

ral CO<sub>2</sub> sinks in the treaty. The US State Department recently declared that CO<sub>2</sub> absorbed by forests and agricultural lands could account for as much as half of the country's target reduction under the Kyoto Protocol. The EU is split on the issue and also concerned about the scientific uncertainties in calculating the long-term effect of carbon sinks. For example, one unanswered question raised in Lyons is: How permanent are such carbon sinks since a bad forest fire could put CO<sub>2</sub> back into the atmosphere? Although the US is prepared to make some concessions on forest sinks, it is adamant that carbon sinks be used in calculating emission targets.

The Lyons delegates also failed to come up with a proposed list of joint projects between industrialized countries to reduce emissions. Some countries, notably Russia, have failed to indicate any research or agreements with other countries on reducing greenhouse gases, as the Kyoto Protocol requires.

Disagreements exist over what should happen when a country fails to comply with the Kyoto Protocol: Russia, Japan, and Australia are in the minority in opposing financial penalties for noncompliance. Still, in Lyons, nearly all delegates agreed on a framework that contains both enforcement and facilitative proce-

dures. Consensus even started to form as to how to review information supplied by governments.

Perhaps the most important step taken at Lyons was a tentative agreement between the US and EU on an eligibility criterion for international emissions trading. The final stumbling block is the EU's demand—publicly highlighted by Jürgen Trittin and Michael Meacher, the environmental ministers of Germany and the UK—that the US, Canada, and Japan accept a proposal requiring at least 50% of every country's emission reduction be met through domestic action, not through a carbon trading scheme. Such schemes would allow countries whose CO<sub>2</sub> emissions come in low to sell part of their "quotas" to industrialized countries that aren't meeting their emissions targets. The US, for one, opposes capping emission trading, because the State Department admits that it will not meet its targets without extensive use of "flexible mechanisms."

### A step forward or a step back?

Even if the parties do not finalize and adopt all the rules under discussion at the Hague, there is still COP7 in Marrakesh, Morocco, next year, to try to meet the 2002 target date. There is also a chance that bilateral negotiations and national legislation, such as those being introduced in the UK,

Denmark, Norway, and the Netherlands, which set regulations and technologies suitable for meeting domestic carbon targets, could supersede any mechanisms developed for implementing the Kyoto Protocol.

The outlook for preventing global warming is not encouraging. For example, in the next 20 years, the OECD predicts that the world's energy needs, and hence CO<sub>2</sub> emissions, will increase by 66%. "Unfortunately, science is often overlooked in these governmental meetings," says Weaver. He points out that even if all the countries met their emission targets, it would make only a small dent in ameliorating global warming. "Kyoto is symbolic, as far as climate is concerned, but it is important in as much as it can foster the transition to a non-fossil-fuel based society," he says. Cutajar agrees, "Key countries must start demonstrating real political leadership if we are to ensure that strong and effective action is launched to control greenhouse gas emissions," he says. "The longer we wait to make the transition to low-emissions economies, the greater the damage from climate change will be."

PAUL GUINNESSY

### References

1. M. R. Allen, *et al.* *Nature*, **407**, 617 (2000).

## US State Department Gets a Science Adviser

**N**orman Neureiter thought he really had retired when he left his job as vice president of Texas Instruments Japan back in 1996. The PhD organic chemist, linguist, and Fulbright scholar took early retirement, ending a long, globe-trotting career that blended science, government, and corporate work. He then moved into the "consultant/adviser" stage of life to better focus on projects of personal interest.

Then, in July, came a phone call from the Office of Science and Technology Policy (OSTP)—a place where Neureiter had worked many years earlier. Would he be interested in becoming the first science and technology adviser to the secretary of state? It would be a three-year term and, because it is not a presidential appointment, would have a reasonable chance of surviving the upcoming change in administrations.

After meetings with Frank Loy, the undersecretary for global affairs, and Secretary of State Madeleine

▶ A decade of decline in the role of science at the State Department is apparently ending with the appointment of an organic chemist, with years of international experience, as science adviser to the secretary of state.

Albright, Neureiter, 68, was offered the job.

### Raising awareness

His tasks, put simply, are to raise the awareness within the State Department of the importance of science and technology in foreign policy and to ensure that diplomats have some basic knowledge of science. Neureiter wants them to have easy access to the scientific community when they deal with international aspects of such issues as nuclear nonproliferation, use of outer space, population growth, bioengineered crops, cybersecurity, industrial technologies, and energy resources.

It occurred to Neureiter that,

despite the unexpected nature of the offer, the position was perfect for him. "Look at my résumé," he says, in explaining why he took a job he doesn't need and that comes with no guarantee of longevity. "I've been training for this job for 40 years. No kidding, it's absolutely right on target. If I had to design a job for which I've been as well prepared as anyone in the country ... this is it. I really began to think, 'How can I turn it down?'"

So Neureiter turned to his wife, Georgine, and said, "We're going to enter a new phase."

That "phase" began on 20 September when he was sworn in and Albright welcomed him "to my leadership team." He is a welcome addition that the scientific community believes is long overdue. For more than a decade, scientific literacy had declined at the State Department as science counselors were eliminated at many embassies and resources were focused on international environmental concerns at the expense of other



science activities. And, in 1997, even the job classification that gave science specialists a predictable career path within the department was dropped.



NEUREITER

Albright responded to the concern about the decline by asking the National Research Council (NRC), in April 1998, for a comprehensive study of what the State Department needed to do to make diplomats more aware of science.

By September of that year, an NRC panel offered several recommendations, including the appointment of a science adviser to the secretary of state. The full NRC study was published in October 1999.

The decline of science at the State Department was due largely to cuts in the agency's resources—somewhere around 40% during the past decade—Albright and other officials say.

"Things [at State] seemed to be going not only not well, but in the wrong direction," says John Boright, the executive director of the National Academy of Sciences office of international affairs. "Fewer and fewer of the supposedly scientific positions worldwide were being filled with anybody with serious experience, with any sort of direct relevance," says Boright, who directed the staff that put together the NRC report.

Boright, a PhD particle physicist who describes himself as "lapsed" because of his many years in government, says Neureiter is "a good appointment. He knows the State Department, the White House, the NSF [National Science Foundation], and industry. I have worked with him and he knows the ropes, absolutely."

Neureiter worked in a variety of positions at Texas Instruments from 1973 to 1996, most of them related to international business operations both in Europe and Asia. He worked from 1969 to 1973 as an international affairs assistant with the Office of Science and Technology, as OSTP was called at the time. He helped develop science and technology cooperation programs that President Nixon initiated with the Soviet Union and China. He was a deputy science attaché in the US embassy in West Germany in the mid-1960s and was the first US science attaché in Eastern Europe. Before joining the State Department, he worked in the international affairs office of the NSF and was program

director of the US-Japan Cooperative Science Program created by President Kennedy.

Neureiter obtained his PhD from Northwestern University in 1957, and worked as a research chemist at Humble Oil (now part of Exxon). He did research in butadiene chemistry, organic sulfur compounds, and the development of antioxidant systems for polypropylene. Neureiter has registered 10 patents and written a number of scientific publications on organic reaction mechanisms. In addition to his science background, he reads and speaks German, Russian, Polish, French, Spanish, and Japanese.

### Building a record

Richard Getzinger, a PhD chemical engineer and director for international programs at the American Association for the Advancement of Science, is also pleased with the choice of Neureiter. "We at AAAS have been lobbying [for the position to be filled] for the last two or three years, and this is satisfying," he says.

Despite Neureiter's late arrival, riding into town as the sun sets on the Clinton administration, Getzinger says it was important to get a person in place to "have an opportunity to build a track record in the next few months."

Neureiter says he is "working the

building" at the State Department, talking to all of the division heads in an effort that he hopes will make everyone more aware of science issues. He also wants to learn which units of the department can benefit most from outside scientific advice.

"Priority one, the most important thing I can change in the short term, is to build a bridge to the scientific community," Neureiter says. "I hope to draw on the assistance, advice, and counsel [of the scientific community] quickly and make it available to any unit of [the State Department] that is interested." The initial response to his efforts from scientists and State Department employees has been enthusiastic, he says. "Now we just have to make it all work."

A review of the "science complements" in embassies around the globe is under way, he says, and from that assessment Neureiter will have to determine the right mix of increased science and technology training of foreign service officers and the recruitment of new people with scientific backgrounds.

While Neureiter is dealing with the science deficiencies within the State Department, he says he wants to "show the scientific community that something is definitely happening here in response to their recommendations."

JIM DAWSON

## Pluto Mission Falls Victim to Climbing Costs

Stop all work in support of PKE [Pluto-Kuiper Express] development as currently conceived," came the order from NASA headquarters on 12 September. The agency's associate administrator for space sciences Edward Weiler called for a rethink of the Pluto flyby largely because its estimated cost, taken together with a trip to Jupiter's moon Europa, has more than doubled in two years, to \$1.4 billion. Disappointed planetary scientists wonder whether the public appeal of the search for life plays too big a role in steering NASA.

Given the cost overruns, postponing the Pluto-Kuiper Express in favor of Europa Orbiter "was a done deal," says Weiler. "The choice wasn't made by me. It was made when the outer planets line was made in the budget. Europa has higher scientific potential." Weiler told the Jet Propulsion Laboratory, which oversees both missions, to find a way to get to Pluto—the only unex-

plored planet in our Solar System—by 2020, seven years later than with the planned 2004 launch. Ironically, the delay means missing a cost-saving chance to get to Pluto by swinging off Jupiter's gravity.

The Pluto-Kuiper Express is supposed to map the morphology and makeup of Pluto and its atmosphere, its moon Charon, and other objects in the Kuiper Belt, a disk of comets and debris left over from the formation of the giant planets. "Pluto-Charon is a wonderland—an opportunity to explore everything from chemistry and organics to the origin of planets," says Alan Stern, a planetary scientist at the Southwest Research Institute in Boulder, Colorado. Adds University of Arizona planetary scientist and astrophysicist Jonathan Lunine, "Our understanding of how planetary systems form is being revolutionized, and Pluto is a key piece of the puzzle to know if our system is typical or atypical.