Green Tech

Where Sewage Meets 'Peak Phosphorus'

Karl Burkart, 06.02.10, 6:00 AM ET

Believe it or not, climate change and "Peak Oil" are not the biggest problems facing the 21st century. "Peak Phosphorus" could hit sooner and harder, threatening food supplies for half the earth's population. Phosphorus is a fertilizing nutrient that is vital to large-scale agriculture. Currently it can only be mined, but supplies are diminishing.

Fortunately, there may be a solution. Ostara, a Vancouver, Canada company backed in part by environmental advocate Robert Kennedy Jr., has patented a technique to extract valuable chemicals out of waste. (Kennedy, who among other things is president of the Waterkeeper Alliance, is a venture partner with Vantage Point Venture Partners, which invested in Ostara in 2008.) The company calls the result "Crystal Green," a slow-release chemical fertilizer that contains high levels of phosphorus and is extracted from an abundant, ever flowing resource: sewage.

Intentionally or not, the brand name bears a remarkable similarity to *Soylent Green*, the 1973 cult classic movie in which an undercover cop discovers that an agribusiness giant is peddling poop to satisfy a world hunger crisis. The book *Make Room! Make Room!* by Harry Harrison, on which the film was based, was not, it turns out, terribly off the mark.

In the novel, the year 2022 marked a depletion of world food stocks due to overpopulation and resource depletion. A recent study by *Foreign Policy* (as reported in the *New York Times*) confirms Harrison's fears of a collapsing agricultural system. About 90% of the world's phosphorus supplies are controlled by five countries, and the study warns that as soon as 2040 this limited resource could be lost forever if we don't get better at reclaiming our discarded phosphorus.

Ostara has been testing its PEARL chemical reactor in a Canadian sewage plant with great results. A plant near Portland, Ore., has implemented a full-scale version of the reactor, which produces 500 tons of fertilizer per year. This video on Ostara's website has more information.

It's interesting to note that the technology was pioneered not to save the planet from famine but to solve a problem in sewage plants in which a build up of ammonia and phosphorus clogs pipes and causes waste streams that are toxic to the environment. The result is a win-sin situation--cleaner waste water and a mineral fertilizer that acts as an added revenue source for sewage treatment plants.

Most importantly, it offers a way out of the nightmare of Peak Phosphorus.

Karl Burkart blogs about technology for the Mother Nature Network.