

tional 1,694 cities and towns with existing treatment plants require new or enlarged facilities because of obsolescence, insufficient treatment or capacity. These communities presently discharge inadequately treated wastes from a population of 24.6 million.

While unsewered towns are not usually major sources of pollution, they frequently experience serious ground water pollution and other public health problems because of individual disposal of sewage. The conference reports 2,661 unsewered communities which require sewer systems and sewage treatment plants for a population of 6.1 million.

The estimated cost of the present backlog of 5,640 needed projects is \$2.6 billion for treatment plants, interceptors, outfall sewers, and other ancillary works. This survey includes only those municipalities with treatment needs on January 1, 1966. This survey does not anticipate the upgrading of treatment that may be required at any future date. It should also be noted that there are a number of other municipalities that already have adequate treatment but need to extend their interceptors to serve new areas. This additional group will increase the size of the backlog, but we do not have accurate estimates of the magnitude of this need. It is generally agreed that this study of the backlog of needed facilities is very conservative and that it represents the minimum need. There are no firm figures, however, to indicate the size of the full need.

The population served by sewer systems in the United States increased from 98.4 million in 1956 to 122.4 million in 1962—a 24-percent increase in 6 years. The urban population increased from 96.5 million in 1950 to 125.3 million in 1960—an increase of 30 percent for 10 years. Municipal waste treatment needs for the expanding population have been estimated by the extension of the present (1966) sewered population of 138 million through 1980 using the series B population growth estimate of the Bureau of the Census. Future estimates of population served by sewer systems are as follows:

1970.....	154, 000, 000
1975.....	171, 000, 000
1980.....	190, 000, 000

The cost of providing the waste treatment works needed to serve the increasing population has been estimated on the basis of these population projections and a per capita construction cost of \$39.69 for secondary treatment.

The municipal waste treatment works currently in operation will eventually have to be replaced because of obsolescence. For the purpose of estimating annual replacement needs, we have assumed an average effective life of 25 years for treatment plants and 50 years for interceptor and outfall sewers. The cost of replacing the treatment plants reported in the 1962 inventory has been estimated at \$3 billion and related ancillary works at \$2.6 billion. Annual needs to replace obsolete treatment plants has been estimated at 4 percent of the replacement value of treatment plants and 2 percent of ancillary works.

Annual construction rates required to eliminate the backlog of needed municipal waste treatment works and provide for continuing obsolescence and population growth within specified periods of time have been estimated in terms of today's construction cost. The