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KRC Sustainable Agriculture Conference: Fundamental Shift from Industrial to Ecological Economy Needed to Meet Future Challenges (December 13, 2008)

by Mary Fund

Blue Rapids, Ks. - "The 'one size fits all' solution approach we have gotten used to over the past 20 to 30 years is not working. And anybody who does not believe that, just look at our current economic situation," stated Dr. Fred Kirschenmann at the recent KRC Sustainable Agriculture Conference in Blue Rapids, Kansas.

Kirschenmann's theme, as he spoke to over 100 farmers, ranchers, and farm and food activists, was "Meeting Agriculture's Challenges in a Rapidly Changing World".

Kirschenmann challenged those present to think about sustainability in a new way, and identified two kinds of sustainability or two ways of thinking about it.

The first, "weak sustainability", defines sustainability as a steady state, assuming that the underlying structure of agriculture or the economy stays the same. "All we have to do is tweak a few issues for improvement, such as how do we get a little more efficient in terms of the amount of fuel we use, or how do we do a better job of maintaining our soils, so we don't have so much soil erosion. But everything else would stay the same."

While this was how he approached his farm management in the past, Kirschenmann says he no longer believes this approach will work anymore.

"Things are changing so rapidly now and will change so much more rapidly in the future that we can no longer afford to think about sustainability as a steady state phenomena," he declared.

The second way of identifying sustainability, he explained, is "strong sustainability" which asks how can we build resilience into the system? To build resilience you have to think in terms of adaptation, not just tweaking, or "greening" it up.

Green is the big thing everywhere, he explained. Lowering greenhouse gases, fuel efficiency, etc., is good. But, he claimed, it will not prepare us for the kind of change we need in order to survive the big changes we face in terms of climate and resources.

"We need to make a fundamental shift away from the industrial economy to an ecological economy. Economist Herman Daly warned us of this 30 to 40 years ago," Kirschenmann said.

Industrial economies operate on the assumption of unlimited natural resources and unlimited sinks in nature to capture our wastes. But now, Kirschenmann stated, that system has become fragile.

“We discovered dead zones on the planet in the 1970’s. In the mid-80’s we counted 140. By 2008, there were over 400. We cannot continue down this path,” he asserted.

“We are moving into a future where energy costs are going to go up; and there will be more unstable climate. The question is how is my farm going to survive these circumstances? how will it survive these shocks? This is true of not only agriculture but society and the economy in general. “

Nearly twenty years ago, economist Paul Hawken explained that ***there are three principles we need to follow: 1) all our energy has to become current*** (the bulk of our energy today comes from stored energy from fossil fuels); ***2) all of our waste needs to become fuel; and 3) resilience always requires biodiversity.***

The industrial approach in agriculture as in our entire economy, Kirschenmann explained, is built on specialization, simplicity, and economies of scale. Everything operates fine as long as we have unlimited natural resources and unlimited sinks for the waste. The challenge is to develop new economies where all our waste becomes fuel for something else, and all of our energy must come from renewable sources.

Industrialization is all about efficiency, which makes perfect sense until you realize, Kirschenmann explained, that the only way to achieve efficiency is to eliminate redundancy. And in nature, redundancy is what makes resilience. If one thing crashes, there are six other things that still work.

Take the native prairie, for instance, he suggested. During drought, certain species disappear but others survive or even thrive, because they are adapted to drought. The prairie is much more resilient than annual crops.

To identify a methodology to help us address the changes coming, Kirschenmann cited Jared Diamond’s book, *Collapse*, which analyzed the history of civilizations which failed or survived.

“Diamond concluded ***that those civilizations who 1) correctly assessed their present situation, 2) anticipated the changes needed, and 3) who got a head start to make changes, survived,***” Kirschenmann stated.

Assessing the Situation. To assess our current situation, Kirschenmann pointed to our energy economy. Oil and coal, or stored energy, were critical to the development of an industrial economy. But, Kirschenmann, stated, we will be forced in the near future with a big, big change in our energy efficiency, as we move away from stored concentrated fossil fuels to dispersed current energy.

Oil companies know this, he asserted, describing recent Chevron ads in major newspapers. “One ad stated, ‘It took us 125 years to use the first trillion barrels of oil. We will use the second trillion in 30 years. Why would you care?’”

“This is a powerful ad,” Kirschenmann said. The message is that even though it took us 125 years to use the first half of our fossil fuels, we will use the second half in just 30 years.

“What happens at the end of that 30 years?” Kirschenmann asked “What happens when we get 15 years into that 30? What does that mean for your farm and mine?”

Another ad said, “Americans spend over \$1 million on energy every minute. So who has the power to change that?”

“These are interesting questions,” Kirschenmann said. “Who has the power to change this? Washington? Do we have the power? Do I have the power to change it on my own farm?”

Another part of assessing our current situation is our changing climate. Kirschenmann pointed to a National Academy of Sciences study on climate that found the long history of climate has been unstable. The last century has been abnormally stable.

The study went on to assert that successful food production has been as attributable to that stable climate as to technology or the green revolution.

“We’ve all heard this; we’re the heroes; we’ve developed the Green Revolution and technology that has doubled, tripled and quadrupled yields, and saved the lives of millions of people,” Kirschenmann stated. “But it turns out that is only half the story. The other half is the stable climate.”

“Even if you don’t believe that human activity affects climate, or contributes to greenhouse gases, it doesn’t matter,” he asserted. “because the stable climate we’ve enjoyed over the past century is not normal-- and won’t continue.”

“As farmers,” Kirschenmann said, “this what we are going to face.”

While climatologists cannot predict the future, they do agree that there will be more instability, with more floods, droughts, and stronger storms.

Another part of the current situation has been the availability of fresh water. In Kansas and other parts of the Plains, the Ogallala Aquifer has been drained by almost half to support the industrial economy. But he noted we can’t continue along that line.

Also we cannot continue to use the available sinks in nature to absorb our wastes. “In the 1980’s no one worried about nitrogen leaching. A recent report from Washington said something must be done about nitrogen leaching in the Midwest to the Gulf of Mexico.”

The bad news, according to Kirschenmann, is that a lot of farmers have already been trying to do something about it. A study out of Iowa State University found that even if

farmers stopped using nitrogen altogether, there would still be some leaching. This is because the simple corn-soybeans rotation is such a leaky system.

By contrast, Kirschenmann argued, if you use two years of alfalfa in that rotation, you'd stop all the leaching, and increase your corn yield. Of course, you'd only have a corn crop every other year or two years. But these are the kind of issues we face.

The current situation, he explained again, is that we are in the heart of an industrial economy built on cheap energy, plentiful water, and a stable climate. This is not our future.

Oilman T. Boone Pickens predicts that within ten years we will see \$350/barrel oil. Kirschenmann questions the viability of our farms at those prices.

"We have to figure out how to transition to a different energy form. Also if we see a 50% increase in hail storms, how do we plan for that?" he asked.

Kirschenmann's father raised both crops and livestock. When as a boy, Kirschenmann asked him why did they raise cattle, when the grains made more money? His dad had answered "because cows don't get hailed out."

'How do we build that kind of thinking and how do we build the infrastructure needed to support it?'

Changes Needed. Foremost, there must be a fundamental shift in our value system. "As conservationist Aldo Leopold wrote in the 1930's and 1940's, we must develop an ecological conscience," Kirschenmann stated.

"We must recognize that it is not just us humans and our economic well being that is the most valuable thing. In order for us to have well -being and in order for our economy to be healthy, the whole ecological infrastructure - with all the biotic communities that make it up, which is part of what makes it self-renewing and self-regulating, these must be kept in place. The only way to do that is to recognize its value," he explained.

Aldo Leopold, writing sixty years ago, anticipated many of the problems we are dealing with today. **Regulation according to Leopold is not going to fix things. The free market is not going to fix things, because the market does not recognize many things of value, such as biological and ecological health.**

As Leopold wrote, stressed Kirschenmann, **developing an ecological conscience is critical to addressing our resource and economic problems.**

"How do we begin to build this new value system?" he asked. The good news according to Kirschenmann is that we've already begun. "I've been asked to speak to more faith based communities about sustainable agriculture in the last two years than in the previous twenty," he stated. And we can all be part of this dialogue."

As Leopold defined it over 60 years ago, Kirschenmann explained, an ecological conscience is all about caring for the health of the land. The health of the land is its capacity to renew itself.

Another thing we need to do, Kirschenmann said, is to begin to redesign our systems to prepare them for the shocks and disturbances we are going to see. Research institutions need to begin imagining what kind of agriculture can survive \$300 per barrel oil, use half the water we are currently using, and survive twice the severe weather events we currently have?

Currently, he estimated, that 90% of our research is still focusing on developing technology to keep the current system going. But in the long run, that is not going to meet the challenges that lie ahead.

But the most important thing we have to do, stated Kirschenmann, is to “get a head start and prepare and implement all across the planet a process to restore the biological health of the soil.” This is just starting to come into our awareness and consciousness in such a way so that even urban non-farm audiences can understand it.

Other good news he noted is that the market place is full of opportunities to support a new value system. The Heartland Group in a recent survey showed that 62% of the public wants to buy food in line with their values.

A recent book by John Thackara, *In the Bubble*, talks about values and relationship marketing. According to Kirschenmann, ***Thackara argues that the industrial system is essentially over. It is too exploitative, and too heavy on the planet.***

Thackara explores a future where our agricultural system, health care, schools and education systems will be based on relationships and values. ***Our economy will be more grounded in local communities.***

“Interesting things are happening globally,” Kirschenmann concluded. But the ***solutions will not be global. We must move to local and regional solutions.***

As a recent report from the United Nations International Assessment of Agriculture, Science and Technology stated, local and regional solutions, local culture and tradition, and local knowledge must play a big part in meeting our future food and farming challenges.

Kirschenmann’s morning presentation was followed by six workshops on a range of subjects aimed at helping farmers, ranchers and others begin moving their farms, families, and communities toward these local and regional solutions.