

1961-66 drought. In this instance, a survey showed that 129 of 351 water utilities that answered the questionnaire restricted water service during 1964 because of inadequate capacity in source, transmission, treatment, or distribution facilities.

Because a recent analysis of utility deficiencies is not available, the estimates of Faust and Picton have been employed to indicate the investment required during 1966-75 to eliminate the industry's construction backlog. Their cost estimates have been combined, converted to the 1965 price level, and spread over a 15-year period. To account for rising construction prices, it is assumed that the cost to correct deficiencies will increase 3 percent per year.

2. CAPITAL OUTLAY

On the basis of past performance, it is highly unlikely that the water industry will spend \$2 billion in 1966 for construction. A realistic estimate would place the total expenditure at \$1.3 to \$1.5 billion, or \$500 to \$700 million short of the desired level.

The industry has the resources, however, to achieve a higher level of plant investment and to overcome rising costs. By raising water rates, it can obtain the revenue necessary to finance the projected programs.

It is expected that Federal assistance programs resulting from legislation passed in 1965 will have a prominent part in water utility financing during the next decade.

(a) *Water Rates*

Rate increases have been occurring at the rate of 1 in each 7 utilities in any given year according to an AWWA survey in 1960. Within the 4 years prior to the survey 55 percent of those reporting had had rate increases, and within the 10 years before the survey, 90 percent had raised their rates. A number of rate schedules, however, had been in effect for more than 20 years. Rate increases according to the survey commonly fall in the range of 10 to 35 percent.

A brief review of the history of rate increases since the end of World War II shows that rates and, consequently, water sales revenue rose only slightly during 1945-50, while construction, operation, and maintenance costs increased sharply. As a result, many utilities were unable to finance expansion programs. During 1950-55 some of this lost ground was regained, and during 1955-60 rates improved generally, leaving water utilities in a much healthier financial position. Further increases are required, however, to keep pace with rising costs and to finance improvements.

Water rates traditionally have been kept too low. The average customer pays considerably less for water service than for other utility services, as shown in figure 5, which compares the annual revenue per customer of electric, gas, telephone, and water utilities. The chart, representative of a limited number of utilities located principally in the Midwest, shows that during the 1952-63 period average water utility revenue per customer rose from \$40 to \$71; electric, \$155 to \$254; gas \$124 to \$209; and telephone, \$131 to \$218.