

A Sustainable Environment: Our Obligation to Protect God's Gift

by
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For Better Results, Consider the Whole System

Too often, people look at the result of a particular outcome and come to a conclusion as what one single event caused that outcome. In most cases, it is not a single cause but a set of things that are responsible. This set of things can be called a system, and the things can be people, vehicles, cells, molecules, plants or whatever. To form this system, these things are interconnected in such a way that over time they produce their own patterns of behavior. The system can be moved, activated, constrained, or driven by some outside forces but the result is dependent on the characteristics of the system itself. The system must consist of three kinds of things: elements, interconnections, and a function or purpose.

An example of a system is the possible result of a flu virus. A person does not catch the flu, but rather, the person establishes a set of conditions within his/her body that allows the flu virus to flourish within the body. A baseball game consists of players, bats, and a ball (the elements), the rules of the game (interconnections), in an attempt to win the game (purpose). These examples and more can be found in an excellent book titled "Thinking in Systems" by Donella H. Meadows. In her book, she presents the basics of systems, explains why they work, and presents opportunities while making you aware of some traps.

I decided to write about this subject because of two examples where systems thinking would have worked for a situation that existed some thirty years ago, yet are of great interest even today. If you recall, our oil problems began in the early 1970's when U.S. oil production peaked along with having depleted 50% of our oil reserves. This was followed with an increase in oil imports. Then President Carter, who had the ability to think in systems, suggested that we impose a tax on gasoline that would be proportional to the fraction of U.S. oil consumption that had to be imported. If imported oil consumption continued to rise, the tax on gasoline would rise in order to reduce the demand for gasoline. The tax would be used to develop alternatives to the import oil in order to reduce its consumption in the U.S. Once the imported oil quantity fell to zero, the tax would fall to zero. Obviously, this tax never passed primarily because President Carter could not explain it to the press and public that didn't understand systems.

This gasoline tax recommendation is not dissimilar to the current thinking of a carbon tax. If we think of climate change as a system consisting of all the sources of carbon dioxide emissions (elements), the impact of the emissions on our atmosphere (interconnections), and the warming of the planet (purpose), we can then suggest means of impacting the system in a beneficial way. Basically, we need to reduce the elements and one way of doing it is through a carbon tax.

President Carter was also concerned with the large number of illegal immigrants from Mexico. Sounds familiar? He believed that nothing could be done about that immigration as long as there was a large gap in the living standards and working opportunities between the U.S. and Mexico. Keep in mind that the U.S.-Mexican border is the only border in the world between a first-world and third-world country. Carter went on to suggest that rather than spending money on border guards, barriers, and/or fences, we should spend the money helping to build the Mexican economy. In addition, he said that this should be done until the illegal immigration stopped – when there no longer would be this great desire for Mexicans to come to the U.S. This didn't happen either. But think about it as a system. It consists of Mexican people (elements), means and barriers to immigrate to the U.S. (interconnections), and the need to have a better life (purpose). Instead of looking at the interconnections, we should be looking at the purpose. By improving the purpose – a better Mexican life – the rest of the system functions without a problem.

A good example where this system worked was in Greece. After World War II, Greece was an impoverished nation and for next few decades, the Greek people were coming to the U.S. any way possible – legally, illegally, through Canada, visiting and not returning, etc. But since Greece's economy has improved and the country eventually joining the Euro Zone, immigration to the U.S. from Greece has slowed down considerably. (The current financial crisis is another story.)

We can actually think of the Earth as a self-regulating system with its goal to control, or regulate, the surface conditions in such a way to be as favorable as possible for contemporary life. But unfortunately, we are making it difficult for the Earth to achieve this goal.