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RESTRUCTURING AMERICA'S WATER INDUSTRY:

Comparing Investor-Owned and Government Water Systems

by

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EXECUTIVE SUMMARY

Who should supply consumers with water This study compares the performance of investor-owned water companies with government-owned water companies in California to gauge the potential benefits of restructuring the industry, focusing on tax subsidization, the cost of capital, water charges, operating costs, investment income, and capital expenditures. It also discusses the related issues of regulation and employment. Analysis of the data yields the following results:

• Investor-owned water companies provide comparable water services to consumers at the same price as government-owned water companies even though they pay taxes and do not receive extra non-operating income.

• Government-owned water companies receive generous tax subsidizes that otherwise could be used to lower taxes or fund other government projects with higher priorities.

• The net cost of capital is higher for government-owned water companies than for investor-owned water companies.

• The real water bill is higher for government-owned water companies than for investor-owned water companies.

• Investor-owned companies are substantially more efficient in their operation of water services than government-owned water companies.

• Government-owned water companies receive a substantial amount of non-operating income from excess cash balances and investments.

• It is likely that government-owned water companies spend more on facilities than investor-owned water companies, although the data on this issue are not entirely conclusive.

• Water service is highly regulated whether it is operated by an investor-owned company or a government-owned company.

• Government can better regulate an investor-owned water company than a government-owned water company.

These results suggest that the decision to have government entities provide water to consumers should be reconsidered, since private companies can provide this same function at the same cost without subsidies or tax-exemptions. California and other states should adopt policies which encourage the termination of government provision. Such policies would have minimal impact on consumers, since the price of water is approximately the same for the two types of provider. Moreover, the revenues generated by terminating the government water companies could be used to reduce taxes or to fund other, higher-priority government programs.

I. INTRODUCTION

A. The Importance of Restructuring

A growing number of countries have restructured all or part of their water-delivery systems to realize private-sector efficiencies. Most notable among these are England and France, where nearly 100 percent and 75 percent of the population, respectively, is served by investor-owned water companies. Evidence from England, which privatized its entire water and sewer system in 1989, suggests that investor ownership has resulted in dramatic overall improvements, especially in capital investment, operating efficiencies, and water quality. In addition, British and French companies now compete worldwide in a rapidly growing market for the design, building, and operation of water and sewer systems.

The United States, and California in particular, would benefit from similar restructuring. Currently, investor-owned water companies serve approximately 15 percent of the U.S. population, and just 10 percent of California's. The remaining population receives its water from government-owned water companies. The government-owned water companies receive generous tax subsidizes at the local, state, and federal level and are not subject to market pressures such as the threat of acquisition, the interests of shareholders, or the risk of bankruptcy. Operating in a highly insulated environment, the government-owned water companies are not subject to the same incentive systems which promote efficient delivery of the same services in the investor-owned sector.

The question of whether water should be delivered by investor-owned firms or government-owned firms is at the heart of the controversy over the role of government with respect to a natural monopoly in a free-market economy. Arguably the most efficient delivery of water services in a given geographical area is accomplished with a single provider. The question is, therefore, whether public services with these characteristics, can be more efficiently financed and operated by investor-owned firms or by government-owned firms.

An examination of a portion of the California water industry containing both investor-owned and government-owned water companies provides empirical data needed to answer this fundamental question. Many of the theoretical issues relevant to this debate have been amply covered in scholarly and professional journals, but empirical studies comparing the performance of investor-owned water companies with public water agencies are decidedly lacking. This situation has occurred for a variety of reasons, both methodological and political. Methodologically, there are a number of barriers, including the absence of common accounting standards and the subtle effects of subsidization, that make comparisons using traditional methods difficult. Politically, important participants in the water industry do not want the analysis performed: employees of government-owned water companies risk losing their jobs due to downsizing; investment bankers, lawyers, brokers, and investors fear that their income derived from the lucrative tax-exempt bond market will suffer; consultants and accountants do not want to lose their valuable public-sector clients; and politicians ever in search of political contributions from the people who benefit from the current system do not want these funds to disappear.

B. Methodology

This study compares the operations of the three largest investor-owned water companies in California with that of the large government-owned water companies servicing Contra Costa and Alameda Counties. The figures for the three investor-owned water utilities used for this study— California Water Service Company, San Jose Water Company, and Southern California Water Company—yield

an approximation of the whole investor-owned water market in California since together they service about 60 percent of all customers served by investor-owned companies or approximately 12 percent of California's total water customers. All information not directly cited in the text regarding these investor-owned companies is taken from the 1992, 1993, and 1994 Class A Water Utility Annual Reports filed by these companies with the California Public Utilities Commission (CPUC).

The sample of government-owned water companies includes special districts with service areas in multiple counties, special districts with service areas in multiple cities within a single county, and municipal agencies with service areas in only one city. The following government-owned companies were included: Alameda County Water District; Contra Costa Water District; Diablo Water District; Dublin San Ramon Services District; East Bay Municipal Utility District; and Water Enterprise Funds from the Cities of Antioch, Hayward, Livermore, Pittsburgh, and Pleasanton. Combined, these government-owned companies are approximately the same size as the three investor-owned water utilities: they both have total revenue streams ranging from $325 million to $350 million per year. For the government-owned companies, all information not directly cited in the text is taken from their audited financial reports for fiscal years 1993 and 1994 (which together cover the period from July 1, 1992 to June 30, 1994) and from bond offering circulars issued during this time period. For those agencies delivering both water and sewer services, this study used the combined financial reports to include only the water division of each entity.

The most significant barrier to making comparisons between investor-owned firms and government-owned water companies is not only the variation in accounting methods used by the government and investor-owned sectors, but also the lack of a universal accounting standard within the government sector itself. While the annual reports filed with the CPUC generally conform to a common accounting standard, the government sector has no such requirement. Government-owned companies' financial reports are audited, and are reliable, but the lack of standardization makes comparisons across agencies, each of which employs its own method of accounting, quite challenging. Some government-owned companies include investment income in their operating revenue, while others account for it as non-operating revenue; some government-owned companies report expenditures on contractual services, while others include that number within administrative and general costs. Moreover, variations in accounting practices result in a number of revenue streams, such as developer contributions and connection fees, that are sometimes accounted for in such a way that they can not be differentiated from other items.

A number of steps were taken to transform the different accounting methods used by the government-owned and investor-owned sectors into a universal method for comparison. First, much of the analysis focuses on the statement of income, which itself controls for a great number of differences between companies, such as one-time capital expenditures and credit periods. Second, many numbers are converted into figures per connection. By dividing income and expenditures by the number of actual physical water connections, a common denominator is created, and more useful comparisons can be made. Since each connection serves a definite number of customers, figures per connection relate to the impact per customer, for which the number of connections is a useful proxy. In addition, water rates are too easily manipulated by shifting the burden to new customers with high connection fees or to various geographical areas with differential rates to be useful for this type of analysis. Third, the accounting methods used by the government-owned companies themselves were retained whenever possible, on the theory that their aggregate figures include the useful data, even if some of the particular numbers are accounted for in different ways. Fourth, communication with financial officers of surveyed agencies clarified their published financial statements when necessary.

Aside from disparities in accounting practices, a comparison must take account of other differences in operating conditions faced by water utilities. Over-sensitivity to factors such as difficulty in developing and managing water resources, the timing of the last debt offering or the deferral of maintenance, however, is dramatically reduced by clustering the utilities into two groups, investor-owned and government-owned. Since each group contains a cluster of water utilities, each operating in slightly different conditions, individual differences are theoretically evened out and general trends highlighted. In addition, a weighted average system is used to properly control for differences in each utility's size. The figures in this study are therefore averages for the entire industry.

II. COMPARING INVESTOR-OWNED AND PUBLIC WATER UTILITIES

A. Summary of Operations

Table 1: Summary of Water Utility Operations (Per Connection)

	Investor Owned	Government Owned
Total Operating Revenue	$426	$425
Total Operating Expense	($273)	($330)
Depreciation	($29)	($75)
Operating Earnings	$124	$20
Property Taxes Received	$0	$30
Connection Fees	$0	$18
Investment Income	$0	$27
Other Revenue	$6	$60
Taxes Paid	($41)	$0
Cost of Capital: Interest on Debt	($31)	($92)
Cost of Capital: Dividends	($35)	$0
Other Expenses	($11)	$0
Total Non-operating Income	($112)	$43
Net Income	**$12**	**$63**

Table 1 summarizes the average annual income and expense per connection for the investor-owned companies and government companies in this study. The most striking, but not altogether unexpected, result is that investor-owned companies rely primarily on operating earnings to pay taxes (property and income) and the costs of capital (interest on their debt and dividends to stockholders), whereas govern-ment-owned companies rely com-pletely on non-operating sources of income, such as property tax allocations and investment in-come, to pay their costs of capital (interest on debt). Further, govern-ment-owned companies have low operating earnings due to their significantly higher operating expenses and depreciation costs. It is not surprising that managers of government-owned companies do not focus on streamlining oper-ations, since they are guaranteed a constant supply of income from local property taxes, from the interest on accumulated cash reserves, and from connection fees. Furthermore, since government-owned companies are exempt from local, state, and federal taxes, and do not have to pay dividends, managers need only worry about covering the interest payments on their debt. Managers of investor-owned companies, on the other hand, facing high levels

of taxes, interest payments, and stockholders desiring a competitive level of dividends, must reduce costs wherever possible to generate the revenue to pay for these expenses.

Government-owned companies make a substantial amount of income in the Other Revenue category. However, the $60 per connection of other revenue in Table 1 results from the sale of raw water by only one agency, Contra Costa Water District (CCWD). CCWD earns from $25 million to $30 million per year on wholesale water sales to surrounding water purveyors, apart from and independent of their usual services to individual, commercial, and industrial customers. The wholesale sale of this water has nothing to do with the operation and finance of water services by government-owned companies, which is the topic of this study. Furthermore, since the raw water is sold to surrounding cities and districts, including the cities of Pittsburgh and Antioch and the Diablo Water District, each of which accounts for the purchase of this water as an operating expense, including the revenue realized by Contra Costa Water District as in Table 1 results in double counting. Therefore, since this Other Revenue number is above and beyond the typical water service provided the water industry, adjusting for this outlay changes the industry average in the Other Revenue category to $11 per connection, only $5 per connection higher than that for investor-owned companies. Table 2 removes this extra income to show how it affects the other figures.

Table 2: Revised Summary of Water Utility Operations (Per Connection)

	Investor Owned	Government Owned
Total Operating Revenue	$426	$425
Total Operating Expense	($273)	($330)
Depreciation	($29)	($75)
Operating Earnings	$124	$20
Property Taxes Received	$0	$30
Connection Fees	$0	$18
Investment Income	$0	$27
Other Revenue	$6	$11
Taxes Paid	($41)	$0
Cost of Capital: Interest on Debt	($31)	($92)
Cost of Capital: Dividends	($35)	$0
Other Expenses	($11)	$0
Total Nonoperating Income	($112)	($6)

Net Income	**$12**	**$14**

Table 2 brings into full view the decoupling of operating earnings and non-operating income that occurs in government companies. Table 2 also allows for an overall assessment of the potential results of restructuring California's government water entities from the consumer's point of view. Since both investor-owned and government- owned water companies have almost identical streams of operating revenue, converting government-owned to investor- owned utilities would yield efficiencies in operation of ($124 minus $20) $104 per connection. Although the loss of the nonoperating income sources that government companies enjoy, and the payment of taxes by the private companies, would result in a loss of ($112 minus $6) $106 per connection, investor-owned companies would still be able to offset the loss. With restructuring, this would be $104 per connection in efficiency gains, less $106 per connection in loss of tax and other revenues—essentially a wash. Thus private-sector efficiencies are substantial enough to allow investor-owned companies to service California's water customers without increasing water rates, while still paying $41 per connection annually in taxes and freeing up scarce public resources for alternative investments. The following sections examine the effects of selected parts of the trade-off involved in restructuring in more detail, using the adjusted summary of operations as a point of departure.

B. Tax Subsidization

Tax policy creates a non-level playing field between government-owned and investor-owned water purveyors in the United States. As already indicated in Table 2, investor-owned water companies must pay $41 per connection in local property taxes, franchise fees, state income taxes, and federal income taxes. On the other hand, government-owned companies, exempt from each of these taxes, receive in additional revenues an allocation of local property taxes worth $30 per connection. Table 3 provides further data on the tax treatment of investor-owned and government-owned companies in California.

As Table 3 demonstrates, investor-owned water com-panies in California pay a yearly average of 2.85 percent of their total operating revenue toward local property taxes and franchise fees as well as 6.82 percent of their total operating revenue in state and federal corporate income taxes. Government-owned water companies, on the other hand, *receive* a portion of local property tax revenue equal to 7.05 percent of their total operating revenue each year. This means that state and national tax practices give government-owned water companies an advantage over their investor-owned sector counterparts equal to approximately 17 percent of total operating revenue.

The tax benefits enjoyed by the government-owned water companies are intended to maintain low water rates for consumers. Government-owned water companies suggest that restructuring would increase the prices customers pay for water because investor-owned companies would pass on the cost of taxes to the consumer. However, as discussed above, the efficiencies gained from investor-owned management are sufficient to cover taxes while maintaining comparable rates. Furthermore, today's consumer is, in effect, paying to keep water rates low by forgoing government services that would have been funded by revenues generated by the payment of taxes by government-owned water companies. An exemption from taxes can be considered a "tax expenditure," equivalent in its impact on the government budget to a direct subsidy.

In the case of water purveying, the sheer size of the combined subsidy and tax relief received by government-owned water companies justifies a closer analysis. In just the two counties examined in this study, taxpayers subsidize government-owned water companies in the amount of $17.4 million in local property tax allocations every year. Were these government-owned companies not tax-exempt,

they would also be paying out yearly an estimated $7 million in local property and franchise taxes as well as an estimated $17 million in state and federal income taxes. In addition, government-owned companies have access to the tax-exempt bond market, allowing them to float bonds the interest on which is tax exempt. (While investor-owned companies can issue a small amount of tax-exempt debt, their access to this market is extremely limited.) Were government-owned companies forced to offer taxable debt and pay dividends, like the investor-owned water companies, investors would pay an estimated $19 million in individual income taxes per year.

Table 3: Taxation of Investor-Owned and Government Water Utilities

	Investor Owned	Government Owned
Tax Income (Expenditures)		
Total Local Taxes	($9,725,357)	$17,424,800
• % of Operating Revenue	2.85%	7.05%
Total Income Taxes	($23,236,911)	
• % of Operating Revenue	6.82%	
Total Taxes	($32,962,268)	
• % of Operating Revenue	9.67%	$30
• Per Connection	($41)	
Tax Relief to Public Water Agencies		
Estimated Local Taxes		$7,045,527
Estimated Income Taxes/Business		$16,859,823
Estimated Income Taxes/Individuals		$19,112,339
Property Tax Allocation		$17,424,800
Total Tax Relief		$60,442,489

The $60 million lost in tax revenue in the two counties examined in this study (the total tax subsidy) is $60 million that could be used to lower tax rates, balance budgets, improve inner city infrastructure, increase crime prevention efforts, or provide any other service deemed desirable by the public. Because California's general fund resources are limited, and voters are increasingly denying requests for bond funding, water projects at the state and local level will be increasingly threatened in coming years. Regardless of one's own spending priorities, the issue is whether public funds should be used to subsidize government-owned water companies when there may be higher priorities for these same public funds, and when the service can be provided by the investor-owned sector at no additional cost to the consumer. Although $60 million collected in tax revenue would not produce $60 million in direct benefits, since no government is that efficient, it would produce a tangible benefit to the community the loss of which is the cost of tax subsidization.

Furthermore, as Table 2 indicates, this tax relief appears to relieve pressure on managers to reduce costs, encouraging inefficiency in the very service whose cost it is designed to reduce. When investor-owned water utilities can provide the same service more efficiently, one wonders why the taxpayer is forced to subsidize the less efficient provider.

C. Cost of Capital

The United States is virtually alone in exempting municipal bonds from taxation. The tax-exempt bond concept is justified with the argument that the market does not allocate sufficient capital to fund the water plant improvements the public needs. While this may once have been the case, there is currently no shortage of capital for funding water projects. The size of investor-owned companies in other countries, such as England and France, as well as in the United States, suggests that there is a ready capital market for building and maintaining water infrastructure. Nonetheless, the cost of capital for government-owned and investor-owned water companies has become a central issue in debates over restructuring the industry.

Government-owned water companies contend that the tax-exempt bond market allows them to save about 30 percent on debt costs. This savings is said to result in lower rates for consumers, who do not have to pay for the higher interest rates charged on taxable debt, and also to encourage capital investment. The 30 percent figure comes from dividing total outstanding debt in a given year by total interest payments that year. As Table 4 shows, this study found the cost of debt to be 6.10 percent for public agencies and 8.09 percent for investor-owned companies, consistent with this reasoning. This 30 percent differential, however, does not characterize the entire situation. The reason government-owned companies have lower interest payments is their access to tax-exempt financing. Investors are willing to buy tax-exempt bonds with lower interest rates because the real yield on a tax-exempt debt instrument, if the investor's marginal tax rate is high enough, is still higher than the real yield on a taxable debt instrument. The lower rates public agencies pay are therefore purchased at a cost, namely the amount of lost income tax revenue that investors would be paying to states and the federal government were the interest on their bonds not tax-exempt. As discussed above, tax exemptions result in quantifiable costs.

Table 4: Cost of Capital for Investor Owned and Government Water Agencies

	Investor Owned	Government Owned
Cost of Debt	8.09%	6.10%
Cost of Debt Including Lost Taxes	8.09%	8.27%
Estimated Cost of Tax Exemption		$19,112,339
$ Saved By Tax Exemption		$17,482,478
Subsidy to Bond Investors		$1,629,861
Cost of Debt per Connection	$31	$92
Cost of Equity per Connection	$35	$0
Total Cost of Capital per Connection	$67	$92

Theoretically, a competitive bond market should reduce the interest rates on tax- exempt bonds until their effective yield is approximately equal (once the tax benefits are taken into account) to the yield on taxable bonds. This means the loss in taxes would equal the gain realized by the public agencies through lower interest rates on debt. In practice, however, public agencies must pay slightly higher rates to attract investors to municipal bonds. The estimated amount of income taxes lost to pay for lower rates on tax-exempt municipal water bonds is about $19 million per year for just these agencies. The estimated amount of money saved by the agencies due to the lower rates—the differential in rates, 1.99 percent, times the total amount of debt outstanding—is approximately $17.5 million. As Table 4 illustrates, the extra $1.5 million is the amount holders of tax-exempt bonds make above the amount they would have made

were their funds invested in the taxable bond market. In other words, about 8.5 percent of the $19 million income tax subsidy does not even reach the water agencies at all, but is channeled instead to investors. This effect can also be seen by adding the amount of lost taxes which would have been paid to the State and Federal governments to the cost of capital public agencies pay, generating a cost of capital of 8.27 percent, as opposed to the 8.09 percent paid by investor-owned companies. Thus, the questions are: first, whether the Treasury should be subsidizing government-owned water companies' borrowing costs when investor-owned companies can raise the same level of funds in taxable markets; and second, whether the subsidy is efficient when 8.5 percent of it does not even reach the government-owned water companies it is intended to help.

There are two additional problems with the 30 percent debt-savings calculation. First, it does not take into account the total capitalization of an investor-owned firm, which finances its activities with both debt and equity. That is, the true cost of capital for an investor-owned firm must include interest payments to bondholders, or the cost of debt, and dividend payments to stockholders, or the cost of equity. Second, the true cost of capital must take into account the projects that capital is financing. Doing so requires that the cost of capital be determined from the point of view of the customer. For example, a utility that is 50 percent less efficient than its competitor in its construction of a new water treatment facility must borrow twice as much money to complete the project. If the rate on its bonds is 50 percent lower than its competitor's, the percentage of the customer's bill going to pay the cost of capital is identical for the two utilities.

Table 4 shows the cost of capital per connection for the investor-owned and government utilities in our sample. Investor-owned water utilities pay $31 per connection in interest payments and $35 per connection in dividends, for a total cost of capital per connection of $67, or 16 percent of the water bill. Government-owned water companies, whose only source of finance is debt, pay a total cost of capital of $92 per connection, or 22 percent of the water bill. This means that public agencies pay approximately $25 per connection more for capital than investor-owned companies.

This extra six percent of the water bill is in part caused by various inefficiencies associated with the use of capital by the government-owned water companies. In the first place, government-owned water companies often finance projects in advance of their actual construction because their financing comes in large blocks. They have to borrow a larger amount to cover the interest on the borrowed funds due before the funds are even put to use. Conversely, investor-owned companies, which fund only projects that are about to be undertaken, save significant amounts on interest payments. In addition, it is likely that for various institutional reasons, such as regulations applicable to public-sector contracting, it is more expensive for government-owned water companies to design, construct, and operate facilities. Investor-owned projects are often completed in one-third to one-half less time than public projects because investor-owned companies can use a consortium of firms to integrate the design and construction phases, something government-owned companies rarely do.

Another factor increasing the cost of capital for government-owned water companies is the higher issuance costs associated with tax-exempt financing. Government-owned water companies often must purchase bond insurance, need larger reserves for interest and principal payments, and pay higher finance charges. Issuance fees to lawyers and investment bankers, for example, are higher for government-owned water companies than for investor-owned water companies. The financial structure of government-owned water companies forced them to refinance much of their debt in the early 1990s, incurring more of these same fees. Since investor-owned companies finance their operations with both debt and equity, high debt payments caused by the unusually high interest rates of the late 1970s and

early 1980s had less of an effect on them. The public water agencies in this study paid $10.7 million in finance fees each year.

From an accounting perspective, this amount does not show up in full in the cost of capital for any given year because such charges are amortized over the life of the bonds to which they apply. Nevertheless, such charges do slightly increase the amortized debt costs, and thus the overall cost of capital per year for government-owned water companies.

D. The Water Bill

The generous tax treatment of government-owned water companies is often justified on the grounds that such tax exemption lowers the price of an essential public service. It has generally been assumed that government-owned water companies charge less for the same level of service than their investor-owned competitors. The idea of a lower water bill has become a crucial political weapon against those who would restructure the water industry in California. One reason for this continued belief is the data collected by the Environmental Protection Agency for its 1986 study of water systems and the Congressional Budget Office report that is based on those data. While the survey data do show government-owned water companies charge lower prices, the data also reveal that the price differential between government-owned and investor-owned utilities decreases as the number of customers increases. Since the average government-owned water system today is much larger than the average investor-owned system, much of the aggregate data show lower prices for the government-owned water system only because they are taking advantage of economies of scale that most investor-owned companies do not currently enjoy.

Table 5: Water Cost to Consumer for Investor Owned and Government Water Agencies (per connection)

	Investor Owned	Government Owned
Total Operating Revenues	$426	$425
Property Taxes	$0	$30
Connection Fees	$0	$18
Local and Income Tax Subsidy	$0	$74
Total Revenues	$426	$547

As Table 5 indicates, this study shows that total operating revenue per connection is virtually identical for investor-owned companies ($426 per connection) and public agencies ($425 per connection). Since total operating revenue is the income generated from service charges, or water bills, the benefits of tax exemption are not passed on to the consumer through lower water charges. Of course, individual water bills vary according to geographic characteristics, but the average water bill for both government-owned and investor-owned water companies is virtually identical.

In fact, government-owned water companies derive *more* income from consumers than investor-owned water companies when other "hidden" charges are taken into account. The allocation of $30 in property taxes per connection, for example, is another charge that transfers funds from consumers to government-owned water companies. In addition, only government-owned water companies receive connection fees and Service Connection Charges (SCC charges) from new customers. These are typically used to pay for capital upkeep, but in some cases are accounted for as operating income. The $18 per connection collected in these fees is thus a second hidden charge. Last, the taxes avoided by government-owned companies is $74 per connection. This represents the amount of government services that the customers forgo to have their water provided by a government-owned water companies in Alameda and Contra Costa

Counties rather than by investor-owned companies. The real cost to the consumer when these hidden charges are taken into account is actually $121 higher per connection for government-owned water utilities.

E. Operating Expenses

Part of the reason the tax exemption does not benefit the consumer in the form of lower service charges is the higher operating expenses of government-owned water companies. This study finds that government-owned water companies have significantly higher operating costs. As Table 6 shows, they spend $330 per connection while investor-owned companies spend only $273 per connection. Since there are no obvious differences in the quality of service being provided by large investor-owned and government-owned water companies, the difference of $57 per connection is the amount of operating efficiency lost due to government ownership.

Table 6: Selected Operating Expenses for Investor-Owned and Government Water Agencies

	Investor Owned	Government Owned
Total Operating Expense per Connection	$273	$330
Employees per 1,000 Connections	1.62	3.49
Salaries as % of Operating Revenue	13.40%	37.13%
Maintenance as % of Operating Revenue	5.29%	9.13%

One reason for the large discrepancy in operating costs is the level of employment: investor-owned firms hire 1.62 workers for every one thousand connections while government-owned firms hire over twice that amount at 3.49 employees per one thousand connections. The measure of the number of employees hired by government-owned water companies may also be artificially low because government-owned water companies hire significantly more outside contractors and consultants than investor-owned companies. As Table 6 shows, the result is a much higher percentage of operating revenue that must be allocated to employee compensation. A second reason for the discrepancy is the amount of resources channeled to maintenance. Investor-owned water companies spend about five percent of their operating revenue on maintenance while government-owned water companies spend almost nine percent of their operating revenue maintaining their water facilities. There may be many more areas where differences in operating expenditures can be located, and more reasons for the discrepancy.

F. Investment Income

Aside from their tax exemptions, generous allocations of property taxes, and the ability to charge connection fees, government-owned water companies have an often-ignored source of non-operating revenue investment income. As Tables 1 and 2 showed, this income allows government-owned water companies to keep service rates artificially lower than they would actually be by helping to pay for the cost of capital. Public agencies collect an average of $27 per connection while investor-owned companies collect virtually nothing from investment income.

Table 7: Investment Income Data for Investor-Owned and Government Water Agencies (per connection)

	Investor Owned	Government Owned
Investment Income	$0	$27
Cash and Investments	$9	$560
Total Current Assets	$94	$663

As Table 7 shows, the reason government-owned water companies collect such high levels of investment income is their substantial current asset balances. Water utilities, because the industry is capital intensive, require a certain amount of current assets as a reserve fund in case of unforeseen events such as system failure, unusual weather conditions, or natural disaster. However, the difference in current account balances for public agencies, who hold $663 per connection, and investor-owned utilities, who hold only $94 per connection, is enormous. Once disaggregated, the numbers are even more telling. Both investor-owned and government-owned water companies have similar levels of receivables and prepaid expenses, meaning that the real difference in the current asset balances is caused by cash and investments, the main sources of non-operating income. While investor-owned companies maintain an average of $9 per connection, government-owned water companies in the study have a $560 per connection in cash and investments.

The CPUC, which regulates the investor-owned water companies in California, has apparently determined that large cash reserves are not necessary for the operation of (investor-owned) water companies. The government utilities' extra $551 per connection in cash and investments, producing a constant revenue stream, effects a serious competitive disadvantage for investor-owned water companies, above and beyond that caused by the tax code.

From a public policy perspective, these reserve funds represent a misapplication of California's financial resources. An investor-owned business would never accumulate enormous amounts of cash and investments, but would instead use the funds to diversify, upgrade facilities, and acquire related companies—or be taken over by some third party who could put the funds to better use. The government-owned Irvine Ranch Water District, on the other hand, invested $32.5 million in an apartment complex, Sycamore Canyon Apartments, and has an additional $12 million invested in two other real estate developments, Lewis Homes and Wood Canyon Villas. The district is thus using funds generated from water services, taxes, and charges to compete with investor-owned apartment complexes. In the two counties examined in this study, public water agencies hold about $326 million in cash and investments each year. They are theoretically optimizing the returns from these investments each year. This investment activity nothing to do with the purveying of water. When government-owned water companies are using the public's funds to speculate on interest spreads, the loss the public experienced in Orange County might happen again.

The fact that tens of millions of dollars in cash and investments are held by government-owned water companies, many of which still have large amounts of outstanding debt, indicates a serious flaw in the framework within which these companies operate. It is not clear to what extent arbitrage is still occurring, but many government-owned water companies have both significant levels of outstanding debt and huge cash reserves. Furthermore, they do not pay income tax on the interest income they receive from their investments. Theoretically, the market allocates capital to its most productive uses by offering higher rates of return on those investments. Unless one believes that government-owned water companies have better judgment than other investors, subsidizing their investments allows them to direct capital to less productive areas. Public policy should surely not subsidize the investments

made by government-owned water companies, merely because they are government owned, especially when they represent capital inefficiencies.

G. Capital Expenditures

Since plant and equipment provide benefits for many years, actual capital expenditures are amortized. One measure of capital investment is therefore the amount of capital depreciated per year. Based on this measure, it appears that government-owned water companies spend a larger amount on capital than investor-owned companies. As Tables 1 and 2 showed, they charge about three times more to depreciation per year than investor-owned companies ($75 per connection versus $29 per connection). Depreciation, however, depends heavily on accounting procedures, which differ substantially from the investor-owned to the government-owned water companies. While both investor-owned and public agencies have an interest in depreciating capital expenditures as quickly as possible, the former to reduce their tax liability and the latter to justify higher rates, investor-owned companies have less freedom with their depreciation schedules than government-owned water companies because the CPUC mandates that they use straight-line depreciation. Some municipalities use accelerated depreciation, which provides far more generous straight-line annual write-offs. Therefore, comparisons between the depreciation of investor-owned and government-owed property, plant, and equipment are not as precise as comparisons for other forms of income and expense. At least some of the difference is caused by the faster depreciation schedules used by government-owned water companies.

It is also possible to compare actual capital expenditures, measured as the value of all additions to property, plant, and equipment per year. Doing so reveals that these government-owned water companies have actual capital expenditures equivalent to about 58 percent of their operating revenue while investor-owned companies have expenditures equal to about 21 percent of their operating revenue. One problem with this type of comparison is its sensitivity to the time period used for study. For example, the East Bay Municipal Utility District may have incurred its $60 million office construction expenses during the years this study covers. Since this project is so large, removing its cost reduces the aggregate value of capital expenditures to only 27 percent of operating revenue. A second problem with this comparison is its inability to gauge the usefulness to the consumer of a given level of capital expenditures. Nor is it clear from aggregate spending whether companies are buying the same array of capital facilities or not. Is a new office building as valuable as upgrading water treatment facilities If, as suggested above, it costs more for a government-owned water company to construct new facilities, does a higher expenditure indicate better long-term planning or merely higher costs

It is probably safe to assume that government-owned water companies in California spend more on capital expenditures than investor-owned companies, but the degree to which this is the case is unclear. It is also unclear how much of the greater expenditures reflect inefficiencies in public-sector construction or better long-term planning. However, assuming that the three-times higher expenditures for both depreciation and actual capital expenditures for government-owned water companies reflect generally higher capital expenditures, and further assuming that government-owned water companies are about 20 percent less efficient, which is the efficiency difference associated with their operations (see Table 6), then it would seem that they more than compensate for any inefficiencies. This finding is not consistent with the conventional wisdom that public agencies tend to neglect or delay capital replacement. California may be unique in this regard for a number of reasons.

First, because California is a high-tax state, it has a well-developed and sophisticated tax-exempt market, allowing government-owned water companies easy access to financing. Although the use of general obligation bonds has declined in recent years, water revenue bonds have taken their place.

Second, economic growth in California provides a constant stream of funds to government-owned water companies specifically earmarked for capital expenditures. These funds include both connection fees and contributions from real estate developers. When new customers are connected to a water system, water utilities typically charge various fees to cover the costs associated with the connection, such as installing meters and building service lines. Increasingly, government-owned water companies are also charging a one-time fee for new customers designed to fund the capital investment oriented to servicing new customers. These fees are often called system development charges, system capacity charges, connection charges, or facilities charges. The idea is to charge new customers for the capital investments, such as a new reservoir, that their connection necessitates rather than increasing the rates on old customers and thus forcing them to pay for the addition of new customers. The difficulty, of course, lies in properly allocating the benefits of capital expenditures among various categories of customer, from new customers to old customers, and from one geographic area to the next.

These connection fees have made adding new water services extremely expensive in Alameda and Contra Costa Counties. The Contra Costa Water District adds a facility reserve charge to its usual service, meter, valve, and installation fees according to meter size, ranging from $7,140 for a meter of five-eighths of an inch to $57,120 for a two-inch meter. The East Bay Municipal Utility District charges a similar fee, which it calls the system capacity charge (SCC), for each of the nine regions served by the district. Prices vary by region, but single-family, residential account SCC charges range from $1,390 to $8,210 for a meter of five- eighths of an inch to $12,500 to $33,600 for a 1.5-inch meter. Commercial and industrial SCC charges are relatively similar, but they allow for much larger meter sizes, and hence much higher costs, ranging from $27,300 for a two-inch meter in the lowest-cost region to a high of $294,000 for a four-inch meter in the highest-cost region. These charges raise the cost of residential and commercial development and make urban redevelopment considerably more expensive.

The larger investor-owned water companies (Class A and B) are not allowed to charge fees to connect to their systems. The CPUC has ruled that the most appropriate way to pay for capital expenditures associated with system growth is through additional capital, either debt or equity, rather than through connection charges. Only smaller companies, those serving under 2,000 customers, are allowed to charge connection fees on the assumption that they are limited in their ability to raise capital. Not allowing connection fees would force them to shift the burden of paying for additional customers to their older rate payers. Water companies also receive funds earmarked for capital improvement from developers in the form of Contributions in Aid of Construction and Advances for Construction. Real estate developers pay their local water utility to build the infrastructure necessary to provide water service to their developments. For investor-owned water companies, if the new infrastructure is deemed economic (i.e. if user charges from the new service will over time pay for the initial capital investment), the money given by the developer is considered an Advance, and must be refunded over a period of 40 years. If the new infrastructure is noneconomic (i.e. if user charges from the new service will never be sufficient to pay for the initial investment), then the money given by the developer is considered a Contribution and is not refundable. The Tax Reform Act of 1986 mandated that contributions be accounted for as taxable income, increasing the costs associated with connecting to investor-owned companies' water services, which now require more money in contributions to cover their taxes.

All money received from developers by government-owned water companies is considered a contribution, regardless of the profitability of the project it funds. All funds are thus non-refundable. In addition, public agencies do *not* pay income tax on these contributions. Funding capital expenditures through connection fees and contributions from developers means that capital upkeep is contingent

upon growth in the real estate industry. If real estate development slows, the funds will no longer be available, and rates would have to be increased to pay for system depreciation and maintenance. Government-owned water companies have thus developed a political interest in fostering new growth to maintain their connection-fee income stream.

The third reason government-owned water companies have comparatively higher capital expenditures in California is the high dividend payout ratio of California's investor-owned water companies. Net income before dividends is $46 per connection, yet the average dividend payout is $35 per connection, about 75 percent of net income. Such high dividends mean that little cash is left for capital improvements. It appears that California's investor-owned water sector has become addicted to ever-increasing dividends to maintain the value of their stock. While increasing dividends was not difficult in the inflationary environment of the 1970s and 1980s, lower levels of inflation have made it more and more difficult to increase dividends each year in the 1990s.

The requirements of an investor-owned water company do not inherently demand such high dividends and thus lower capital expenditures. As Table 8 shows, dividends per share paid in 1994 by two large British water companies, Yorkshire Water and Thames Water, are significantly lower as a percentage of earnings per share than those paid in 1994 by two California water companies in this study, Southern California Water Company and California Water Service Company.

Table 8: Dividends for British and Californian Water Companies (in p and $)

	Yorkshire	Thames	S. Cal.	Cal. Water
Earnings per Share	68.00	56.80	1.43	2.44
Dividends per Share	22.80	22.50	1.20	1.98
Dividends as % of Earnings	**34%**	**40%**	**84%**	**81%**

It is likely that the British water companies do not have to pay such high dividends because they are growth companies. Investors buy stock in these companies expecting earnings per share to increase as the global water and sewer market expands and the British companies take advantage of new opportunities. California's investor-owned water companies offer widows and orphans stock, designed to pay stable, high dividends, but not to offer significant growth opportunities.

III. ISSUES IN THE RESTRUCTURING PROCESS

A. The Case for Restructuring

A close examination and comparison of the operations of a representative sample of investor-owned and government-owned water purveyors in California has yielded the following results:

• Investor-owned water companies provide comparable water services to consumers at the same price as government water companies even though they pay taxes and do not receive extra nonoperating income.

• Government water companies receive generous tax subsidies that could be used to fund other government projects and higher priorities.

• The cost of capital is higher for government water companies than for investor-owned water companies.

• Investor-owned companies are significantly more efficient in their operation of water services than government water companies.

• Government water companies receive a substantial amount of income from high levels of cash and investments.

• It is likely that government water companies have higher capital expenditures than investor-owned water companies, although the data on this issue are not entirely clear.

These results suggest that a restructuring of the U.S. water industry, to take advantage of the beneficial effects of investor-owned market pressures, is in the interest of the general public. Since investor-owned water companies are more efficient than their government-owned counterparts, they can deliver comparable services at a lower cost. This means they can supply water for the same prices charged by government-owned companies even while they pay a substantial amount of taxes to local, state, and federal authorities. This tax money, in turn, rather than being lost to inefficient water services, can be passed on to consumers or used to fund other governmental activities. The delivery of comparable water services by investor-owned companies even with higher non-operating costs is possible because the finance and operation of water services by the investor-owned sector creates stronger incentive systems for cost reduction and efficient resource allocation. The institutional environment of an investor-owned company provides incentives for managers that are in the best interest of the general public.

While this study demonstrates that the investor-owned sector operates and finances water utilities more efficiently than the public sector, it remains unclear whether investor-owned companies, given the current regulatory environment, invest a sufficient amount in capital improvements to meet projected long-term needs. The results of this study suggest government-owned companies spend more on infrastructure in terms of dollars spent. It is unclear how much of the difference can be explained in terms of the differences in efficiencies between the public-sector and investor-owned spending. Theoretically, investor-owned companies determine infrastructure based on returns on investment. It is unclear what factors determine the expenditure of money by the government-owned companies.

While the results of this study have direct implications for the operation and financing of water systems, they do not necessarily mean that California's water assets should be sold. There are a number of models on which restructuring could be based, including the French franchise model, in which investor-owned water companies do not own the plant and equipment, but only own the right to operate it for a specified amount of time. The most appropriate model for restructuring should be a topic for future research. The focus of this paper has been on the empirical results of the different incentive systems faced by management in the government-owned and investor-owned water sectors.

B. Regulatory Issues

While this study has attempted to highlight public-sector capital and operating inefficiencies by using investor-owned companies as a point of comparison, the investor-owned sector could be even more efficient if rate-of-return regulation, now favored by the CPUC, were replaced with a system of price caps similar to the ones adopted in England and France and beginning to be adopted by local governments in the regulation of the waste industry. Rate-of-return regulation was proposed by the business community in the Progressive Era in response to the Populist tendency to fix price levels for

the regulated utilities at such unreasonably low levels as to make it impossible to earn any return on investment. Rate of return regulation was designed to introduce rationality into the price-setting process. However, the current problem is that all money generated from efficiency gains is forced back to the consumer, rather than being properly apportioned among shareholders, reinvestment, and consumers. Perhaps the best evidence of the failure of the current regulatory framework is the inability of the U.S. water industry to compete internationally. While U.S. computer and biotechnology industries compete worldwide, the French and the British dominate the world market in the development of new water and sewer systems; international American companies are virtually nonexistent. This juxtaposition has occurred because the United States has developed a totally subsidized public sector and an investor-owned sector, regulated on a rate-of-return basis, that is dominated by cost-plus type thinking. The regulatory environment does not foster the creation of large, efficient water companies structurally designed to compete in international markets.

Regulation has thus become a double-edged sword for proponents of restructuring the water industry. On the one hand, the current regulatory framework does not encourage restructuring because investor-owned companies are not allowed to fully benefit from increased efficiencies that can be created from private-sector finance and operation of formerly public water systems. There is little incentive for further restructuring of the industry in this type of environment. On the other hand, a central regulatory mechanism is already in place for administering a fully restructured industry. The CPUC has been regulating the investor-owned water sector for years, and is now overseeing the full restructuring of the electric, gas, transportation, and communications industries to take full advantage of market pressures.

Aside from economic regulation, restructuring brings environmental and health regulations to the forefront. In California, environmental regulations on water use imposed by the California Environmental Protection Agency's State Water Resources Control Board, and subsidiary Regional Water Quality Control Boards, already apply to both investor-owned *and* government-owned water companies. The statutory authority is in place for these boards to fully administer the water industry; the only question is whether they decide to exercise this authority. So far, they have been pushing only for the integration of water and sewer agencies. This would require, as a condition of certain permits, that separate entities work together on issues of water use such as the appropriate use of treated versus fresh water. The British water companies provide both water and sewer services, both of which are regulated by the same regulatory authority. In California, even though the regulatory framework for water and sewer systems has already been consolidated, the two functions are still in most cases provided by separate government-owned water and sewer companies. This balkanization of authority came into existence in California because of the state's growth practices and patterns. Now, the state government is prodding government-owned water companies to perform as integrated units. In essence you have three sets of governments bureaucrats trying to determine public policy and implement it for water and sewer in Alameda and Contra Costa County. Similar balkanization of authority was one of the motivators of the changes in the British water systems.

Health standards for public drinking water were introduced by the federal Safe Drinking Water Act in 1974, and further amended in 1986. The U.S. Environmental Protection Agency and the California Department of Health Services have set quality standards which require suppliers to monitor and treat for potentially harmful contaminants in drinking water. Both investor-owned and government water companies publish annual water quality reports showing the maximum contaminant levels allowed by law and the amount of such contaminants state-certified laboratories found in their drinking water. Both the investor and government water companies must meet the *same* federal and state standards.

Critics of investor-owned water companies often argue that, even if they face the same standards as government-owned companies, the profit motive inherent in investor-ownership gives managers an incentive to cut corners on health regulations. This argument is both theoretically flawed and empirically incorrect. Theoretically, there is no economic incentive to ignore such regulations because the regulatory framework itself allows for cost recovery on expenses incurred in complying with water standards. Empirically, although no comprehensive study has been completed comparing government- versus investor-owned sector compliance with water quality standards in California, there does not seem to be a difference in water quality between the larger investor-owned water companies and government-owned water companies. Indeed, the historical record indicates that government-owned companies have been less likely to comply with environmental and health standards than the investor-owned sector in a whole range of policy areas. Government-owned water companies are more likely to use their political leverage to fight stringent standards on whatever service they provide. In addition, the regulating agency has a more difficult time forcing government-owned companies to adopt the costly policies necessary to meet their standards. While the government can tell investor-owned companies to cut their dividends or operate with less profit, government-owned companies often demand increased subsidization, and thus increased taxes, to support any improvements. Since it is politically unpopular to raise taxes, the politicians have been known to look the other way on enforcement issues.

Margaret Thatcher, in discussing why privatization of the water and sewer industry was pursued as a governmental policy, explained the situation as follows:

The privatization of the water industry was a more politically sensitive issue. Much emotive nonsense was talked along the line of, "look, she's even privatizing the rain which falls from the heavens." I used to retort that the rain may come from the Almighty but he did not send the pipes, plumbing and engineering to go with it. The Opposition's case was even weaker than this, for about a quarter of the water industry in England and Wales had long been in the private sector. Of more significance was the fact that the water authorities did not just supply water: they also safeguarded the quality of rivers, controlled water pollution and had important responsibilities for fisheries, conservation, recreation and navigation. It was Nick Ridley—a countryman with a natural feel for environmental issues—who, when he became Environmental Secretary, grasped that what was wrong was that the water authorities combined both regulatory and supply functions. It made no sense that those who were responsible for the treatment and disposal, for example, should also be responsible for regulating pollution. So the bill which Nick introduced also established a new National Rivers Authority. Privatization also meant that the companies would be able to raise money from capital markets for the investment needed to improve water quality.

The United States has the worst of both worlds: a government-controlled regulatory structure in place with limited regulatory authority over other governmental agencies. Therefore if a public policy is not properly pursued by one governmental agency to the satisfaction of another government agency, and the public perceives it is not being well served, the government blames the government for its inadequacies. This avoids accountability. In Alameda and Contra Costa Counties, the level of absurdity has been reached where government-owned companies are suing county governments over who has jurisdiction over new developments. California has developed a new system of checks and balances where governmental businesses and agencies sue each other and then the government has its courts referee the disputes.

C. Employment Issues

One area of inefficiency this study has highlighted in the government-owned water companies is the problem of overstaffing. As with many private-sector industries that have undergone streamlining, part of the efficiency gains involved in restructuring would be gained through reducing employment. Thus, plans must be implemented to address the resulting dislocation of government employees. A number of lessons can be learned from the British experience, where employees of the government-owned water companies were given special stock options in the privatized successor companies. In addition, the massive upgrading of facilities which occurred in Britain since privatization has prevented net job loss by shifting jobs from the office to the construction site. Most important, though, is the fact that the British companies have used their expertise to become competitors in the global water and sewer business in only a few years. Since highly competitive industries generate many well-compensated, productive jobs as well as increased support staff in the export/consultancy part of their operations, short-term employment losses may be more than compensated for by long-term employment gains as the industry becomes competitive across the United States and in international markets.

Future research should also investigate the level of minority employment in the government-owned sector vis a vis the investor-owned sector. Government has traditionally been a major provider of equal employment rights for well-educated African-Americans, 75 percent of whom are employed by some level of government. This has created an ethnic group that could be hostile to the idea of restructuring. However, since the investor-owned water companies sell water to the federal government, and are thus considered federal contractors, they must also comply with Title 7 and federal employment requirements. None of the three investor-owned companies in this study has had a major employment discrimination suit brought against it, whereas the East Bay Municipal Utility District, in a 1985 decision, lost a Title 7 suit. Preliminary analysis seems to indicate that, in the water sector, the government and investor-owned sectors employ relatively equal percentages of minorities, in both overall employment and in specific types of jobs.

Table 9: Ethnic Employment Data for Investor-Owned and Government Water Companies

Position	White		Black		Hispanic		Asian		Other	
	SCWC	EBMUD	SCWC	EBMUD	SCWC	EBMUD	SCWC	EBMUD	SCWC	EBMUD
Managerial	77%	70%	7%	16%	9%	7%	7%	5%	0%	2%
Professional	62%	67%	8%	8%	8%	4%	23%	22%	0%	0%
Technical	58%	69%	0%	7%	5%	7%	32%	18%	5%	0%
Clerical	56%	49%	13%	28%	23%	9%	9%	14%	0%	0%
Craft	76%	64%	8%	13%	11%	11%	3%	5%	3%	1%
Maintenance	59%	53%	11%	29%	28%	10%	3%	7%	0%	1%
Total	63%	62%	10%	15%	18%	11%	8%	12%	4%	1%

Table 9 shows the percentages of different ethnic groups employed by the East Bay Municipal Utility District and the Southern California Water Company. Non-whites constitute approximately the same percentage of the total number of employees for both utilities, although the distribution of this 37 and 38 percent varies due to geographic differences. Whereas the East Bay Municipal Utility District employs more African-Americans and Asians, the Southern California Water Company employs more Hispanics and members of other ethnic groups (most prominently American Indians). This relationship generally holds across employee categories, from the highest-level officials to members of the maintenance staff. While ethnic minorities are somewhat concentrated in lower-paying jobs in both industries, it does not appear that there is a greater concentration in either sector. Of course, a larger sample, and an investigation of the effect of other factors, such as contracting regulations, on minority employment would be needed before any conclusive results could be obtained. Future research should address these issues in greater depth.

IV. CONCLUSION

Any discussion about reforming the structure of the water industry must include options for the restructuring of the industry using the taxable market for capital and the performance accountability of the investor-owned sector. Tax exemption for government-owned water companies benefits only a small group of lawyers, bankers, investors, and politicians at the expense of water consumers and the general taxpayer, who are forced to subsidize the inefficient provision of water services. Investor-owned water companies can supply water for the same prices charged by government-owned companies even while they pay a substantial amount of taxes to local, state, and federal authorities. Water marketing, a suggested solution to California's water problems, will not work so long as there is a strong government-subsidized water industry not subject to market pressures. When a subsidized industry does not have to respond to market pressures, there is little motivation to efficiently allocate resources.

This study sheds light on an area that has not received adequate attention relative to its importance in terms of public policy. Perhaps more sophisticated ways of comparing government and investor-owned companies can be developed by CPAs so the two sectors may be compared more accurately. One significant barrier to such comparisons could be overcome if government-owned water companies were forced to use the same accounting standard (such as GAAP), much as the investor-owned water companies have been required to do under CPUC and SEC regulations. While the findings of this study are based on a small sample, the trends should be further substantiated and quantified by more sophisticated, broad-based analysis in the future. It is important to ask several questions about any institutional framework for the delivery of water services:

- How does it affect water quality
- How does it affect environmental goals
- How efficient is it in financing water infrastructure
- How efficient is it in operating water systems
- What is the optimum method to regulate the delivery of water service

The answers to these questions will change over time as environmental, financial, and political conditions change. Institutions that were once the most efficient mechanism for solving a particular

problem often persist, embodying the ideas, power relations, and political compromises of the time of their creation. The provision of water services by the numerous quasi-autonomous government-owned companies, each with its own engineers, lawyers, and governing boards, may once have been the best solution to the perennial problem of water distribution in California. If they have now become anachronisms, progressive public policy must facilitate the creation of a new institutional framework for the provision of water services.

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Endnotes

1. *The Economist*, March 11, 1995, pp. 55–56.

2. The governmental-owned water companies are fully aware their *raison d'etre* is being questioned. An example of this can be found in Monterey County where its Water Agency recently employed a consultant "to identify the organization structure which will best enable the Agency to perform most effectively in the near-term and to position itself strategically for long-term success in the emerging competitive utility services environment." The consultant contract with the Agency also states the consultant will be the Agency's "champion of public ownership and operation of local utilities." It is as though government- owned water companies are adopting defensive strategies reminiscent of the defensive strategies of the 1980s adopted by corporate management to stop takeovers from occurring and to protect jobs of entrenched management.

3. See the case entitled Blunt v. Securities and Exchange Commission (CCH 98,822) United States Court of Appeals for the District of Columbia. No. 94-1336 (1995) for discussions of the SEC'sregulation of the relationships between the tax exempt Issuer and the Underwriting Community and the need for such regulation.

4. Zone 7, an agency of the County of Alameda, is not included in the sample because it is primarily a wholesaler to California Water Service Company, Dublin San Ramon Services District, and the cities of Livermore and Pleasanton.

5. The Annual Reports on Financial Transactions Concerning Special Districts of California released by the Office of the Controller as well as the Summaries of California Public Debt by the California Debt Advisory Commission were also examined. However, due to different reporting requirements, the figures in these reports were not always consistent with those of the audited financial statements, to which this paper defers.

6. This study is principally directed towards the retail sale of water to residential customers by government-owned water companies. There are additional issues involved in the wholesale sale of water including but not limited to

pricing, conservation practices, and transfer of water and the power of government-owned water companies to interpret the state and the federal government water policies.

7. While it is not theoretically valid to add these two percentages because they are derived from different operating revenues, the fact that the operating revenue is relatively similar for the two groups in this study makes the addition in the very least a useful figure.

8. The estimates for local and corporate income taxes are based on the percentage of total operating revenue that investor-owned water utilities pay. The estimate for individual income taxes assumes a combined state and federal marginal tax rate of 42 percent. There are additional tax subsidies that vary depending on the locality that have not been included in this analysis. For example, an argument used against the privatization of the Santa Margarita Water District was that its water bill was part of the property tax, which can be deducted from taxable income for federal income tax purposes.

9. See John Giraudo, "Is Privatization a Solution to the Urban Crisis?" Carnegie Council\DRT International Privatization Project (New York: Carnegie Council on Ethics and International Affairs, May 8, 1992), p. 5.

10. Richard Rosenberg, "A New Era in California Water: The Business Perspective," Remarks Delivered to the Water Education Foundation (Sacramento: Bank of America Corporation, March 30,1995), pp. 3–4.

11. Although any year's interest payments include the "embedded cost" of the interest rate at the time the debt was issued, and thus depend on historical factors, since all utilities finance periodically, the aggregate of interest payments on numerous bond issues is a useful number for comparison.

12. Table 4 shows the high income tax investor of tax-exempt bonds receives a tax subsidy of approximately 15 percent by purchasing tax exempt bonds. By purchasing tax-exempt bonds, the high income investor increases his yield on his capital by approximately 8.5 percent. The fundamental policy issue is whether or not this subsidy should be made available to people with large amounts of capital.

13. This effect is typical for tax- exempt bonds. See Robert S. Amdursky and Clayton P. Gillette, *Municipal Debt Finance Law: Theory and Practice* (Boston: Little, Brown & Co., 1992), pp. 428–35.

14. Some agencies expense losses on the defeasance of debt, while others amortize this cost over the life of their new bonds. Rather than attempt to approximate amortization schedules for a complicated set of bonds, the choice made by the agency, to expense or depreciate, was retained. Removing nonamortized costs associated with new debt, which overcompensates for the differences in accounting, decreases the public agency cost of capital to $78, still higher than the cost of capital for investor-owned companies.

15. Robert Poole, Jr., "Revitalizing State and Local Infrastructure: Empowering Cities and States to Tap Private Capital and Rebuild America," Policy Study No. 190 (Los Angeles: Reason Foundation, May, 1995), p. 6.

16. *Ibid*, p. 17.

17. *Ibid*, p. 6. Investor-owned companies pay these charges only to the extent that they issue tax-exempt debt.

18. As stated before, though, their use of tax-exempt financing is extremely limited.

19. A pamphlet distributed at the hearing on California-American Water Company's bid to privatize the Santa Margarita Water District entitled, "Deny the Cal-Am Proposal Tonight," gives a number of reasons why "there will be no rate decrease, despite Cal-Am's promise." Regarding this issue, see the letters page in the Los Angeles Times, Orange County Edition, July 2, 1995, p. 6.

20. Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, D.C.: Office of Drinking Water, U.S. Environmental Protection Agency, 1987); Congressional Budget Office, Financing Municipal Water Supply Systems (May 1987), p. 4.

21. Patrick C. Mann, "Water Utility Regulation: Rates and Cost Recovery," Policy Study No. 155 (Los Angeles: Reason Foundation, March 1993), p. 6.

22. Part of this difference may be caused by one or two years of deferred maintenance by investor-owned water companies for cash-flow purposes during years of unusually low revenue.

23. Note 7 of the Independent Auditor's Report on the Irvine Ranch Water District for the year ended June 30, 1994, page 32.

24. See, for example, David Haarmeyer, "Privatizing Infrastructure: Options for Municipal Water Supply Systems," Policy Study No. 151 (Los Angeles: Reason Foundation, October 1992), pp. 14–15.

25. Mann, pp. 21–22

26. See CH2M Hill, Water Rate Structure Study (Oakland: East Bay Municipal Utility District,April 1995), Section 5.

27. Charges effective March 1, 1995.

28. East Bay Municipal Utilities District pamphlet, "Applying for Water Service When Your Property Fronts on an Existing Main," p. 3.

29. Environmentalists wanted to eliminate growth by banning all future connections to the East Bay Municipal Utility District. Developers worked out a compromise with the district's board to allow high connection fees instead, which they were willing to pay. Some worry that the removal of water provision from local government control would prevent them from controlling growth. However, should cities wish to control their growth, they should do so without creating inefficiencies in water purveying, endangering a scarce resource.

30. California Public Utilities Commission, "Revision of General Order 103 and Water Tariff Rules 15 and 16," Decision 91-04-068 (April 24, 1991).

31. From the Letter To Shareowners in the Southern California Water Company Annual Report 1994: "We are pleased to report that calendar year 1994's dividend of $1.20 per common share marked the company's 41st consecutive year in which dividend pay outs were increased." From the Letter To Our Shareholders in the California Water Service Company Annual Report 1994: "At its January 1995 meeting, the Board of Directors voted to raise the annual dividend on common stock from a$1.98 to $2.04 per share, making this the 28th consecutive annual increase."

32. Yorkshire Water plc, Annual Report and Accounts 1995, 2; Thames Water, Annual Report and Accounts 1994, 1; Southern California Water Company, Annual Report 1994, 1; California Water Service Company, Annual Report 1994, ii.

33. Project valuation has become a central difficulty with asset sales. Richard Rosenberg, Chairman and CEO of Bank of America, in a letter to Senator Dianne Feinstein dated July 18, 1995, expressed his concern over a proposed sale of the Central Valley Project due to the questionable valuation performed by the purchasing party. Although hailed as a model for future sales, the sale of an Ohio sewage treatment plant to a private company raised tricky issues, such as the application of depreciation against the federal government's investment in the project. See *The Economist*, August 19, 1995, pp. 25–26.

34. The City of Oakland has adopted an inflation based price regulatory system for the waste management industry. The discussion surrounding the adoption centered how do you get capital invested in up grading the waste collection system and how do you give the consumer stable rates. This system is used in over 50 percent of the waste systems in the country. See draft of Franchise Agreement for Solid Waste and Yard Waste Collection and Disposal Services between the City of Oakland and Waste Management of Alameda County, Inc., July 18, 1995.

35. Public Utilities Code Sections 200 et seq.

36. Water Code Sections 13,000 et seq. and Water Code Sections 100 et seq.

37. State of California, California Environmental Protection Agency, State Water Resources Control Board, Division of Water Rights, "Permit for Diversion and Use of Water, No. 20749," Application 20245 of the Contra Costa Water District, Filed June 5, 1961, Sections 12-14, pp. 19–21.

38. Health/Safety Code Sections 4000 et seq.

39. East Bay Municipal Utilities District, "Annual Water Quality Report;" Southern California Water Company, Yorba Linda System, "1994 Water Quality Report." These represent two comparable systems.

40. James Q. Wilson, "Can Government Regulate Itself," The Public Interest (1977); Bruce A. Ackerman, et al. The Uncertain Search for Environmental Quality (The Free Press, 1973); Michael R. Fitzgerald, et al. Intra-Governmental Regulation and Public Interests: Air Pollution Control and the Tennessee Valley (University of Tennessee Bureau of Public Administration, 1983); C. S. Russell, "Monitoring and Enforcement," in Public Policies for Environmental Protection, ed. Paul Portney (Resources for the Future, 1983); Holly June Stiefel, "Municipal Wastewater Treatment: Privatization and Compliance," Policy Study No. 175, Los Angeles: Reason Foundation, February 1994..

41. Margaret Thatcher, *The Downing Street Years: 1979–1990*, New York: Harper Collins, 1993, p. 682.

42. There have been recent articles in the *Wall Street Journal* attacking the British privatization experience. See for example the October 2, 1995 articles on English privatization. In order to thoroughly understand the British Privatization and the current rates, one has to understand the extent of the capital expenditures over the last six years and what would the cost have been to the consumer if the same capital expenditures had been undertaken by the traditional public sector. The *Journal* also criticizes the wage level of some of the senior managers of the water utilities in England. The *Journal* articles did not mention how many senior managers of the British water companies have been terminated because they failed to perform as the capital markets expected them to perform. What is a reasonable compensation for performance in the investor-owned sector is beyond the scope of this paper.

43. See John O'Leary and William D. Eggers, "Privatization and Public Employees: Guidelines for Fair Treatment," How-to Guide No. 9, Los Angeles: Reason Foundation, September 1993.

44. A former Vice President of the East Bay Municipal Utility District board said that they would not deal with the discrimination issues in the suit until after the federal judge made the finding. This is consistent with the argument that public agencies are less willing to comply with regulatory standards.

45. East Bay Municipal Utilities District, EEO-4 Occupational Categories, Current Utilization, September 23, 1994; Barrington-Wellesley Group, Inc., "Trends in EEO Employment," in Management Audit of the Southern California Water Company for the California Public Utilities Commission, Final Draft Report, January 1994, VIII-24.

46. The paper has not tried to analysis the impact on housing patterns that may develop because of restriction on water connections and high costs connection or SCC fees. In the public agencies discussed in this report the area least ethnically diverse is the San Ramon Valley served by East Bay MUD. This is also the area where there has been the most money spent arguing about the unavailability of water and the need for high connection fees and SCC charges. If there had unlimited amounts of water available to the San Ramon valley, more affordable housing might have been built in the area and this had the potential for changing the ethnic make up of the region. One wonders if the real issue was water or the fear of ethnic diversity.