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GE release could have ended life on earth

A recent expose of how the US Environmental Protection Agency was almost prepared to approve the release of a genetically modified bacterium which could have wiped out life on earth highlights risks of this new technology and the inadequacy of current regulatory methods.

Mark Ritchie

'IN 1992 the Environmental Protection Agency was only a few weeks away from ending life on the planet as we know it,' so writes George Lawton in the April 2001 issue of *Acres USA* ('A Voice For Eco-Agriculture').

Lawton reports that the EPA, although only having done limited tests at that time on a variety of genetically engineered microbes, all of which had been approved for release into the atmosphere, was prepared to approve the release of a genetically engineered variant of *Klebsiella planticola* (KP), one of the most common bacteria on the planet.

'This particular variety of KP,' he writes, 'had the unique ability to convert dead plant matter into alcohol. It was hoped that this would provide a way for farmers to transform their unused stalks, leaves and other types of compost material into alcohol, which could be used for washing, running vehicles, etc.'

'The EPA had done a variety of tests on this organism, all of which indicated that it would not be toxic to humans or animals. They were only a few weeks away from releasing these bacteria into the wild, when Michael Holmes, a graduate student at the University of Oregon, came looking for an interesting thing to study for his doctoral thesis.'

Under the direction of his academic advisor, Elaine Ingham, Holmes elected to do his thesis on the effects of this genetically engineered KP on plants, something which had not occurred to the EPA, as it was not required for the release of new genetically modified organisms, Lawton notes in his *Acres USA* expose.



Genetically modified tomatoes. 'The current regulatory methods (to assess the potential effects of genetically engineered organisms) are totally inappropriate... The regulatory testing is... not appropriate for biological things that reproduce.'

Holmes' study revealed, after testing samples of plants growing in sterile soil, soil with regular KP and soil with genetically engineered KP, that no plants in the latter soil were growing as the alcohol produced by the bacteria had killed them all.

At the time, Lawton notes, the EPA was envisioning that farmers would use these bacteria in a kind of fermenting process to convert plant material into a mixture of 17% alcohol and 83% mineral sludge, which could be poured off into the soil and reused.

'If that had occurred, the genetically engineered KP could have colonised the entire planet over the course of several years, turning all of the soil where it grew into barren dirt.'

Ingham said the problem was and still is that the EPA only looks at the immediate impact of new genetically modified organisms on animals, and

does not take into account the larger impact on the ecosystem as a whole. That approach can work to a limited extent when working with chemicals, which can break down and dissipate over time. But living organisms have the ability to procreate and overwhelm the natural ecosystem.

After the Holmes research, Ingham claims, the EPA didn't accept their findings. Further, she said that she received considerable flak from the EPA, which also objected to Holmes' graduation because they thought his research was flawed. The EPA repeated the experiment but never released the results to the general public.

Ingham believes that the EPA was trying to hide the results because it was under pressure from chemical, seed and biotech companies. She feared, Holmes says, 'If we had not done that testing, the EPA would have

allowed its field use in two weeks. We just happened to be working on that for academic interest. What would have happened if we had not done that work? What kind of unexpected effects are already out there? Hopefully nothing as devastating as this organism, but we don't know because they have not been tested.'

The EPA applied the rules mandated by the Federal Insecticide, Fungicide, Rodenticide Act and the Toxic Substances Control Act, and found no problems with the microbe, so it was approved for field-testing.

Ingham explained, 'Clearly the current regulatory methods are totally inappropriate. The work we were doing was not normal work for engineered organisms. The regulatory testing is appropriate for chemicals, but not appropriate for biological things that reproduce. If we were going to do appropriate testing, we should use the system developed by the Edmonds Institute in Edmonds, Washington. They publish a biosafety handbook which goes through all of the testing that should be required to assess the potential effects of genetically engineered organisms.

'This was the first organism capable of surviving in the soil. KP is found in the root systems of all the plants we have looked at, and it exists in decomposing plant material everywhere in the world. It is one of the few organisms that is everywhere,' she adds.

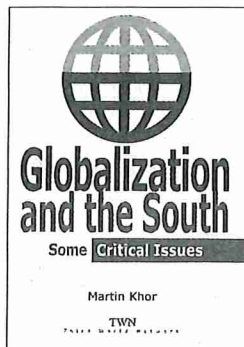
As Lawton points out, 'the problem with any organism and particularly with bacteria is that there is no surefire way to recall them once they have been released. Even plants pose a problem, despite the possibility of mechanical control. Imagine how hard it would be to selectively kill something that cannot even be seen with the naked eye.' And Ingham observes, 'We have never been good at recapturing any organisms we have released into the world.'

Mark Ritchie is President of the Institute for Agriculture and Trade Policy <www.iatp.org>, a US-based non-profit organisation which promotes resilient family farms, rural communities and ecosystems around the world through research and education, science and technology, and advocacy.

Globalization and the South

Some Critical Issues

by Martin Khor



14.5cm x 21cm 110 pp.

THIS book examines the implications of some of the main features of the globalization process for developing countries. It also makes several proposals for developing countries in considering national-level policies to face the globalization challenge, as well as coordination among developing countries in facing negotiations or making proposals at the international level.

While there are many aspects to globalization, among the most important is the recent globalization of national policy-making not only through the normal spread of orthodox theories but more importantly through international agencies, such as the Bretton Woods institutions and the World Trade Organization, through which the

North has leverage over the South.

The book examines the liberalization of trade, finance and investment as well as policy implications and choices in each of these categories. It is argued that, while there are some advantages to an open regime for developing countries, the impact of openness depends on a country's level of development and preparedness to take on the challenges of subjecting local production units to foreign competition, of being able to break into world markets, and of weathering the volatility and fickleness of private capital flows and their propensity for leading recipient countries into a debt trap.

It is therefore imperative that developing countries be given the possibility to have an adequate range of options, of when, how and to what extent to open their economies. For them to maintain the choice of flexibility in policy options, developing countries have to collectively press their case in international forums and institutions where decisions on the global economy are made. Failure in doing so would mean that developing countries will continue to be subjected to international and national policies that are unsuitable to their development, and that more than ever close off their development prospects and options.

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