For nearly 3 years, the pharmaceutical industry has been campaigning for a change in patent law that would extend patent protection for drugs and pesticides. The industry contends that the change is needed to redress an injustice: whereas patents convey 17 years of exclusive use on most products, the patent life of drugs is shortened by the time consumed by regulatory review. The industry argues that this reform will encourage innovation and help stave off increasing foreign competition, by making available billions of dollars in new revenues that the industry can spend on research. But the bill's principal effect—the enrichment of one of the country's most profitable industries—is also its main political liability.

Just a year ago, legislation that would have achieved industry's objectives was on the brink of victory. A bill had passed unanimously in the Senate and a similar measure was moving easily through the House. But the political situation has changed dramatically in the past few months and now the legislation's future is at best cloudy.

The chief roadblock is in the House. Two key legislators, Representatives Albert Gore, Jr. (D-Tenn.), and Henry Waxman (D-Calif.) strongly oppose the legislation and have been instrumental in blocking its passage. However, Waxman has introduced a bill designed to aid manufacturers of so-called generic drugs. He badly wants the legislation passed and there is speculation that he may work out a compromise with supporters of patent extension to push his own bill through.

The industry's case is being pushed by the Pharmaceutical Manufacturers Association (PMA). A PMA briefing paper states that "lost patent life reduces incentives to invest in drug research, retards the rate of medical innovation, erodes the U.S. competitive position in an important high technology, and raises the cost of medical care at a time when medical expenditures are a critical national problem."

The PMA paper says that the legislation now before Congress is a "simple and direct antidote." The measure would give companies an incentive to put more money into research and develop new and better drugs. The industry notes that it is taking longer and longer to develop a drug and obtain approval by the Food and Drug Administration (FDA). For example, according to PMA figures, drugs approved in 1981 lost an average of 10.2 years of the statutory 17-year patent lives before their first sale. The number of drugs that come on the market and are new compounds has remained stable. The PMA paper says, "It should be a matter of concern that an industry which has quadrupled in size in two decades has not been able to afford to increase innovation at a comparable rate."

The drug industry nearly won last year, but the political winds changed...
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Identical bills, similar to last year's legislation, have been reintroduced in both chambers. They would extend patent protection to drugs and pesticides for a period equivalent to the time the products are filed or registered with the federal government and undergo agency review before approval. The legislation limits the extension to 7 years beyond the patent expiration date.

Fowlkes predicts that the bill will again pass easily in the Senate. According to a staff aide to the Senate judiciary subcommittee on patents, copyrights, and trademarks, the bill may be marked up by the subcommittee some time in November. Again, the biggest hurdle will be in the House where the situation has become very complex.

Although the House bill was introduced in June, a judiciary subcommittee has not yet held hearings on it. Subcommittee chairman Robert Kastenmeier (D-Wis.), who sponsored patent extension legislation last year, is opposed to this year's version of the bill which would allow a greater number of drugs to qualify for the extension. Gore is still fighting the legislation.

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World Model for the Joint Chiefs

The Joint Chiefs of Staff (JCS) are getting a new toy that should make other government agencies green with envy: a computerized global model of political, resource, and social data that represents a step toward catching up with private sector capacities.

The system, called FORECASTS, is in its second year of development, at a cost of $1.2 million. It will be tested for 6 months by the Army Corps of Engineers before the Joint Chiefs get it next year. The primary reason for the acquisition is to help the JCS make their 4-year Joint Long Range Strategic Appraisal, a new exercise, started in 1980, to evaluate global and national trends up to 30 years hence. The services, which do their own appraisals, will also be using the model.

For several years the JCS has had the use of the World Integrated Model (WIM), FORECASTS' predecessor. But the new one goes far beyond WIM, according to Patricia G. Strauch, president of Prospective Decision Models, Inc., the contractor. WIM, which is in use in several other government agencies, has a much smaller data base, it divides the world by multination regions, and contains little information on such critical areas as the environment.

Unlike WIM, which is designed for long-range projections, FORECASTS has three modes of operation: a data base covering the years 1960 to 1980, short-range statistical procedures for extrapolations up to 5 years, and a long-range program which contains complex feedback and interactive capacities for projections up to 30 years in the future.

While most global models divide the world into regions or sectors (such as agriculture), FORECASTS can present data on a national as well as a regional basis. The vastly expanded data base contains information on vital characteristics ranging from land use to international political agreements. There is a new "political stability" module capable of being decoupled if security demands it. The model contains extensive detail on population, including sex, fertility, employment, urban-rural distribution, and migration, as well as social, religious, and linguistic subdivisions.

In recognition of the discontinuities that mark the present and probable future, says Strauch, a fundamental premise of the model is that "the past won't repeat itself." In facilitating economic analysis, for example, designers of the model place reliance on detailed data about human-resource interactions rather than building in traditional and now-dubious assumptions about the causes and effects of inflation or unemployment.

Knowing the capacities of the new system does not answer questions about how it will be used. What sort of questions, for example, is it uniquely equipped to address? Colonel James Edgar of the JCS submits that it would be interesting to know if 20 years ago FORECASTS could have cued analysts in to the emergence of the Middle East as the world's energy fulcrum. It might also be asked whether the model will be used by the military to reinforce prior assumptions, or whether it will result in the introduction of a greater variety of nonmilitary, nonpolitical factors and a keener awareness of global interdependencies into defense analyses. Says Mihajlo Mesarovic of Case Western Reserve University, who developed WIM: "Using strategic planning models is absolutely essential in analysis of long-term policies, but in the hands of people without insight into future options it would be grossly misleading and dangerous to use—like a gun."

It would be interesting to speculate how this capability might alter the relation of the defense establishment to the Central Intelligence Agency and the State Department when it comes to assessing long-range political trends. State, in particular, is deeply attached to traditional ways and, says an official, tends to think of long-range planning as "anything over 6 months." Gerald O. Barney, who headed President Carter's Global 2000 effort, says the department has "very little expertise in the use of models" and little interest in them. Yet, he asserts, they are "ultimately going to have a big impact on the way foreign policy is formulated."

Comprehensive attempts at global modeling, starting with Limits to Growth in 1972, are often associated with "gloom and doom" visions of the world's future (Science, 22 July, p. 341). The White House, for example, has criticized calls for a centralized "foresight" capability as being motivated by an anti-free market, progovernment intervention ideology. Perhaps, then, the most significant contribution of FORECASTS will be to decouple global modeling from ideology and present it as a valuable tool in a world where some mistakes have become too costly to make.—CONSTANCE HOLDEN