



In Appreciation – Allen V. Kneese

Allen Victor Kneese, 70, a pioneer in environmental economics, died of cancer in mid-March. A senior fellow at RFF, Kneese played a crucial role in developing the economic principles that have become increasingly influential in environmental policy worldwide over the past 40 years.

When he came to RFF in 1961, economists were beginning to conclude that shortages of natural resources would not stop economic growth—and the greater threat was the rising pollution that growth was creating.

People had started “to raise the idea that you have all these waste materials coming along and maybe that’s where the more important problems lie—in those quality problems rather than the quantity problems,” Kneese said in a 1999 interview.

“Allen was the first to integrate in a truly meaningful way in environmental analysis the physical, natural, and social sciences, anticipating by at least 25 years the development of ecological economics,” said Paul Portney, RFF president.

“He was the first to recognize and then model empirically the interrelatedness of air, water, and other forms of pollution. And he was the person who, in the early years of environmental economics, virtually single-handedly kept alive the idea of using economic incentives to encourage environmental improvements—a true giant upon whose shoulders we all stand.”

In 1990, Kneese and John V. Krutilla jointly won the first Volvo Environment Prize. The citation said that they “founded resource and environmental economics as a research discipline” and that they “lead the field in combining the sciences of economics and ecology.”

In a series of books and articles Kneese laid out several crucial ideas.

He showed that economic incentives in the form of pollution fees were more effective than conventional regulation, under which a public agency tries to find each source of pollution and then tells the polluter which technology to use to get down to the allowed standard. He demonstrated that it was possible to calculate the fees, or “green taxes,” that would push pollution down to the standard while leaving it up



to each polluter to find the cheapest and easiest way to do it.

This idea, which ran counter to the American tradition of regulation, encountered stiff resistance for many years. But it won a victory when it was embodied in the 1990 amendments to the Clean Air Act, setting up a system of permit trading for sulfur dioxide, which causes acid rain. Over the past decade, permit trading has reduced the costs of sulfur dioxide compliance far below earlier forecasts.

Kneese made crucial contributions to the methods for designing least-cost paths to reaching water and air quality standards. In an influential study of the lower Delaware River, he and his colleagues put the theory to work and showed that they

could calculate the effluent charges required to reach the water standard at the least cost to the economy. That meant shifting the focus of pollution policy away from policing separate sources to developing systems that could bring maximum social and economic benefits to the whole river basin.

Some of these ideas were picked up more quickly in Europe than in this country. Kneese did a case study of the heavily polluted Ruhr River, which became one of Germany’s earliest and most dramatic examples of environmental cleanup.

“Our research showed that in many instances it was possible to manage water quality—and air quality too—through measures that did not require treatment at the source,” he said in the 1999 interview. “For example, you would have the possibility of several industries and municipalities being put together in such a way that the waste materials cancel each other or were recoverable, or whatever, rather than just trying to treat it and throw it away.”

Unbalanced policy, Kneese pointed out, often meant merely substituting one kind of pollution for another. Tight rules on water pollution alone, to prevent the dumping of waste into streams, could result in the waste being burned instead, increasing air pollution, or thrown into landfills. In his emphasis on treating a river basin as a whole, he developed techniques for dealing with water, air, and land pollution comprehensively.

His Many Contributions

In the 1999 interview, Kneese was asked about his vision for RFF as it approaches its fiftieth anniversary, which will take place



in 2002. He said that he would like to see RFF programs developed that will yield insights into how to benefit humanity. “So much of our work has been on efficiency questions in the past and yet so much of humanity is poor and miserable,” he said. This inequity is hidden in many cases, because the general international statistics look pretty good, he said. “But there are large parts of humanity that benefit hardly at all from the developments that take place in the developed world.”

The United States is not without severe distributional problems, Kneese said. The U.S. economy has become so highly technical in nature “that it offers almost unlimited opportunity for those who are motivated, educated, and can go and make a fine life. But it offers less and less opportunity for the ones that aren’t so motivated

or have not had so many advantages at home where educational opportunities are limited.”

Along with his long-standing commitment to RFF, Kneese also served as the first president of the Association of Environmental and Resource Economists, and was founding editor, with Ralph d’Arge, of the *Journal of Environmental Economics and Management*. With Walter Langbein, he was also the founding editor of the quarterly journal *Water Resources Research*.

In 1962, the year after he joined RFF, he published *Water Pollution: Economic Aspects and Resource Needs*. It was followed by, among other books, *Quality of the Environment*, written with Orris C. Herfindahl in 1965; *Managing Water Quality: Economics, Technology, Institutions*, written with Blair T. Bower in 1968; and *Pollution, Prices, and*

Public Policy, written with Charles C. Schultze in 1975.

Kneese was born on a ranch in Fredericksburg, Texas, a town settled by German liberals fleeing European repression, and he spoke German at home. He went to Southwest Texas State College with no idea what he was going to do, he later recalled, but with a strong interest in nature. A professor who became a mentor turned him toward economics, he said.

He earned a master’s degree from the University of Colorado, and a Ph.D. in 1956 from Indiana University. He taught for two years at the University of New Mexico and was a researcher on the staff of the Federal Reserve Bank of Kansas City for three years before joining RFF.

Allen Kneese—An Extraordinary Scholar, A Generous Mentor, A Valued Friend

RFF recently held a memorial service to honor Allen Kneese, one of the founders of the field of environmental economics and a long-time member of the research staff. Colleagues from a career that spanned several decades came to honor his professional acknowledgements and his generous spirit.

V. Kerry Smith, a former member of the RFF research staff and a professor of economics at North Carolina State University, said that one of Kneese’s important contributions was to locate production in a context, to give it a physical place. In neo-classical economics, no one actually describes how production works or how markets occur, Smith said. “But for Allen, the most important part of production was what the conventional models left out—

energy and materials. In the real world, you can’t ignore the physical realities of the production process.”

Emery Castle, former RFF president and a member of the University Graduate Faculty of Economics at Oregon State University, sent a letter that was read at the service. In it, he said, “Allen collaborated with physicists, lawyers, philosophers, engineers, and sociologists. By doing so, he was able to enrich environmental economics beyond what it would have otherwise been.”

“Allen was a kind person and petty matters did not distract him,” Castle said. “He behaved as though he knew he would be better off if all those around him were as good as they could be and he helped

them become so. In the jargon of economics, he acted as though expansion effects outweighed substitution effects in his professional work. It was a joy to be his colleague.”

Wallace Oates, an RFF visiting scholar and professor of economics at the University of Maryland–College Park, recalled his first meeting with Kneese at an RFF seminar in the late 1960s. The infectious character of Kneese’s intellectual insights and his enthusiasm “taught me that economists have something important to say about the design and implementation of environmental policy,” Oates said. “It was a career-altering moment that started my work in environmental economics.”