

Small municipalities and sewer districts often fail to process wastes at all, or treat them only inadequately. Many lack the resources to finance long outfall lines to transport their sewage and effluents to distant points for safe disposal. As a result, water supplies and recreational areas are contaminated by raw or inadequately treated wastes. The lack of coordination also affects resource utilization across local boundaries. Depletion of the ground water reserves because of withdrawals in excess of recharge by separate agencies tapping the water table is a common problem in suburban areas dependent on individual or community well systems.

Another product of fragmentation is the variation found in service and price levels within a single metropolitan area. In Sacramento, for example, the city provides excellent water service to its residents at relatively low cost. In the suburban areas, costly private wells, less effective treatment facilities, and inadequate distribution give the suburbanite lower quality water at higher prices. In Miami, where water has been supplied by 6 municipalities and distributed by 15, the higher administrative and operating costs resulting from this dispersion of responsibility have produced up to 75 percent variation in retail rates for water from the same source. Fragmentation also increases developmental and operating costs. Small systems rapidly become obsolete, particularly in areas where development is not complete when the initial facility is constructed.

Inadequate planning also leads to duplication of facilities. In the Seattle area, a suburban water district spent \$1 million for a filtration plant to treat the polluted waters of Lake Washington. Shortly thereafter Seattle spent \$1,950,000 to construct a pipeline to supply virgin water from the Cedar River in the Cascades to some suburbs adjacent to the water district. This new pipeline was large enough to meet the needs of the water district which had just invested in the treatment facility for inferior water.

Fragmentation also prevents the sharing of facilities in many areas. In the Pittsburgh area, only 13 of 33 water supply systems have connections with at least one other supplier to meet emergencies and peak hour demands. Similar problems exist in suburban northern New Jersey, where independent municipal, district, and private water systems frequently are not connected, because of the costs involved in making connections or because of cost differentials in the water itself which make interchange unattractive.

THE SUBURBS: THE FAILURE OF INDIVIDUAL SYSTEMS

Without question, the suburbs are the critical aspect of the metropolitan water problem. The lag in investment is concentrated in the suburbs. Except for those metropolitan areas where there are a number of large cities with independent water or sewage systems, fragmentation is almost exclusively a suburban problem, since core cities usually have centralized utility systems.

Suburban water and sewage problems in most metropolitan areas are of postwar origin. Prior to World War II, suburban growth was comparatively slow and orderly. New population and industry usually were served with extensions of city water and sewerage. Reliance on these utilities kept new developments close to areas already