



Efforts Great and Small

Drawn by the topic, I drove down from the north woods to the Climate Adaptation conference held late January in the Twin Cities. There I found a curious mix of people. Seated next to me at breakfast was an epidemiologist from Hennepin County. This woman's job is focused on public health. At lunch I sat next to a retired Dow Chemical Company employee. He is now a citizen lobbyist engaged in climate change matters. I bumped into the familiar face of a local timber mill owner, and a colleague from the Northern Institute of Applied Climate Science. Climate change brings all sorts of folks together, because we all share an interest.

Weatherman Paul Douglas led the business panel. He suggested climate change presents an opportunity to increase the resilience in everything we do. He sees us inventing our way out of the challenges associated with our changing world, and exporting our solutions. Paul says that the companies that step up and deliver will profit. He might be right.

On the panel were representatives of General Mills, 3M, and Best Buy. I wasn't surprised to hear Jerry Lynch, the Chief Sustainability Officer for General Mills express concern for how climate change affects their supply chain and sourcing of commodities. But I found his facts compelling. The earth's population is expected to increase by 4 billion people by the end of this century; it has already increased 7 times since the last century. This unprecedented growth equates to a tremendous demand on nature. Jerry says you can think of the demand within developing countries to eat better as an accelerator on the pressure of supply. The change in diet from grain and vegetable based to animal proteins illustrates how. It takes 32 pounds of grain to produce 1 pound of beef. Jerry lamented the soil degradation associated with crop production in our own country. The United States has lost half of its topsoil in the last 100 years. General Mills has committed to a decrease in greenhouse gas emissions in their entire supply chain of 28% by 2025, and 40 – 70% by 2050. One place they are focused is on working with farmers on adaptation. The production, use and loss of nitrogen fertilizers in row crop agriculture is an important source of emissions, and a logical place to seek emission reductions.

Chris Nelson says 3M lost \$35 million in revenue due to flooding in Thailand. An international company, their Indian plant has "power holidays" every Monday, when there is no electricity. Operating at the global scale, this company desires predictability in climate. They seek to produce products with raw materials that have climate advantages, with less impact. One

example is a film they produce that allows phones to be brighter with less battery use. Chris says that attention to the 3M supply chain means things like avoiding paper produced using illegal deforestation. Worldwide, annual deforestation is currently occurring at the rate of an area the size of New York State. In the past 10 years, water use in 3M plants has decreased 40%. Over the past 12 years, this company has seen a 60% reduction in greenhouse gas emissions from operations. And in the next 10 years, 3M seeks to attain 25% of its electricity from renewable resources.

Best Buy's Laura Bishop, VP for Public Affairs and Sustainability, told us that half of their 1400 stores and facilities were disrupted by weather in 2015. In 2011, the flooding in Thailand due to monsoons delayed the delivery of hard drives by 6 months. This company, too sees the link between weather, changing climate, and business disruptions. Laura says it is a company in transformation, with a goal to decrease carbon emissions by 45% by 2020 via operational reductions and renewable sourcing.

Another panel featured mayors from the cities of Saint Paul, St. Louis Park, Falcon Heights, and Bemidji. What do mayors have to do with climate change? Urban areas account for nearly $\frac{3}{4}$ of human emissions, so cities are key to reducing global warming. Since so many people live in cities, mayors are also on the front lines in responding to the effects of climate change. As global warming results in more severe weather, human population centers experience the effects of stronger storms, greater precipitation events, dramatic snowfall, and summer heat. How would you like to be mayor at times like these?

These mayors spoke of solar power, recycling, mass transit, bike path networks, community gardens, the power of land use zoning, and sustainability practices. St. Paul mayor Chris Coleman was one of a number of mayors that attended the recent Paris climate talks.

Rita Albrecht is mayor of Bemidji, a town of about 13,000 people, with no climate budget. Yet, they have a sustainability committee. A GreenSteps City, Bemidji participates in this voluntary program to help cities achieve their sustainability and quality-of-life goals. Bemidji sought energy savings through upgrading their lights and windows to attain more energy-efficient facilities. There are 3 community gardens in Bemidji. In Bemidji, Lueken's grocery store has developed an aquaponics greenhouse, an integrated growing effort to produce locally-grown produce and fish for market. Decreasing travel distances for foods is one effort towards reducing carbon emissions and address sustainability.

Other folks at the conference provided highlights of their efforts to produce food more locally. Carol Ford's deep winter greenhouse converts passive solar energy into cold-hardy crops for shareholders in Milan, Minnesota. She sees applications for community gardens, schools, grocery stores, nursing homes, etc. Read more about such greenhouses online through the University of Minnesota – Extension deep winter greenhouse grower profiles.

The Main Street Project is a non-profit effort focused on producing poultry in a sustainable, small scale fashion. Poultry and vegetable production are integrated in this system. A 40-acre farm is said to be capable of producing 2.4 million eggs using their techniques. You can check them out online at mainstreetproject.org.

Tribes are preparing for climate change, too. The 1854 Ceded Territory is a large area representing off-reservation treaty rights for the Bois Forte, Grand Portage, and Fon Du Lac bands. Territory boundaries are fixed, but climate and resources are changing. Using BIA funding and tribally collected data, a vulnerability assessment and adaptation strategies are being prepared for this area. Key resources of concern include air, aquatic and terrestrial plants, cultural places, water, wetlands, forestry, fish and wildlife. Results of this effort will inform a mixed group of landowners and stakeholders at the planning table, as management choices are made for resources of interest.

The Forest Service did not provide a presentation at this particular conference, but it may interest folks to know that the each National Forest annually prepares a climate change “scorecard”, which helps bring focus to our efforts in this arena. Our focus includes linking science and forest management, employee education, determining climate-vulnerable resources and developing adaptation actions, monitoring climate change impacts, and providing for sustainable operations. Like other National Forests, keeping the forests of the Chippewa in a forested condition provide benefits beyond those we generally think of. Forests play a major role in climate change. According to the United Nations, forests have the potential to absorb about one-tenth of global carbon emissions projected for the first half of this century. Conversely, forests currently contribute about one-sixth of global carbon emissions when cleared, overused or degraded.

At this writing, the forests of the Chippewa lie under a blanket of snow. Ice came on the lakes late, and fishermen were delayed in the pursuit of their interest. Winter is generally the busy season for area loggers, but this winter operations have been stressed by the continuation of winter warming trends. Much of our wood is accessed under frozen ground conditions, and some places will not be accessible this year. The season was already shortened by a late start, and seems likely to end early, too. Even the snowmobile trails have shown the effects of late or partial freezing, with some trails not groomed until recently. Restaurants, resorts, and other area businesses all feel the effects.

In a world increasingly moving toward the chaotic, it will take all of our efforts, great and small to make a difference. I especially appreciated the advice of one of the conference speakers, who in essence advised that we should all find what we do well, and do that better. Consider how it is you or your business fits into the climate puzzle, and bring what improvements you can to your carbon footprint. Then consider sharing your insights and innovations. Perhaps you will inspire others. We are, as they say, all in this together.

by Kelly Barrett, Wildlife Biologist
Chippewa National Forest

