The appeal of gene-splice field tests

The U.S. Court of Appeals heard arguments last week in the suit—brought by social activist Jeremy Rifkin of the Foundation on Economic Trends in Washington, D.C.—that has halted plans to field-test genetically engineered organisms. A lower court had ruled that the National Institutes of Health (NIH) is required to prepare an environmental impact statement both for its entire "program" of approving experiments involving the deliberate release of genetically engineered organisms and for each experiment it approves (SN: 5/26/84, p. 325). At the appeal, NIH announced that it would fight only the first, overall aspect of the lower court decisions. "Having gone through an exhaustive review [of data relating to environmental safety], it would be easy to prepare environmental impact statements for individual experiments," says Carol Williams, the attorney for NIH. But Rifkin, claiming a major victory, says, "The government's concession [to supply individual statements] now makes it crystal clear that genetically engineered products are subject to the same set of environmental standards and safeguards as petrochemical products."

However, the University of California—whose plans to conduct a field test with bacteria genetically engineered to prevent frost damage in crops have been enjoined by Rifkin's victory in the lower court—is also appealing the second part of the decision. "We contend that the process followed by NIH, prior to its approval of the experiment, was in compliance with environmental regulations," says William A. Anderson, representing the university. The Court of Appeals is expected to take several months to decide the case—perhaps in time for spring planting.

Rifkin vs. Defense Department

The governor of Utah started proceedings Dec. 14 to join a lawsuit challenging construction plans for a Department of Defense (DOD) facility at Dugway Proving Ground in Utah. Gov. Scott Matheson, Utah Commissioner of Agriculture Steve Gillmor and retired Marine Corps Major General William T. Fairbourne, who lives in Utah, plan to join the suit initiated late in November by Jeremy Rifkin of the Foundation on Economic Trends and retired Navy Rear Admiral Gene La Rocque, now director of the Center for Defense Information. "According to the Defense Department," says a statement by Rifkin's foundation, "the proposed biological warfare laboratory will be designed for experimenting with 'substantial volumes' of 'extremely dangerous' biological agents in order to test and develop an array of defensive biological warfare systems."

Like Rifkin's lawsuit earlier this year that halted plans to field-test genetically engineered bacteria (see above), the lawsuit against DOD is based on the alleged failure of a federal agency to comply with the National Environmental Policy Act (NEPA) by properly assessing environmental risks. The suit does not challenge the "National Security basis" of the proposed biological testing, but, according to the foundation, it argues "if the Department of the Army believes such testing should go forward it should do so in compliance with the law and with full consent of Congress. The DOD is negligent on both counts."

Speaking for the DOD, Major Richard Ziegler says: "As far as the Department [of Defense] is concerned, we are complying strictly with the 1972 convention—the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological [biological] and Toxic Weapons, and on Their Destruction." When asked about Rifkin's charges, Ziegler added, "The matter is in litigation and it has to wend its way through the judicial system before we're free to comment further."

Rifkin plans this week to follow up on his original complaint with a request for a preliminary injunction on the construction at Dugway. "DOD has stopped all work on the aerosol lab," Rifkin says. "Everything is on hold."

Water—the next resource shortage?

There were ample signs of a strategic oil vulnerability developing long before the gasoline lines of the 1970s brought home the "energy crisis." Now, according to a new report by the Washington, D.C.-based Worldwatch Institute, similarly evident signs portend a building water crisis. With water a far more fundamental staple of life, the study suggests that the price of not heeding these early warnings could be far more dire in terms of human costs and suffering than the energy problem has been.

Owing to projected increases in water withdrawals, the study finds that by the year 2000, "North Africa and the Middle East will require virtually all the usable freshwater supplies in these regions. Usage in southern and eastern Europe, as well as central and southern Asia, will also be uncomfortably close to the volume of supplies these regions can safely and reliably tap." Already throughout the southwest United States, regional water needs are beginning to outstrip supplies.

Like most resource issues, the water problem is complex. After all, the annual 110,300 cubic kilometers' (km^3) worth of water that falls over land (excluding Greenland and Antarctica) as rain and snow could theoretically meet the needs of a world population 5 to 10 times larger than now exists. However, two-thirds of each year's water runoff disappears rapidly in floods. And the remaining one-third that makes up the stable source of drinking and irrigation water is not equitably distributed and globally accessible. For example, North and Central America have a per capita water supply of twice the global average, while two-thirds of Africa's nations have an annual runoff that is two-thirds of the global average. But even regional abundances hide local variation. And it's ironic, the study says, that some of the fastest population growth is occurring in many of the world's most water-short regions.

Today, one-quarter of the stable, or useable, water supply is tapped by human withdrawals—70 percent of which goes for crop irrigation, another 25 percent for industrial uses. The study found that growing water pollution could render an equal volume unfit for use by the year 2000.

But the most immediate signs of water-use abuse are falling groundwater tables throughout the world. Tucson, Ariz., is the largest American city completely dependent on groundwater. Because only 35 percent of the city's water use is recharged by rains, water tables have already fallen 50 meters in some areas. In parts of the Dallas-Ft. Worth area, water tables have dropped 120 meters—just since about 1960. Similar declines are occurring throughout the developing world.

Sandra Postel, the study's author, suggests this coming crisis could be headed off with more efficient irrigation, residential-water conservation, injection of surface-collected water into underground aquifers and changes in pricing policies—such as making users pay the replacement cost of each unit of water they consume. Many of the most cost effective options are far less engineering- and capital-intensive than the proposed $41 billion Soviet project to reverse the entire northward flow of the 2,500 km Ob' River to irrigate the southern Soviet Union.

More support for nuclear winter theory

Tentative confirmation that a modest nuclear war could fling enough fine soot into the upper atmosphere to dramatically alter climate—potentially turning summer into a "nuclear winter" (SN: 11/12/83, p. 314)—was offered Dec. 11 by the National Academy of Sciences' research council in a report it prepared at the Defense Department's request. Owing to "profound gaps in the existing knowledge," the study's authors were unable to offer quantitative estimates of atmospheric effects. They therefore recommended giving "high priority" to new research aimed at resolving uncertainties in processes affecting soot production, atmospheric soot removal and dynamics of city-size fires.