fila added. "Both are aware that international cooperation is not a luxury but an essential factor both in preserving the global balance of nature and in reducing the damage to the world's ecosystems."

Robert S. McNamara, president of the World Bank, issued a statement supporting the conservation strategy and saying that the bank is committed to the principle of "sustainable development" through prudent resource management and protection of vital ecological systems. "A climate of economic growth, in the developing and developed nations alike, is absolutely essential if human degradation is to be reduced and ultimately eliminated," McNamara said. "But economic growth on the careless pattern of the past century poses an undeniable threat to the environment and ultimately to the very ecological foundations of development itself."

What practical consequences can be expected from the conservation strategy? Erik P. Eckholm, formerly with the World Watch Institute in Washington and now on the State Department's policy planning staff, offers an assessment that may be as realistic as any. In an interview with *Science*, Eckholm indicated that, while it may be some time before the strategy produces much in the way of visible results, it is nevertheless important because it signifies that now, at last, the international conservation community is pressing its case in a way that emphasizes an effective response to the desperate human needs of the Third World.

"The conservation strategy originated with traditional, old-line conservation groups [such as the World Wildlife Fund] which came out of the elitist Western mould," Eckholm said. "This document," he said, "represents a spreading awareness among members of the conservation community that they must support efforts such as land reform and agricultural development [for the benefit of the rural poor of Third World nations]."

Eckholm said that, at the same time, the governments of developing countries have been becoming increasingly aware that development efforts often end in failure and frustration when ecological systems are ignored and the resource base is abused. The conservation strategy document mentions, for example, what can happen when watershed forests are devastated by logging or misguided land-clearing for agriculture. It says:

> Sedimentation as a result of careless use of watershed forests can cut drastically the economic life of reservoirs, hydroelectric facilities, and irrigation systems. The capacity of India's Nizamsagar reservoir has been more than halved . . . and there is now not enough water to irrigate the 1100 km² of sugarcane and rice for which it was intended—and hence not enough sugarcane to supply local sugar factories. . . .

The strategy document says that, if its objectives are to be achieved, "the behavior of entire societies toward the biosphere must be transformed. . . . A new ethic, embracing plants and animals as well as people, is required for human societies to live in harmony with the natural world on which they depend for survival and well being."

—LUTHER J. CARTER

National Engineering Academy Elects New Members

Courtland D. Perkins, president of the National Academy of Engineering, has announced the election of 82 new members and 8 foreign associates, which brings the NAE's total membership to 1024 and foreign associateship to 81.

Arthur P. Adamson, General Electric Company; Arsham Amirikian, Amirikian Engineering Company; Donald J. Atwood, General Motors Corporation; Philip Barkan, Stanford University; Seymour Baron, Burns and Roe, Inc.; John W. Batchelor, Pittsburgh, Pa.; Wallace B. Behnke, Commonwealth Edison Company; Erich Bloch, IBM Corporation; Vincent S. Boyer, Philadelphia Electric Company; H. Raymond Brannon, Jr., Exxon Production Research Company; Howard Brenner, University of Rochester; Frank A. Cleveland, II, Lockheed Corporation; Esther M. Conwell, Xerox Webster Research Center; William H. Corcoran, California Institute of Technology; Stanley Corrsin, Johns Hopkins University; Eugene E. Covert, Massachusetts Institute of Technology; Cullen M. Crain, Rand Corporation; Douglass D. Crombie, U.S. Department of Commerce; Jose B. Cruz, Jr., University of Illinois, Urbana; Robert G. Dean, University of Delaware; Raymond F. Decker, INCO LIMITED; Leslie C. Dirks, Central Intelligence Agency.

John E. Dolan, American Electric Power Service; Robert A. Duffy, Charles Stark Draper Laboratory, Inc.; Lincoln F. Elkins, Sohio Petroleum Company; Richard S. Frank, Peoria, Illinois; Edgar J. Garbarini, Bechtel Group of Companies; Jacob M. Geist, Air Products and Chemicals, Inc.; Nicholas J. Grant, Massachusetts Institute of Technology; Richard W. Hamming, Naval Postgraduate School; Fred L. Hartley, Union Oil Company of California; Martin C. Hemsworth, General Electric Company; John D. Hoffman, U.S. Department of Commerce; Edward E. Hood, Jr., General Electric Company; John K. Hulm, Westinghouse Electric Corporation; Karl U. Ingard, Massachusetts Institute of Technology; Sheldon E. Isakoff, E. I. du Pont de Nemours & Co., Inc.; Rear Admiral Donald G. Iselin, U.S. Navy; I. Birger Johnson, Schenectady, New York; John W. Kalb, The Ohio Brass Company; George H. Kimmons, Tennessee Valley Authority; Leonard Kleinrock, University of California, Los Angeles; Shiro Kobayashi, University of California, Berkeley.

Henry Kressel, RCA Laboratories; Wesley A. Kuhrt, United Technologies Corporation; Louis Landweber, University of Iowa; Martin Lang, Camp Dresser & McKee, Inc.; Robert A. Laudise, Bell Telephone Laboratories; Griff C. Lee, J. Ray McDermott & Company, Inc.; Tingye Li, Bell Telephone Laboratories; Charles J. McMahon, Jr., University of Pennsylvania; Harry W. Mergler, Case Western Reserve University; Carl L. Monismith, University of California, Berkeley; Allen Newell, Carnegie-Mellon University; Karl H. Norris, U.S. Department of Agriculture; Frederic C. E. Oder, Lockheed Missiles and Space Company, Inc.; James Y. Oldshue, Division General Signal; Karl S. Pister, University of California, Berkeley; Robert C. Reid, Massachusetts Institute of Technology; James R. Rice, Brown University; Herbert H. Richardson, Massachusetts Institute of Technology; Gordon Robeck, U.S. Environmental Protection Agency; Victor H. Rumsey, University of California, San Diego; Jacob W. Schaefer, Bell Telephone Laboratories.

Galen B. Schubauer, Washington, D.C.; Glenn A. Schurman, Chevron Petroleum (U.K.) Ltd.; Beno Sternlicht, Mechanical Technology Inc.; William F. Swiger, Stone & Webster Engineering Corporation; Ernest W. Thiele, Evanston, Illinois; Kenneth L. Thompson, Bell Telephone Laboratories; Monte C. Throdahl, Monsanto Company; Thomas A. Vanderslice, GTE; Gregory S. Vassell, American Electric Power Service Corporation; Hans J. P. von Ohain, Dayton, Ohio; John V. Wehausen, University of California, Berkeley; Major General Jasper A. Welch, U.S. Air Force; Albert R. C. Westwood, Martin Marietta Laboratories; Gerald L. Wilson, Massachusetts Institute of Technology; Holden W. Withington, Boeing Commercial Airplane Company; Bertram Wolfe, General Electric Company; Chia-Shun Yih, University of Michigan, Ann Arbor; Laurence R. Young, Massachusetts Institute of Technology.

Foreign Associates: Victor F. B. de Mello, consulting engineer, São Paulo, Brazil; Frank R. Farmer, United Kingdom Atomic Energy Authority, Lancashire, England; Sir Charles Frank, University of Bristol, Bristol, England; Thomas Kilburn, Manchester University, Lancashire, England; Lucien C. Malavard, University of Paris, Paris, France; Stanley G. Mason, McGill University, Montreal, Canada; John R. A. Pearson, Imperial College of Science and Technology, London, England; Roy E. Rowe, Cement and Concrete Association, Slough, England.