How many small towns across the country have allowed their prime industry to continue to pollute the rivers and the air for fear that attempts to regulate may stimulate the plant to move? How many of these towns do not have sufficient funds to construct a modern, efficient sewage treatment plant? Instead of air pollution devices—or safety features—the automobile industry has offered an unending and amazing assortment of gimmicks—from blinding chrome to stereo phonographs—to catch the eye of the buying public.

These are the reasons why Federal action is unavoidable if we desire to achieve the goal the President has outlined.

It has often been said that our technology is adequate to the problem, if only it were applied. Although this is not entirely accurate, there is much to this statement. For example, no technical advances are needed for alleviating pollution from farm animal wastes, particulate materials in the air and sewage effluents—only standards and regulations, controls and devices. Pittsburgh's battle against air pollution is justly renowned. By placing controls on soot and restricting the use of high-sulfur fuels, pollution in that city was reduced by 67 percent in 2 years.

Nonetheless, it would be foolish and shortsighted to say our technology is adequate to our needs. Development of feasible technology has been hindered by some important factors which we might consider at this point. First, it has been shown that there is not sufficient communication of the knowledge we do have—particularly between the research scientist and the engineer. More work is needed in both basic and applied research but the work of the scientist and engineer must interact in order to stimulate progress on both ends.

We cannot overlook the problems of cost and market for developing technology. Without a requirement to do so, without a clear profit incentive, industries and municipalities have not pressed for improved equipment; thus there has been no market for such hardware. Conversely if these considerations were reversed, I have little doubt that we would see a competitive development of new, effective, low-cost equipment for pollution abatement.

At this point, the most serious problem in my home State of California is air pollution. A conservative estimate is that, across the Nation, damage to crops, deterioration of buildings, bridges, and machines runs over $11 billion a year. Each year these pollutants are released into the air: 65 million tons of carbon monoxide, 23 million tons of sulfur oxides, 15 million tons of hydrocarbons, 12 million tons of other matter. These pollutants may be transformed by a chemical process, such as oxidation; or they may blow away or fall to the ground. The ventilating capacity of the local area can only handle so much and in some areas, the geographic and meteorological problems, such as inversion, cause even greater difficulty.

Much work remains ahead of us in both research and technology. We need more research into the effects of longtime exposure in order to establish meaningful standards for control. Our knowledge of the interrelationship and secondary effects of various pollutants is not sufficient.

Clearly, two of our most serious problems are the automobile and oxides of sulfur. Incomplete combustion in motor vehicles is a major problem in every metropolitan area in our Nation. The national