

pollution from gasoline-powered and diesel-powered motor vehicles, and the development of air quality criteria indicating the kind and degree of adverse effects on human health and welfare which may be expected from the presence in the air of specific pollutants or combinations of pollutants in various concentrations. To meet these responsibilities and to take advantage of new developments in technology, the Federal Government must clearly be prepared to increase its investment in air pollution research.

To provide a basis for estimating future needs for Federal activity in the air pollution field, goals have been established in a number of important categories. With respect to research and development efforts, the goals that are most germane are those relating to reduction of pollution from industrial and municipal sources, reduction of motor vehicle pollution, control of sulfur-oxide pollution arising from fuel combustion, and the development of air quality criteria.

For industrial and municipal sources of air pollution, the goal is a 25-percent reduction in emissions by 1975. Industrial operations, including manufacture of chemicals, cement, and pulp and paper, petroleum refining, mining, and metallurgical processes, and municipal activities, primarily refuse disposal, constitute major sources of air pollution in most parts of the country. Emissions from most such sources can be significantly reduced through the application of currently available technical knowledge and equipment; the fact that this technical capability is not being fully utilized is mainly a reflection of the inadequacy of State and local governmental air pollution control programs. Expansion of regulatory control programs is clearly the most important single step that must be taken to achieve the 1975 goal with respect to control of industrial and municipal sources of air pollution. But there can be no doubt that additional research and development will also be required; a need clearly exists for more effective and more economical control techniques. The estimated requirement for Federal spending for research in this area through fiscal year 1970 is \$20 to \$30 million.

For motor vehicle pollution, the goal is a 25-percent reduction in emissions by 1975, a 40-percent reduction by 1985, and the development of an essentially pollution-free automotive propulsion system by 1985. The reasons why increasingly stringent control of emissions from the present-type motor vehicles will be needed in the next 20 years and why other approaches to this problem may be needed in subsequent years were presented in detail in testimony by Under Secretary Cohen and Mr. Stern. Through fiscal 1970, the needed Federal expenditure for research and development in this area is estimated to be \$20 million.

For sulfur-oxide pollution arising from combustion of fossil fuels, the goal is to establish by 1970 the technical and economic feasibility of various engineering control methods and, in the meantime, seek the application of available measures, e.g., greater use of low-sulfur fuels, for preventing further worsening of this problem in urban areas where it is already very serious. This problem was discussed in some detail in the prepared statements by Under Secretary Cohen and Mr. Stern. For the period 1966-70, the needed Federal expenditure is estimated to be \$25 million.