

beyond those associated with public health alone. For example, consider the limitations imposed on chloride-ion (salt) levels in waters to be used for drinking water. Here a concentration value up to 250 parts per million would be acceptable so far as potability is concerned. But from the standpoint of suitability for industrial purposes a water supply with a concentration of salt exceeding even 100 parts per million may lead to accelerated corrosion of piping and equipment and be rejected for steam generation. Thus control of salt content referenced only to consideration of drinking water standards could be criticized for not giving cognizance to the economic consequences of industrial-water suitability.

Another example relates to the control of discharges containing certain metallic ions, such as copper or zinc. If limitations were drafted solely with regard to public health considerations, it is not unlikely that aquatic organisms and fish would be harmed long before the permitted concentrations in the water should present a potential hazard to humans.

Without deemphasizing its public health connotations, the fact is that pollution control may be more favorably administered under arrangements that emphasize evaluation of the impact and significance of all aspects of water quality variations. This concept has been gaining acceptance in State pollution-control practice. At the present time at least 20 States have established independent agencies outside of their health departments for administration of comprehensive control programs; 10 others have created specific agencies for this purpose although they are linked organizationally with the health department.

Similar motivation must be attributed to the 1965 amendments to the Federal Water Pollution Control Act which, among other things, transferred administrative authority for execution of this function from the Public Health Service to a new and separate agency in the Department of Health, Education, and Welfare.¹

While these changes provide administrative recognition to the impact and significance of pollution control in the social consciousness and political fabric of the Nation, much remains to be done to convert concepts into practice.

The term "water quality management" has been advanced as a more precise and positive description of the goal of pollution-control practice. But notions of what it should encompass and how it might be implemented have lacked definition and structure. Equally elusive has been an understanding of how economic analysis and optimization techniques might be applied in the design of comprehensive waste-management systems.

Meantime, it should be noted that a major objective in the 1963 amendment to the Federal Water Pollution Control Act is the establishment of quality "standards" on all interstate rivers. Among other things, this would seem to reflect the assumption that an adequate basis exists for an evaluation of benefit-cost relationships in setting such standards. Such a presumption has no basis in fact. Indeed, it would appear that even the scientific basis for standard setting is inadequate because in 1963 Congress was persuaded to

¹In 1966, many of these functions have been transferred to the Department of the Interior.