

It is estimated that in 1956 the capital investments amounted to \$35 to \$50 million while in 1965 they may have reached a rate as high as \$145 to \$180 million per annum. Furthermore, surveys of selected cities indicate that capital expenditures (including debt service and new investments) amount to about 10 to 15 percent of the total refuse removal cost. Thus, if the total annual refuse removal cost is estimated at \$2.5 billion, total capital expenditures would amount to \$250 to \$375 million per year. Deducting about \$120 million for debt service consequently would suggest that current capital investments range between \$130 to \$255 million per annum. Therefore, it is reasonable to conclude that the current capital investment in the refuse collection and disposal field amounts to approximately \$170 million per year.

Breakdown of Capital Outlays by Investor

All capital outlays, during the 1956-65 decade, for the establishment of refuse disposal facilities were made by local governments or proprietary, profitmaking organizations. It is estimated that local governments expended about 70 to 75 percent of the total amount and private organizations the remaining 25 to 30 percent. Expenditures by local governments at 72 percent of the total are estimated to include \$170 to \$222 million for incinerators, \$70 to \$93 million for sanitary landfills and about \$280 to \$370 million for collection equipment and maintenance and storage facilities.

2. SOURCES OF FINANCING FOR CAPITAL OUTLAYS

The sources of financing for these capital outlays include appropriations from tax sources, tax exempt municipal bonds, borrowings from banks, and private venture capital.

It is assumed that almost all incinerators (99 percent or \$170 to \$222 million) were financed through tax exempt municipal bonds while almost all of the remaining municipal investments in equipment, landfills, etc. (90 percent or \$315 to \$415 million) were financed by appropriations from tax revenues or service charges. Thus, about 43.5 percent of the total capital investments were financed by appropriations from general tax revenues and service charges and about 28.5 percent by municipal bonds. The remaining 28 percent is estimated to have been financed mainly by private, profitmaking organizations through borrowings from banks and by owner-capital.

D. NEEDS AND PROSPECTIVE CAPITAL OUTLAYS

Industrial and technological changes plus an increase in living standards are resulting in the production of ever-increasing quantities of refuse, per person. This increase, coupled with the anticipated population growth, results in staggering amounts of solid wastes that must be regularly collected, transported and disposed of.

1. THE ESTIMATED CAPITAL REQUIREMENTS FOR REFUSE COLLECTION AND DISPOSAL FACILITIES DURING THE 1966-75 DECADE

Conditioned upon the present situation, the capital requirements for noncaptive refuse collection and disposal facilities during the 1966-75 decade are estimated to be at least \$2.42 billion in 1965 dollars.