

British Out of IIASA, Americans May Stay In

Proponents of continued American participation in the International Institute for Applied Systems Analysis (IIASA) are plugging away at finding an alternative to the U.S. government sponsorship that runs out at the end of the year. They are encouraged by the possibility that the American Academy of Arts and Sciences will agree to replace the National Academy of Sciences (NAS) as the U.S. "national member organization" and are seeking to raise money from industry and foundations to pay the U.S. way.

The Reagan Administration last year decided to discontinue federal funding for IIASA (*Science*, 2 April 1982, p. 35), an East-West think tank established near Vienna in the early 1970's in the early glow of détente. When the withdrawal of government support became likely, an IIASA-U.S. Planning Group was formed in this country by those favoring a continued American presence at the institute. The group set out to secure alternative sources of funding and a replacement for the quasi-public NAS, which is bowing out as national member organization.

Approaches to the American Academy were made. Although those involved in the efforts decline to discuss developments until the academy's council has acted, hopes appear to be high that the academy will consent to become the U.S. member.

Founded in 1790, the American Academy is an honorary society with about 2300 members elected from among scholars and national leaders in the sciences, arts, and humanities. The organization, which is headquartered in Boston, publishes the quarterly *Daedalus* and operates an interdisciplinary study center.

Results of the planning group's efforts to raise funds are also currently under wraps. Here too, however, there seems to be optimism that the campaign, headed by former NASA administrator T. Keith Glennan, will be productive in enlisting support from industry and foundations. Chairman of the planning group is Charles Maechling, Jr., a Washington attorney who negotiated the original U.S. membership in IIASA.

IIASA recently received another blow when Britain's Royal Society confirmed that Britain would withdraw from IIASA at the end of the year. The British departure will not impart as serious a financial jolt as that of the United States. Britain is one of 15 "Class B" IIASA members who contribute about \$350,000 a year each, while the United States and the Soviet Union have each been contributing some \$2.3 million a year to the institute's operating budget of about \$10 million.

The official reason given for the British action was a change in research policy at the Department of Environment which has been the source of funds for IIASA membership. There also were reports that influential members and staff of the Royal Society were critical of IIASA's research plan in particular, and less than enthusiastic about applied systems analysis in general.

IIASA is said to be carrying on with assurances of continued backing from the Soviet Union and other member countries, is cutting administrative overhead and research plans to conform to the reduced budget and, figuratively, leaving the gate open to make it easy for the strays to return to the fold.—**John Walsh**

Using Experience to Calculate Nuclear Risks

A new and provocative estimate* of the risks of nuclear plant accidents came to light in early July, the first such analysis to base its findings on the actual record of a decade of industry performance. Earlier work has relied more on probabilistic calculations than on experience.

The new report, called the Accident Sequence Precursor (ASP) study, was written for the Nuclear Regulatory Commission (NRC) by the consulting firm, Science Applications, Inc. An antinuclear lobby, Critical Mass, released a draft of the report over the 4th of July weekend, citing it as evidence that officials have drastically

increased their estimates of the risk of an accident.

The report's chief finding is that during the 1970's, the chances for having a Three Mile Island accident were one per 1000 years of reactor operation. At Three Mile Island, the fuel core was partially melted. This contrasts with the official risk estimate published by the NRC in 1974, which said that a fuel core meltdown would occur only once in 20,000 years of operation. The second figure comes from the *Reactor Safety Study* (WASH-1400), prepared for the NRC by Norman Rasmussen of MIT.

The comparison suggests that Rasmussen's work underestimated the real risk by a factor of 20. However, one industry spokesman, David Rossin of the Nuclear Safety Analysis Center, points out that WASH-1400 did not try to estimate the risk of the kind of accident that occurred at Three Mile Island. WASH-1400 looked instead at the chances for a total meltdown, a more severe and presumably rarer event. Rossin says it is wrong to compare WASH-1400 with ASP.

One of the reasons ASP was commissioned was that the NRC was criticized in 1978 for giving so much attention to WASH-1400's probabilistic theory when a better source of information—actual operating experience—was available. One review committee said the NRC ought to make a broad survey of nuclear plant operating records and use these to draw up risk estimates based on general experience.

The ASP report attempts to do this. The authors looked through 19,400 "licensee event reports" sent to the NRC between 1969 and 1979. After sifting through them, the authors identified 169 as "precursors of accident sequences," and 52 as "significant events." Drawing on these cases, they calculated the frequency with which certain accident sequences might occur and the frequency with which safety systems would fail. They concluded that severe core damage of the kind seen at Three Mile Island would occur between 1.7 and 4.5 times per 1000 years of reactor operation. Thus, if 1000 reactors were in operation, there would be at least one severe accident a year. At present there are only 74 commercial reactors in the United States.

*"Precursors to Potential Severe Core Damage Accidents: 1969-1979, a Status Report," by J. W. Minarick and C. A. Kukielka, published by the Nuclear Regulatory Commission (NUREG-CR 2497), June 1982.