## Fact or Fiction?

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# Regulations and Schlimmbesserung

Have you heard of the word *schlimmbesserung*? It means intended improvements that make things worse. As Robert Matthews states, "This is a word that should be in the lexicon of anyone trying to protect the environment. Federal agencies are often criticized for imposing ineffective, costly regulation on individuals and businesses that do little to improve public health and safety."[1] Give them the benefit of doubt that they are really trying to make things better but in some cases *schlimmbesserung* occurs.

## Biofuels

Biofuels are a good example of *schlimmbesserung*. World food prices are being driven upwards largely because of the increasing use of biofuels. Nigel Lawson observes, "Biofuels, such as ethanol, have their downsides. In the first place, as studies have shown, it is far from clear that ethanol produces significantly more energy than is used in its own production. In the second place, it requires a vast amount of land to produce a relatively small amount of ethanol. This not only antagonizes environmentalists, upset by the destruction of rainforests for this purpose, but has also led to a marked rise in food prices, in particular the price of grain. Indeed in June 2007 the Chinese government suspended its production of ethanol explicitly for this reason."[2]

*The Guardian* discusses a report by the World Food Bank which claims that biofuels have forced global food prices up by 75% - far more than previously estimated. This figure noticeably contradicts U.S. government claims that plant-derived fuels contribute less than 3% to food prices. The report also adds, "Rising food prices have pushed 100 million people below the poverty line, estimates the World Bank, and have sparked riots from Bangladesh to Egypt. Government ministers here have described higher food and fuel prices as the first real economic crisis of globalization."[3] In Mexico City last February, some 75,000 people marched in protest at the dramatic rise in the price of tortillas, a corn-based staple of their diet that typically consumes one-third of a poor family's income. Indonesia, Algeria, and Nigeria have also seen protests.[4]

On another front, switching land use from food crops to biofuel could result in increased emissions of pollutants such as nitrous oxide and ozone and increased net carbon injection into the atmosphere.[5] Research at Stanford indicates that pollution from ethanol could end up creating a worse health hazard than gasoline, especially for people with asthma and other respiratory diseases.[6]

## Victims of the CFCs ban

The federal ban on ozone-depleting chlorofluorocarbons (CFCs), to conform to the Clean Air Act, is ironically affecting millions of people in the U.S. who suffer from asthma. Emily Harrison reports, "In 1987 Congress signed on to the Montreal Protocol on Substances That Deplete the Ozone Layer, an international treaty requiring the phasing out of all nonessential uses of CFCs. At that time, medical inhalers were considered an essential use because no viable alternative propellent existed. In 1989, pharmaceutical companies banded together and eventually in 1996, reformulated albuterol with hydrofluoroalkane (HFA), an ozone-safe propellent. After more than one brand of HFA-albuterol became available, the U.S. Food and Drug Administration declared in 2005 that CFC inhalers were no longer essential and must be completely off the shelves by the last day of this year."[7] In the United States, about 52 million prescriptions for albuterol are filled annually, making it the seventh most commonly prescribed medication in the country.[8] The ban will have an insignificant effect on ozone since albuterol inhalers contributed less than 0.1% of the CFCs released when the treaty was signed. However, the replacement alternatives can be three times as expensive, raising the cost to about $40 per inhaler. Harrison adds, "The issue is even more disconcerting considering that asthma disproportionately affects the poor and that, according to recent surveys, an estimated 20% of asthma patients are uninsured."[7]

## Cleaner air and recovery of the ozone hole increase global warming?

Christian Ruckstuhl and his colleagues at the Institute for Atmospheric and Climate Science in Switzerland recently reported that the rapid temperature increase of one degree Celsius over mainland Europe since 1980 is considerably larger than the temperature rise expected from anthropogenic greenhouse gas increases.[9] Their work led to the conclusion that direct aerosol effect has an approximately five times larger an impact on climate forcing than the indirect aerosol and other cloud effects, or in other words, as Robert Matthews reports, "the clean-up campaigns are another *schlimmbesserung*, with the airborne gunk actually having a powerful - and beneficial - impact on temperatures, by reflecting the sun's heat back into space."[1]

The Montreal Protocol was mentioned earlier. After years of decline, the springtime concentrations of ozone in the atmosphere high over Antarctica have begun to increase, a sign that the ozone hole is recovering.[10] Good news? Well, depends on your point of view. According to some recent research, this could mean increasing temperatures in Antarctica. Until now, the interior of Antarctica has not been warming with the rest of the world. The lack of ozone in the lower stratosphere over Antarctica in the springtime causes less absorption of ultraviolet radiation and this leads to cooler temperatures than normal. Recent work postulates this will change as the ozone hole recovers.

Seok-Woo Son and colleagues at Columbia University speculated in *Science* that a full recovery of the ozone hole over

Antarctica in the coming years could significantly boost warming of the atmosphere over and around the icy continent.[11]

Researchers at the University of Colorado, Boulder, confirm these results, reporting that simulated atmospheric temperatures at altitudes between 10 and 20 kilometers would be as much as nine degrees Celsius warmer after the ozone hole has recovered than they are today.[12] This certainly would mean an increase in warming at ground level in Antarctica.

## Planting the wrong trees could also affect global warming

If you're going to plant a tree to save the Earth, you better make sure to plant the right kind of tree. Trees affect the reflectivity of the Earth and its ability to bounce back some of the sun's heat back into space. Covering large swatches of light ground with dark trees could lead to more heat being absorbed, boosting temperatures.[1] Gregory Asner and his colleagues report that only trees planted in equatorial regions are likely to produce a net benefit. Those planted further away - especially in high latitudes where snow is common - are likely to lead to increased global warming. Also, non-native trees invading a rainforest can change its basic ecological structure, rendering it less hospitable to the myriad plant and animal species that depend on its resources.[13]

## Summary

Robert Matthews sums this up quite well, "The upshot of all this is clear: when it comes to the environment, a little knowledge is a dangerous thing. What isn't at all clear is whether it will ever be possible to have sufficient knowledge to make big environmental policy decisions with any confidence."[1] **P&SF**

## References


1. Robert Matthews, "Grey skies are going to clear up?," *The National Newspaper*, July 13, 2008; http://www.thenational.ae/apps/pbcs.dll/article?AID=/20080713/FRONTIERS/415021450/1036/NEWS, last accessed 12/17/09.
2. Nigel Lawson, *An Appeal to Reason: A Cool Look at Global Warming*, Overlook Duckworth, New York, NY, 2008; p. 68.
3. Aditya Chakrabortty, "Secret report: biofuel caused food crisis," *The Guardian*, July 4, 2008; http://www.guardian.co.uk/environment/2008/jul/03/biofuels.renewableenergy, last accessed 12/17/09.
4. Lawrence Solomon, *The Deniers: The World Renowned Scientists Who Stood Up Against Global Warming Hysteria, Political Persecution, and Fraud - and those who are too fearful to do so*, Richard Vigilante Books, Minneapolis, MN, 2008; p. 211.
5. *Civil Defense Perspectives*, **24** (5), 1, July 2008; http://www.physiciansforcivildefense.org/cdp/july2008.html, last accessed 12/17/09.
6. Keay Davidson, "Study warns of health risk from ethanol," *San Francisco Chronicle*, April 18, 2007; http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2007/04/18/MNG7EPAN601.DTL&type=printable, last accessed 12/17/09.
7. Emily Harrison, "Unlikely Victims of Banning CFCs - Asthma Sufferers," *Scientific American*, **299**, 20, August 2008; http://www.scientificamerican.com/article.cfm?id=unlikely-victims-of-banning-cfcs, last accessed 12/17/09.
8. Leslie Hendeles, Gene L. Colice & Robert J. Meyer, "Withdrawal of Albuterol Inhalers Containing Chlorofluorocarbon Propellents, *New England Journal of Medicine*, **356** (13), 1344, (March 29, 2007).
9. Christian Ruckstuhl, *et al.*, "Aerosol and cloud effects on solar brightening and the recent rapid warming," *Geophysical Research Letters*, **35** (12), L12708 (2008).
10. Sid Perkins, "Unintended Consequences," *Science News*, **174** (1), (July 5, 2008).
11. S.-W. Son, *et al.*, "The Impact of Stratospheric Ozone Recovery on the Southern Hemisphere Westerly Jet," *Science*, **320** (5882), 1486, (June 13, 2008).
12. Judith Perlwitz, *et al.*, "Impact of stratospheric ozone hole recovery on Antarctic climate," *Geophysical Research Letters*, **35** (8), L08714 (2008).
13. Gregory P. Asner, *et al.*, "Invasive plants transform the three-dimensional structure of rain forests," *Proc. National Academy of Sciences*, **105** (11), 4519 (March 18, 2008); http://www.pnas.org/content/105/11/4519.abstract; last accessed 12/17/09.


## Test Your Plating I.Q. #457

*By Dr. James H. Lindsay*

**Chromium Bearing Wastes**

1. Hexavalent chromium cannot be removed from rinsewater at any pH. How do we get around that?
2. What is an ORP meter?
3. The use of membrane technologies in chromium recovery are limited as compared to evaporation and ion exchange techniques. Why?
4. What reducing agents are used in chromium treatment?
5. Hexavalent chromium treatment can be accomplished on a flow-through or batch basis, or integrated into the plating line. Which of the three is most commonly used?

Answers on page 23.