

INDUSTRIAL ECOLOGY

A skeptic's view: There's no free lunch

Industrial symbiosis may sound promising and even be technically possible. But does it make sense to an economist? No, says Robert Stavins, professor of economics at Harvard University and according to BusinessWeek, one of the top ten promising young economists in the United States. Stavins, who is a consultant to the President's Council on Environmental Quality, shares his doubts about Industrial Ecology in an interview with Daniel Passent, editor of The WorldPaper.



ROBERT STAVINS

Q. More and more "green" factories and ecology-minded enterprises are being founded. Is another armistice now being signed, this time between industry and the environment?

A. During the transition period in the US, when Clinton and Gore were coming in, people making plans for the new administration expressed the sentiment that there could not be a trade-off between environmental protection and economic growth, that in fact they went hand in hand. The question is, how can that promise or slogan be made a reality? The truth is that there are trade-offs in life, that this is a world of scarce resources and that environmental protection cannot come at zero cost. There is no free lunch.

Private industry in capitalist societies acts on its own behalf in order to minimize its costs. In doing so, it is going to attempt to minimize the amount it spends on environmental control. This is not to say that people in private industry are any less personally environmentalist than others, rather that in their business they will attempt to minimize all costs, whether they be the costs of labor, of capital, or of environmental protection.

On the other hand, there is a whole set of alternative approaches to environmental regulation which can enlist industry on behalf of environmental protection. And there has been something of an acquired revolution around the world, particularly in the OECD countries, but also in the emerging market economies of Central and Eastern Europe. This revolution utilizes the so-called market-based approaches to environmental protection: pollution taxes, tradable permit systems and the like.

Q. Can enterprises or groups of enterprises be designed in a way that the waste from one becomes the energy or raw material for another in a system that somehow emulates nature?

A. It is absurd, at least from an economic perspective, and I mean from an environmental economic perspective, to think that it would be optimal to utilize 100 percent of the waste

products from industries in additional production. The question becomes whether or not the benefits, including the environmental benefits, are greater than the costs. If the costs are greater than the benefits, both economically and environmentally, then there is no reason to do it.

In terms of how this already happens, it's absolutely ubiquitous. The entire emergence of the so-called mini-mills and the changes in integrated steel production in the United States over the last 20 years feature the important use of scrapage in steel production. Yet this didn't even begin 20 years ago. The use of scrapage in steel production goes back hundreds of years. So this has been a constant feature of industrial production.

In the case of agriculture, let's look at poultry production. What do poultry farms do with the chickens when the chickens are too old to produce? Do they throw them away? No, those chickens become what are called soup chickens. What about the feet of the chickens? In American society we tend not to eat chicken feet, so are they thrown away? No, they go to China, or more likely, they become animal feed. The waste, the actual droppings from the chickens, is used to make nitrogen fertilizer.

If there is any value to a waste product, then it is already being utilized. The question becomes, what about waste products that are not utilized? If it is environmentally desirable that they be utilized, then there are ways, through laws and regulations, of making it in the interest of firms to go ahead and use these other by-products as well.

The whole power of the de-centralized capitalist economy comes from the fact that it is de-centralized. Because of this, hundreds of thousands of entrepreneurs across the country are more likely to identify opportunities than are the bureaucrats sitting in Washington, DC or Boston. That is the power of the economy.

So what environmental regulation can do is sometimes tip the playing field a bit to make it in the interest of firms to do more with by-products. I am frankly rather skeptical of the notion of Industrial Ecology, because it relies upon

the goodwill of a few firms. Let's not depend upon their goodwill, let's depend upon their profit motive. Let's make it in their interest to do it, then it won't be four or five companies, it'll be four or five million.

Q. To what degree are any of these approaches transferable from one institutional context or culture to another?

A. I just came back from Tokyo, and people there are always surprised by what we go through in the US with regards to environmental regulation. They can't understand that we have to go through this whole process, because in Japan the Ministry of Trade and Industry calls in the CEO's of a few leading corporations, they sit down around a table and decide what to do. And that works very well. Furthermore, Japan has a very positive history not only in environmental protection, but more importantly in terms of developing new technologies for that kind of approach. However, the Japanese approach violates antitrust laws in the US, and also goes against the grain of the institutional culture that we have in the US. One always has to ask whether or not a certain method is appropriate for a particular society.

A success in Denmark or Belgium does not necessarily mean that the same thing is going to be a success elsewhere. All of these things depend upon the cultural, the institutional and of course the legal context.

Q. Yes, but profit motive is common to all cultures. Can it work in favor of Industrial Ecology?

A. I don't believe that global Industrial Ecology is going to happen as a result of the goodwill or the interests of a few companies. It requires government involvement in establishing standards and providing incentives for private industry.

Q. Developing countries like China or Mexico have very impressive economic growth. Is this at the expense of the environment? Can they afford growth that is environmentally sound?

A. It depends. We have to be very careful in the West not to become environmental imperialists. We have to be cautious of saying to the developing countries, "Hey guys, we place a very high value on the environment in the 20th century, therefore you should too. We had an industrial revolution 250 years ago, sorry, you can't."

We have to recognize that environmental quality is what economists call an income-elastic good. It means that a society's ability to afford—and people's desire for—environmental protection increases as its income goes up.

The World Bank last year did a very important study in which they documented very clearly how it is that, at first, most environmental problems tend to get worse as economic growth takes place. However, at a certain point countries become wealthy enough that they desire—and can afford—more environmental protection, and after that point

they become cleaner.

Q. What does that suggest?

A. That the cleanest countries are both the richest and the poorest, and the countries that are the dirtiest are the countries in the middle. Mexico and Eastern Europe are good examples. It is not the extreme developing countries that are the dirtiest, it is the emerging market economies. Formerly less-developed countries like Mexico are just at the point where they have a lot of industrialization—but not yet to where they can afford the environmental protection.

It might also be the case that people in the US, England or Japan care about environmental protection in developing countries. We care because we suffer if they do something to pollute the environment. This suggests that we ought to be paying for part of their clean-up. In Tokyo there is a lot of concern about acid rain. The acid rain, however, is no longer from Japanese power plants or Japanese automobiles. It's from coal burning in China. It's also true that because Japanese production has been cleaned up so much—as it has in the US—that the next increment of protection will be very expensive. They've already cleaned up that which can be cleaned cheaply.

On the other hand it's very cheap, per ton of sulfur-dioxide reduction, to clean up in China. So Japan would like China to clean up, and is going to pay for them to do so. We've seen the same things between Eastern Europe and Western Europe. Western Europe ought to be subsidizing cleaning in Eastern Europe.

Q. Can consumers support more expensive, environmentally clean products and factories against the logic of minimal costs?

A. There is some evidence that this green consumerism is a real phenomenon. Many segments of the public do tend to pay more for a product because they think these products are environmentally benign. That suggests that there is public relations value, in terms of profits, to this green consumerism. But I don't know how long that's going to last. It is very possible that this is a temporary phenomenon.

Consumers felt very good about the fact that McDonald's phased out styrofoam clamshells and has moved to paper containers. In fact, at McDonald's you'll notice that the napkins are no longer white, because they are now being made without bleach. On the other hand many environmental scientists tell me that this is actually a net loss for the environment. If you look at the entire life cycle of the production of the paper: cutting down the tree; creating the pulp; processing the paper—and paper processing is one of the most water polluting industries we have worldwide—the whole process may actually be worse for the environment than the clamshells ever were.

But it's been good for public relations. As an economist, one says, "Well, that's what people want, let them have it." But we shouldn't fool ourselves that it's necessarily good for the environment. ♦