor to track improvements in soil health and greenhouse gas emissions, water quality and water use as well as additional attributes to be added in the future, such as biodiversity. It will also drive the coordinated development of advanced analytical tools and technologies to cost-effectively measure and monitor changes in sustainability outcomes and contribute income to farmers and ranchers through insetting and offsetting supply chain strategies and the sale of ecosystem services credits. The Noble Research Institute is currently conducting a pilot test of ESMC’s integrated ecosystem credit protocol on 50,000 acres of rangeland and farmland in Texas and Oklahoma. Additional pilots and implementation are planned across the U.S. in 2019 and beyond. Members of the Consortium are Archer Daniels Midland, Bunge, Cargill, General Mills, Indigo Agriculture, McDonald’s USA, Noble Research Institute LLC, Soil Health Institute, The Nature Conservancy, Mars Inc., Nutrien Ag Solutions, Bayer, National Farmers Union, American Farmland Trust, National Association of Conservation Districts, Soil Health Partnership, The Fertilizer Institute and Tyson Foods. I expect the membership to grow.

Are incentives to improve water quality an answer? Would penalties be appropriate? Several states, including Minnesota, have implemented some type of program addressing riparian buffers. In South Dakota, the 2017 Legislature approved the riparian buffer ag property tax incentive with tremendous vocal support of ag and environmental organizations. However, landowners and counties have been extremely slow to accept the program. Reasons given include not enough dollars to make it worthwhile, too cumbersome, or too expensive. An idea floated in national discussions combines incentives and penalties. The idea is that property taxes should be based on the soil organic matter as an indicator of a resilient resource. In other words, a minimum soil organic matter is set for each soil type and assessments are based on that minimum. Those who meet or exceed the minimum soil organic matter pay a lower tax rate (incentive) while those who do not meet the minimum pay a higher tax rate (penalty).

Will litigation by non-agricultural stakeholders create a gridlock of finger pointing or achieve desired water quality outcomes? Consider the Des Moines Waterworks lawsuit against three counties and their drainage districts over the high nitrate concentrations in the Raccoon River, Des Moines’ prime source of drinking water. On the plus side, the lawsuit generated increased awareness of water quality issues and development of an

ag nutrient strategy. However, frustrated by slower than projected progress of the ag nutrient strategy and no legislative action, the Iowa Citizens for Community Involvement and Food & Water Watch sued the State of Iowa in March, claiming breach of the public trust doctrine. If this effort is successful, the reverberations would be seismic.

How do we engage civic participation? How do we, as government, earn their trust and willingness to get involved? According to futurist Rebecca Ryan, the tools citizens will use to “care loudly” will be different, but the caring will mostly be the same. As past secretary of state Madeline Albright said, “Citizens are speaking to their governments using 21st century technologies. Governments are listening on 20th century technology and providing 19th century solutions.” Water quality and quantity are highly complex issues. We must offer information in a format our constituents will accept and understand. We cannot expect they will come to us; we must go to them.

In South Dakota, we have two excellent examples of civic engagement through public-private partnerships. The members of the South Dakota Grassland Coalition and the South Dakota Soil Health Coalition understand the need for grassroots to partner with all levels of government and private industry to effect positive change. Their passion is contagious! At our table in the hall, we have a booklet called “Building Connections.” In that booklet you will find information on mentors throughout the state. Over 100 are individuals because they recognize peer-to-peer contact is often the most effective.

In closing, my advice to you remains based on those three words I offered in the beginning: collaboration, innovation, accountability. Encourage local initiatives and leadership. Provide tools to succeed, don’t over regulate, get out of their way. Demand results, even if the result is “this approach didn’t work, so let’s try another.’ Just don’t give up. Our teaspoon of water depends on it.