Control measures are related to land management practices which may contribute to pollution control but are most frequently associated with improved agricultural methods.

Sedimentation: Sediment produced by soil erosion caused by land runoff from agricultural practices or from removal of cover on watersheds is a highly significant cause of pollution. Control of pollution from these sources is dependent on land management and not usually directly linked with pollution control expenditures.

In any event, the amounts of Federal funds needed for an optimum pollution control will be dependent upon the nature and extent of Federal financial participation, as indicated above.

Question 6: Your statement suggests that many present water pollution problems can be alleviated by the application of existing technology and discusses the use of available knowledge to control pollution. In addition to alleviating and controlling pollution, are there any research programs aimed at preventing or eliminating pollution of water resources?

Answer: Let me reiterate the fact that much can be accomplished in water pollution control in this country through the increased use of existing waste treatment and control technology. Referring to figure 6 (see p. 743), for example, it can be seen that the nationwide load of BOD pollution from municipal sources alone could be reduced by some 40 percent from the present level through the application of conventional primary-secondary treatment to all municipal discharges. The committee has, of course, already recognized the looming inadequacy of existing technology (as shown below, BOD discharges will eventually inexorably increase due to expanding population despite the universal application of the most efficient waste treatment processes now available). We, too, have recognized this impending need and, in fact, essentially our entire research program is aimed at "preventing or eliminating pollution." Our Advanced Waste Treatment Branch, for example, has as its ultimate goal the development of "total pollution control" systems capable of completely eliminating pollution from confined, treatable sources such as municipal and industrial outfalls. Such systems would, as a corollary benefit, directly augment agricultural, industrial, recreational, and even municipal supplies through provision of purified water suitable for direct reuse. Our newly formed Pollution Control Technology Branch is directing its efforts toward the discovery and development of techniques to reduce pollution, on a source-by-source basis, to any degree necessary. We are, wherever possible, examining control-at-the-source principles to eliminate pollution before it is created; acid mine drainage abatement in particular is receiving attention of this sort. We also are investigating methods of environmental treatment to reoxygenate water or to eliminate nuisance algae growths, for example.

Questions 7 and 10: 7. Witnesses before this committee are talking in terms of spending $30 billion to separate storm and sanitary sewers, $20 billion to complete municipal sewage treatment and collection works, and an undetermined but substantial amount for treatment of industrial wastes. All told this would amount to from $70 to $100 billion. In your statement you pointed out that the techniques presently in use were designed to deal with the problems in existence 40 to 50 years ago when pollution was much less critical. Are these tech-