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FEBRUARY 13, 1979

The Honorable Ronald Bo Ginn
Chairman, Subcommittee on
Investigations and Review
Committee on Public Works
and Transportation
House of Representatives

HJE3103



Dear Mr. Chairman:

In September 1976, we testified before the Subcommittee on Investigations and Review, Committee on Public Works and Transportation, concerning the water pollution abatement project in Suffolk County, Long Island. Following those hearings, the former Chairman of the committee raised several questions which required additional audit work. Responses to those questions were provided over the last 2 years through briefings to the subcommittee staff, testimony before the subcommittee, and a report entitled "Questions Continue As To Prices In Contracting For Architectural Engineering Services Under The Environmental Protection Agency Construction Grants Program," CED 78-94, June 6, 1978.

This letter will complete the work requested and addresses the Chairman's point that we analyze the impact that the high cost of constructing waste treatment projects is having on individual users, expressed on a per household basis. ~~This review was to~~ consider capital construction costs for eligible and ineligible items, amortization of interest and other carrying charges, operation and maintenance costs, charges for debt service and deficits, and hookup and connection fees. ~~we would~~

We performed our work at the Environmental Protection Agency headquarters in Washington, D.C., and at Agency regional offices in Atlanta, New York, and San Francisco. We talked with State officials in Alabama, Arizona, California, Florida, Georgia, Hawaii, Nevada, New York, and New Jersey, and we contacted local officials in 25 communities in those States, except Arizona.

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The 25 communities we visited included small and large municipalities and sewer districts which we selected from Agency listings of active grants. In selecting the communities, we emphasized projects in the advanced construction stages, assuming that data available with respect to annual user charges would be most reliable.

We also talked with representatives from the Farmers Home Administration, the Department of Housing and Urban Development, the Economic Development Administration, and reviewed selected studies in the subject area, including those performed by the National Commission on Water Quality.

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A wastewater treatment system consists of collection, treatment, and disposal components. Pipes leading from homes and other buildings carry wastewater to lateral sewers, which collect domestic, commercial, and industrial sewage. Interceptor sewers then convey the wastewater to a treatment plant. The treated wastewater is usually discharged to a nearby body of water and the solid matter removed by the treatment process--sewage sludge--is disposed of separately.

We found that it is expensive to construct, finance, operate, and maintain a conventional wastewater treatment system, and as the costs of such systems increase in absolute terms so do the homeowner's costs. The impact of these costs is not easily measured since there is no agreement on when sewer service costs become "too much" for a homeowner to pay.

The total cost of a sewer system, as well as the homeowner's share of the cost, is affected by many variables, including

- prices when construction was undertaken and the rate of inflation during construction,
- the topography of the area in which the system is located,
- the system's size including the degree to which design capacity allows for future population growth,
- the level of wastewater treatment provided, and

--interest rates charged at the time financing is arranged.)

Generally, we found that homeowners in small communities pay higher sewer use charges than homeowners in large communities. Again, various factors account for this, including:

- Many small communities are building complete systems, including collection facilities, as opposed to just upgrading an existing system.
- Small communities cannot benefit from economies of scale to the extent large communities can.
- The cost per household for collection sewers is higher for small communities because they are less densely populated and homes are built further apart.

No criteria exists to accurately measure the relative financial impact of sewer service costs on the homeowners. One Environmental Protection Agency study, however, suggested that annual user charges exceeding 2 percent of a household's income are "too much" and may degrade the household's quality of life.

Analysis of 25 projects confirmed that construction and user costs vary widely

Construction costs

We selected 25 projects ranging in cost from \$248,000 to \$1.3 billion, excluding operation and maintenance charges and hookup and connection fees, for analysis. We calculated a per household project cost, on the basis of the number of households in the project area. Commercial and industrial firms were excluded from the calculation. The per household cost ranged from \$837 for expanding and upgrading an existing treatment plant in Central Contra Costa, California, to \$17,700 for constructing a new collection system in Mendocino City, California.

The Central Contra Costa project which had the lowest per household cost, served the community with the highest annual family income (\$18,300); while the Mendocino City project which had the highest per household cost, served the community with the third lowest family income (\$4,500).

The per household cost calculation, however, does not accurately represent the actual cost to the users because a large share of the project cost is borne by the Federal Government (Environmental Protection Agency) and the States. The actual users--households and commercial and industrial firms--pay the local costs.

Local communities generally bear most of a project's total cost. For the 25 projects we reviewed, the local share was about 57 percent of the project costs, the Federal share was about 37 percent, and the State's share was about 6 percent. The major contributor to high local cost is the significant financing charges a community pays on the money they borrowed to pay their share of the project.

Most communities had no difficulty obtaining financing. They floated bonds, borrowed from the city general funds, or borrowed from banks. One grantee--the Mindon-Gardnerville Sanitation District in Nevada--planned ahead by establishing user charges at a level to create a reserve to cover the local share of a project that it knew would be needed in the future.

Another community, however--Adel, Georgia--was unable to raise the local share. This community had only about \$150,000 of the required \$400,000 local share. The city's business manager told us that the city could not afford to sell more bonds and he did not know where the additional \$250,000 could be obtained.

User charges

Estimated annual user charges for the 25 projects reviewed ranged from \$48 to \$230. Eighty-four percent anticipated annual user charges of \$200 or less.

The communities served by 13 of the 25 projects had populations of less than 10,000 and those served by the other 12 projects had populations exceeding 10,000. Of the 25 projects, 14 involved constructing new wastewater treatment systems and 11 involved upgrading existing systems. The range of annual user charges per household, excluding hookup and connection fees, was \$62 to \$230 in communities building new systems and \$48 to \$150 in communities upgrading existing systems.

Family income data was available or estimates were obtained from local officials for all of the communities we visited. Based on the data, the annual user charges ranged from .5 to 5.1 percent of the median family income in those communities. In only two communities, one in California and one in Georgia, did the annual user charge exceed 2.0 percent of median family income.

The Georgia community, where a \$144 projected annual user charge represented 5.1 percent of family income, is an economically depressed area where the estimated yearly median family income is only \$2,800. Officials of the California community, where the proposed annual user charge represented 4.7 percent of estimated family income, stated that project design and site location had changed frequently, thus increasing costs. They also told us that the county has (1) high unemployment, (2) many individuals on fixed incomes, and (3) a high concentration of summer residents only, which affected the size of the system required.

In the Southwest Sewer District of Suffolk County, New York, the estimated annual user charge was \$230 per household, the highest of all 25 projects reviewed, and represented 1.9 percent of median family income. It would have been even higher had the county not pledged part of the countywide sales tax revenues to offset the local share of the project.

Hookup and connection fees are considered high

Hookup and connection fees are the most costly elements to the homeowner. These fees can exceed \$1,000 and the homeowner usually pays them in a lump sum.

When a new sewer system is constructed or a new home is built in an existing system's service area, the homeowner must pay for installing the sewer line from his residence to the curb line. This cost is usually referred to as a hookup fee. In some cases, he must also pay the cost of installing the sewer line from the curb to the lateral sewer, which extends down the center of the street and of the lateral sewer extending in front of his home. This cost is referred to as a connection fee. Connection fees may also include the cost of inspection and meters.

For the 14 communities in our sample which were constructing new systems, estimated hookup costs ranged from \$200 to \$1,000. Estimated connection fees ranged from \$20 to \$1,700, although four communities informed us that they did not plan to bill homeowners directly for the connection fees. The hookup fee, to a great extent, depends on how far the home is from the curb line, since the fee is based primarily on the number of feet of pipe that has to be installed. The homeowner may pay the connection fee in a lump sum or the municipality may pay it and subsequently bill the homeowner for it over an extended period, as part of the annual user charge.

If connection fees are paid as part of the annual user charge, the annual charge would tend to be higher and the connection fees lower or nonexistent. For example, in Suffolk County and Orange County, New York, where annual user charges were estimated at over \$200, connection fees were relatively low--\$38 and \$20, respectively. Conversely, communities with high connection fees may have low annual user charges. For example, for the 11 communities in our sample which were improving their wastewater treatment systems, annual costs were \$150 or less, but six of the communities anticipated connection fees greater than \$500. Of the 11 communities, Contra Costa, California, estimated the highest connection fees--more than \$1,700.

Environmental Protection Agency and State officials believe few communities encountered major problems paying their share of project costs

Environmental Protection Agency and State officials we contacted generally agreed that to date most communities currently participating in the construction grants program are not experiencing major problems in financing their share of wastewater treatment costs. One official believed this was true because State priority systems have favored large communities which have a broader base for financing projects. In the future more small communities will reach the top of State priority lists and have their projects approved for funding. These communities may experience financing problems.

Georgia officials identified 20 communities planning systems which they believe will encounter financial problems when construction begins. Most of these communities are

economically depressed, and three have outstanding indebtedness on prior waste treatment facilities. We were told that local industry in four of these communities has indicated that they would leave the area if sewage rates were increased substantially.

Environmental Protection Agency region II officials stated that the requirements of Public Law 92-500 did not impose an excessive financial burden on homeowners. They believed that each community, along with its consulting engineer, should decide on the best method of abating its water pollution problems within its financial limitations. New Jersey and New York State officials concurred.

Nevada officials said that communities in their State were not experiencing financial difficulties in paying the local share of project costs, due to the availability of Federal aid and the simplicity of project designs. Thirty-three of 40 Nevada projects were the less expensive lagoon systems.

Environmental Protection Agency
requires that costs to homeowners
be calculated early in the grant process

Effective January 1977, the Environmental Protection Agency requires that an estimate of costs to the individual user or taxpayer be presented in the proposed water pollution control project's facility plan and be disclosed during public hearings on the plan. Previously, user charges were not estimated until the project was 80 percent complete.

The Agency's policy implementing the regulations also require that the facility plan include the following cost estimates:

- Total capital costs, including a breakdown of eligible and ineligible costs and the Federal, State, local, and industrial share of the costs.
- Expected method of financing the local share and annual debt service charges or taxes.
- Operation and maintenance costs, and the local and industrial share of treatment costs.

--Monthly charges to the typical residential customer and estimated hookup and connection costs.

To supplement the above requirements, the Deputy Assistant Administrator for Water Program Operations prepared a draft program requirements memorandum which was to be circulated to Agency regions in November 1978 for review and comment. The memorandum states in part that projects designed to achieve treatment levels "more stringent than secondary" 1/ must be evaluated for their financial impact on the community. For purposes of the memorandum, a project is to be considered high cost when the debt service and operation and maintenance portions of a domestic user's average annual cost exceed the following percentages of median household income

--1.50 percent when the median income is under \$6,000,

--2.00 percent when the median income is \$6,000 to 10,000, and

--2.50 percent when the median income is over \$10,000.

If the review shows that a project is high cost, the region is to determine what elements of the project are responsible; that is, is it the treatment processes selected or are other factors in the physical setting causing excessive construction or operation costs? Once the responsible high cost elements are determined, the Agency region is to work with the grantee and the State to revise the facility plan, redesign the project to reduce the costs, or obtain financial assistance from other Federal, State, or local sources.

Agency officials stated that although the draft requirements memorandum in its present form only provides for those projects requiring treatment "more stringent than secondary," it will be revised in its final form to cover all facility plan proposals.

1/ There are three basic treatment levels--primary, secondary, and advanced. Each treatment level removes increased amounts of organic and inorganic matter.

The Agency believes that these procedures will increase public participation and favor careful consideration of the least costly alternatives.

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/ We found that while the Federal Government and some States pay part of the construction costs, local governments must still obtain funds for a major share of project costs./

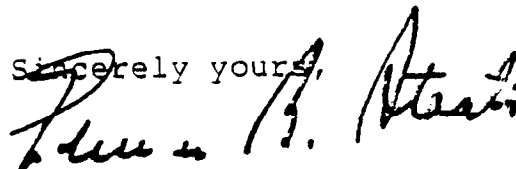
/ Our review disclosed no strong homeowner opposition to the level of annual user charges. Federal and State officials we contacted believed that to date, few communities are currently encountering serious problems financing the local share of project costs. They believed, however, that the situation could change in the future, as more small communities reach the construction phase of their projects.

We believe that while the Environmental Protection Agency, in its draft program requirements memorandum, is taking a step in the right direction to determine the least costly alternatives for projects designed to achieve treatment levels "more stringent than secondary," this criteria should be applied to all waste treatment projects. Agency officials told us that when the draft program requirements memorandum becomes final, this review procedure will be applied to all facility plan proposals.

We will continue to monitor the implementation of the draft program requirements memorandum.

Copies of this report are being sent to the Chairman, Senate Committee on the Environment and Public Works; Chairman, House Committee on Public Works and Transportation; and the Administrator, Environmental Protection Agency. Copies will also be made available to other interested parties who request them.

Sincerely yours,



Comptroller General
of the United States