

sources that are located greater distances away, or provide more extensive treatment for polluted sources, both of which will result in increased per capita costs.

(b) Depreciation

To offset depreciation and obsolescence, it is estimated that the industry should spend at an annual rate of 1.5 percent of its current replacement value. This amounts to \$630 million in 1966 based on a replacement value of \$48.5 billion. The annual expenditure will rise to more than \$1 billion in 1975, assuming that population growth needs are met.

TABLE 17.—*Capital requirements of the water utility industry, 1966-75*¹

Item	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
U.S. population (millions).....	195	198	201	204	207	210	213	216	219	222
Population served by public water systems (millions).....	157	159.5	162	164.5	167	169.5	172	174.5	177	179.5
Per capita investment to serve population increase (dollars).....	310	320	330	340	350	360	370	380	390	400
Total annual investment to serve population increase (millions of dollars).....	775	800	825	850	875	900	925	950	975	1,000
Replacement value of systems (billions of dollars).....	48.5	51	53.5	56	58.5	61	63.5	66.5	69	72
Annual depreciation and obsolescence ² (millions of dollars).....	730	765	800	840	875	915	950	995	1,030	1,080
Annual cost of correcting deficiencies ³ (millions of dollars).....	560	575	595	610	630	650	670	690	710	730
Total annual expenditure (millions of dollars).....	2,070	2,140	2,220	2,300	2,380	2,470	2,550	2,640	2,720	2,810

¹ Figures denote population at beginning of year; an annual increase of 3,000,000 is assumed, of which 2,500,000 will be served by public water supplies.

² Estimated at 1.5 percent of replacement value.

³ Based on studies of Picton and Faust and on the assumption that deficiencies will be corrected over a 15-year period.

Investor-owned and some municipally owned utilities provide funds for at least part of this type of expenditure by accruing depreciation reserves from water sales revenues.

(c) Deficiencies

R. J. Faust¹ estimated in 1960 that it would take \$1.9 billion to improve the quality of the water delivered by public water systems. He was referring to the need for many utilities to go beyond the production of a safe water by providing treatment to remedy objectionable characteristics, including tastes, odors, hardness, and corrosiveness.

W. Picton² in 1962 reported that many water systems lacked sufficient capacity to meet the water demands of their consumers under all conditions. He estimated that the cost to correct system deficiencies was \$5,157 million (in 1960 dollars).

Although the annual investment in public water systems has increased steadily since the above-cited studies were made, the quality and capacity problems have not been corrected. Lack of adequate system capacity continues to show up in various parts of the country at different times, as, for example, in the Northeast during the

¹ Faust, R. J. "Challenges in the Water Industry." *Willing Water*, 4:7:3 (July 1960).

² Picton, W. L. "Construction Requirements for Water and Sewerage Works, 1962-70." *Construction Review* (September 1962).