Is Sustainability a Pipe Dream?

by Lisa Doner, Plymouth Conservation Commission

Food, energy and water - resources so vital to life that we learn about them in early childhood. Don't waste your food, shut the door you're letting the heat out, drink plenty of water … As we mature and start fending for ourselves, discovering the costs of buying and using these resources is often a rude awakening. I remember grocery shopping the first time I moved away from home, and having to pull items out of the conveyor as the price added up. It was shocking, embarrassing and an important lesson in what younger generations now call "adulting". That was over forty yeas ago.

I spend a lot of time these days wondering about how well we're preparing youth to transition into adulthood. We seem to have done a botched job of getting there ourselves, especially around managing and protecting resources to last multiple lifetimes. I recently gave a talk on climate change to a local community group and included slides pointing out the connection between population growth and greenhouse gas emissions. More people, more carbon emissions; it's a pretty simple relationship. Yet just this fall, I've heard several news reports, including those from the "liberal press" touting claims that we have plenty of resources to support an even larger population than the current 8 billion. Global population was just 3 billion the year I was born, a little over 4 billion when I graduated high school, and is almost double that now, less than 50 years later.

Population levels like this are not sustainable, but especially at the intersection of those three most essential resources: food-energy-water. In fact, this nexus is so important to the concept of sustainability, climate mitigation, economics, public health and risk management that many universities, federal agencies, the United Nations, have specialists working on it, and it has it's own standardized acronym: FEW. Google the "FEW nexus" and prepare to be amazed.

This term, probably new to most of you. is a big area of research and education. A nice summary of it is available for free online at: https://eos.org/science-updates/solving-shared-problems-at-the-food-energy-and-water-nexus (Zhuang et al, 2021). An example from this publication states: "energy production and food production, especially where irrigation is required, compete for often limited water resources; meanwhile, energy is, of course, needed to pump water for irrigation, to treat wastewater, and to process and transport food." The UN has another nice description at https://www.unwater.org/water-facts/water-food-and-energy.

The intwined relationships of these resources is well known by brokers, insurers and anyone involved in the economics of global markets – it is why cereal prices increase when gas supplies are interrupted by the war in the Ukraine. It is why the prolonged drought in western US, and the reduced storage of water in Lake Mead and Lake Powell affects the price of electricity across the regional grid. Food-energy-water entanglements aren't the only things affecting resource costs and availability, of course, but they are the ones most essential to society and therefore have the potential to stabilize or destabilize economies all over the world.

I'm sure you never imagined that adulting might mean learning what the FEW nexus is; I certainly didn't until just three years ago. I know systems thinking is a big part of school curricula these days, but if population growth isn't part of it, and the link of population size to climate change isn't part of it, and the concept of limited resources isn't part of it, how deep an understanding about future needs can we expect from our younger generations? It keeps me up at night.