

# Appendix C

## National Public and Private Sector Investment in Water Pollution Control

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**Table C-1. U.S. Environmental Protection Agency Construction Grants Program and Clean Water State Revolving Fund expenditures for municipal water pollution control**

| Year | [-----Construction Grants-----] |                                   |                              |                                  | [-----Clean Water State Revolving Fund-----] |                                   |                              |  |
|------|---------------------------------|-----------------------------------|------------------------------|----------------------------------|--|-----------------------------------|------------------------------|--|
|      | Annual<br>CURRENT<br>(\$1000)   | Cumulative<br>CURRENT<br>(\$1000) | Annual<br>1995\$<br>(\$1000) | Cumulative<br>1995\$<br>(\$1000) | Annual<br>CURRENT<br>(\$1000)                | Cumulative<br>CURRENT<br>(\$1000) | Annual<br>1995\$<br>(\$1000) | Cumulative<br>1995\$<br>(\$1000)         |
| 1970 | 139                             | 139                               | 512                          | 512                              | 0  | 0                                 | 0                            | 0  |
| 1971 | 31                              | 170                               | 100                          | 612                              | 0  | 0                                 | 0                            | 0  |
| 1972 | 132080                          | 132250                            | 364950                       | 365562                           | 0  | 0                                 | 0                            | 0  |
| 1973 | 3043502                         | 3175752                           | 8006876                      | 8372438                          | 0  | 0                                 | 0                            | 0  |
| 1974 | 2519179                         | 5694931                           | 5774008                      | 14146446                         | 0  | 0                                 | 0                            | 0  |
| 1975 | 4343443                         | 10038374                          | 9027401                      | 23173847                         | 0  | 0                                 | 0                            | 0  |
| 1976 | 4598985                         | 14637359                          | 9075865                      | 32249712                         | 0  | 0                                 | 0                            | 0  |
| 1977 | 7272400                         | 21909759                          | 13507911                     | 45757623                         | 0  | 0                                 | 0                            | 0  |
| 1978 | 2832399                         | 24742158                          | 4907498                      | 50665121                         | 0  | 0                                 | 0                            | 0  |
| 1979 | 5112276                         | 29854434                          | 8119248                      | 58784369                         | 0  | 0                                 | 0                            | 0  |
| 1980 | 3807997                         | 33662431                          | 5526847                      | 64311216                         | 0  | 0                                 | 0                            | 0  |
| 1981 | 3605439                         | 37267870                          | 4602088                      | 68913304                         | 0  | 0                                 | 0                            | 0  |
| 1982 | 2250355                         | 39518225                          | 2716928                      | 71630232                         | 0  | 0                                 | 0                            | 0  |
| 1983 | 3988124                         | 43506349                          | 4770899                      | 76401131                         | 0  | 0                                 | 0                            | 0  |
| 1984 | 4565966                         | 48072315                          | 5363493                      | 81764624                         | 0  | 0                                 | 0                            | 0  |
| 1985 | 2129228                         | 50201543                          | 2481372                      | 84245996                         | 0  | 0                                 | 0                            | 0  |
| 1986 | 2319335                         | 52520878                          | 2761491                      | 87007487                         | 0  | 0                                 | 0                            | 0  |
| 1987 | 2442281                         | 54963159                          | 2859376                      | 89866863                         | 0  | 0                                 | 0                            | 0  |
| 1988 | 3062053                         | 58025212                          | 3389277                      | 93256140                         | 252227                                       | 252227                            | 279181                       | 279181                                   |
| 1989 | 1295664                         | 59320876                          | 1382068                      | 94638208                         | 1153764                                      | 1405991                           | 1230703                      | 1509883                                  |
| 1990 | 945677                          | 60266553                          | 1002530                      | 95640738                         | 1368882                                      | 2774873                           | 1451183                      | 2961067                                  |
| 1991 | 279960                          | 60546513                          | 293754                       | 95934492                         | 1971827                                      | 4746700                           | 2068972                      | 5030039                                  |
| 1992 | 284006                          | 60830519                          | 300577                       | 96235069                         | 1891382                                      | 6638082                           | 2001739                      | 7031778                                  |
| 1993 | 118912                          | 60949431                          | 125501                       | 96360570                         | 1890597                                      | 8528678                           | 1995337                      | 9027115                                  |
| 1994 | 105055                          | 61054486                          | 108193                       | 96468763                         | 1270191                                      | 9798870                           | 1308148                      | 10335264                                 |
| 1995 | 11065                           | 61065551                          | 11065                        | 96479828                         | 1318463                                      | 11117332                          | 1318463                      | 11653726                                 |
| 1996 | 0                               | 61065551                          | 0                            | 96479828                         | 1714318                                      | 12831650                          | NA                           | NA                                       |
| 1997 | 0                               | 61065551                          | 0                            | 96479828                         | 792498                                       | 13624148                          | NA                           | NA                                       |
| 1998 | 0                               | 61065551                          | 0                            | 96479828                         | 1240294                                      | 14864442                          | NA                           | NA                                       |
| 1999 | 0                               | 61065551                          | 0                            | 96479828                         | 1299931                                      | 16164373                          | NA                           | NA                                       |
| 2000 | 0                               | 61065551                          | 0                            | 96479828                         | 0  | 16164373                          | NA                           | NA                                       |
|      |                                 | 1321677                           |                              | 1962605                          |  |                                   |                              | Grants data matched to River Basins >18  |
|      |                                 | 587221                            |                              | 842962                           |  |                                   |                              | Grants data not matched to any CU        |
|      |                                 | 59156653                          |                              | 93674326                         |  |                                   |                              | Grants data matched to River Basins 1-18 |
|      |                                 | 0                                 |                              | -65                              |  |                                   |                              | Rounding error                           |
|      |                                 | 61065551                          |                              | 96479828                         |  |                                   |                              | Grants data for all grants, USA total    |

Sources: Construction Grants Program expenditures extracted August, 1995 from USEPA "GICS" database; Clean Water State Revolving Fund (CWSRF) expenditures obtained from USEPA Office of Wastewater Management, CWSRF Program, April, 2000.

**Table C-2. Water pollution control abatement, current year-dollar (million \$) Source: Vogan (1996)**

| Year  | private cap p&e | private o&m p&e | private tot | public capital sewer | public capital elec ut | public capital tot K | public o&m sewer | public o&m elec ut | public o&m other | public tot O&M | public cap+o&m tot pub | Pub+Priv cap+o&m Tot-Point |
|-------|-----------------|-----------------|-------------|----------------------|------------------------|----------------------|------------------|--------------------|------------------|----------------|------------------------|----------------------------|
| 1972  | 1,501           | 789             | 2,290       | 2,260                | 29                     | 2,289                | 1,125            | 3                  | 0                | 1,128          | 3,416                  | 5,706                      |
| 1973  | 1,770           | 972             | 2,742       | 2,534                | 22                     | 2,556                | 1,308            | 4                  | 1                | 1,313          | 3,869                  | 6,611                      |
| 1974  | 1,765           | 1,188           | 2,953       | 3,105                | 29                     | 3,134                | 1,567            | 5                  | 1                | 1,573          | 4,706                  | 7,659                      |
| 1975  | 2,145           | 1,409           | 3,554       | 3,762                | 32                     | 3,794                | 1,838            | 7                  | 0                | 1,845          | 5,639                  | 9,193                      |
| 1976  | 2,607           | 1,726           | 4,333       | 4,082                | 36                     | 4,118                | 2,156            | 9                  | 1                | 2,166          | 6,283                  | 10,616                     |
| 1977  | 2,827           | 2,064           | 4,891       | 4,287                | 52                     | 4,339                | 2,553            | 10                 | 0                | 2,563          | 6,902                  | 11,793                     |
| 1978  | 2,683           | 2,357           | 5,040       | 4,992                | 63                     | 5,055                | 2,977            | 10                 | 1                | 2,988          | 8,043                  | 13,083                     |
| 1979  | 2,873           | 2,788           | 5,661       | 5,945                | 81                     | 6,026                | 3,399            | 12                 | 1                | 3,412          | 9,438                  | 15,099                     |
| 1980  | 2,795           | 2,985           | 5,780       | 6,592                | 61                     | 6,653                | 3,915            | 13                 | 0                | 3,928          | 10,581                 | 16,361                     |
| 1981  | 2,848           | 3,210           | 6,058       | 6,404                | 57                     | 6,461                | 4,556            | 18                 | 1                | 4,575          | 11,035                 | 17,093                     |
| 1982  | 2,937           | 3,466           | 6,403       | 5,851                | 86                     | 5,937                | 5,168            | 17                 | 2                | 5,187          | 11,123                 | 17,526                     |
| 1983  | 2,422           | 3,753           | 6,175       | 5,735                | 73                     | 5,808                | 5,643            | 19                 | 2                | 5,664          | 11,472                 | 17,647                     |
| 1984  | 2,730           | 4,052           | 6,782       | 5,794                | 54                     | 5,848                | 6,057            | 20                 | 2                | 6,079          | 11,927                 | 18,709                     |
| 1985  | 2,670           | 4,350           | 7,020       | 6,193                | 63                     | 6,256                | 6,554            | 10                 | 3                | 6,567          | 12,823                 | 19,843                     |
| 1986  | 2,534           | 4,741           | 7,275       | 6,884                | 40                     | 6,924                | 7,201            | 10                 | 3                | 7,214          | 14,138                 | 21,413                     |
| 1987  | 2,614           | 5,088           | 7,702       | 7,803                | 37                     | 7,840                | 7,792            | 13                 | 3                | 7,808          | 15,648                 | 23,350                     |
| 1988  | 2,581           | 5,427           | 8,008       | 8,322                | 28                     | 8,350                | 8,363            | 12                 | 3                | 8,378          | 16,727                 | 24,735                     |
| 1989  | 3,196           | 5,767           | 8,963       | 8,350                | 49                     | 8,399                | 9,325            | 11                 | 3                | 9,339          | 17,737                 | 26,700                     |
| 1990  | 4,430           | 6,492           | 10,922      | 8,730                | 77                     | 8,807                | 10,262           | 8                  | 3                | 10,273         | 19,080                 | 30,002                     |
| 1991  | 4,666           | 6,223           | 10,889      | 9,015                | 64                     | 9,079                | 10,995           | 14                 | 3                | 11,012         | 20,091                 | 30,980                     |
| 1992  | 4,532           | 6,522           | 11,054      | 9,589                | 14                     | 9,603                | 11,929           | 10                 | 3                | 11,942         | 21,545                 | 32,599                     |
| 1993  | 4,335           | 6,513           | 10,848      | 5,126                | 11                     | 5,137                | 6,220            | 11                 | 3                | 6,234          | 11,371                 | 22,219                     |
| 1994  | 4,720           | 7,057           | 11,777      | 0                    | 10                     | 10                   | 0                | 10                 | 3                | 13             | 23                     | 11,800                     |
| 1995  | 0               | 0               | 0           | 0                    | 0                      | 0                    | 0                | 0                  | 0                | 0              | 0                      | 0                          |
| Total | 68181           | 88939           | 157120      | 131350               | 1068                   | 132418               | 120897           | 256                | 42               | 121195         | 253612                 | 410732                     |

**Table C-3. Water pollution control abatement, constant-dollar (1995\$ GDP index for O&M; PCI for capital) (million \$)**

| Year  | private cap p&e | private o&m p&e | private tot | public capital sewer | public capital elec ut | public capital tot K | public o&m sewer | public o&m elec ut | public o&m other | public tot O&M | public cap+o&m tot pub | Pub+Priv cap+o&m Tot-Point |
|-------|-----------------|-----------------|-------------|----------------------|------------------------|----------------------|------------------|--------------------|------------------|----------------|------------------------|----------------------------|
| 1972  | 4,147           | 2,642           | 6,789       | 6,243                | 80                     | 6,323                | 3,765            | 10                 | 0                | 3,775          | 10,098                 | 16,887                     |
| 1973  | 4,657           | 3,057           | 7,714       | 6,666                | 58                     | 6,724                | 4,114            | 12                 | 3                | 4,130          | 10,854                 | 18,568                     |
| 1974  | 4,045           | 3,437           | 7,482       | 7,116                | 66                     | 7,182                | 4,532            | 15                 | 3                | 4,550          | 11,732                 | 19,214                     |
| 1975  | 4,458           | 3,720           | 8,178       | 7,819                | 67                     | 7,885                | 4,851            | 20                 | 0                | 4,871          | 12,757                 | 20,935                     |
| 1976  | 5,145           | 4,287           | 9,432       | 8,055                | 71                     | 8,126                | 5,354            | 23                 | 3                | 5,380          | 13,505                 | 22,937                     |
| 1977  | 5,251           | 4,796           | 10,047      | 7,962                | 97                     | 8,058                | 5,933            | 24                 | 0                | 5,956          | 14,015                 | 24,062                     |
| 1978  | 4,649           | 5,078           | 9,726       | 8,649                | 109                    | 8,758                | 6,412            | 22                 | 2                | 6,437          | 15,195                 | 24,921                     |
| 1979  | 4,563           | 5,521           | 10,084      | 9,442                | 129                    | 9,570                | 6,730            | 25                 | 2                | 6,757          | 16,327                 | 26,411                     |
| 1980  | 4,057           | 5,408           | 9,465       | 9,567                | 89                     | 9,655                | 7,093            | 26                 | 0                | 7,118          | 16,774                 | 26,238                     |
| 1981  | 3,635           | 5,285           | 8,920       | 8,174                | 73                     | 8,246                | 7,500            | 33                 | 2                | 7,535          | 15,781                 | 24,701                     |
| 1982  | 3,546           | 5,373           | 8,919       | 7,063                | 104                    | 7,167                | 8,010            | 28                 | 3                | 8,042          | 15,209                 | 24,128                     |
| 1983  | 2,897           | 5,591           | 8,488       | 6,860                | 87                     | 6,947                | 8,406            | 29                 | 3                | 8,438          | 15,385                 | 23,874                     |
| 1984  | 3,207           | 5,784           | 8,991       | 6,807                | 63                     | 6,870                | 8,645            | 29                 | 3                | 8,677          | 15,547                 | 24,538                     |
| 1985  | 3,112           | 5,986           | 9,097       | 7,217                | 73                     | 7,291                | 9,018            | 14                 | 4                | 9,036          | 16,326                 | 25,424                     |
| 1986  | 3,017           | 6,356           | 9,373       | 8,196                | 48                     | 8,243                | 9,653            | 13                 | 4                | 9,670          | 17,914                 | 27,287                     |
| 1987  | 3,060           | 6,609           | 9,670       | 9,136                | 43                     | 9,179                | 10,122           | 17                 | 4                | 10,142         | 19,321                 | 28,991                     |
| 1988  | 2,857           | 6,785           | 9,642       | 9,211                | 31                     | 9,242                | 10,455           | 15                 | 4                | 10,474         | 19,715                 | 29,357                     |
| 1989  | 3,409           | 6,904           | 10,314      | 8,906                | 52                     | 8,959                | 11,164           | 13                 | 4                | 11,180         | 20,139                 | 30,453                     |
| 1990  | 4,696           | 7,443           | 12,140      | 9,255                | 82                     | 9,337                | 11,766           | 9                  | 3                | 11,778         | 21,115                 | 33,254                     |
| 1991  | 4,896           | 6,874           | 11,770      | 9,459                | 67                     | 9,526                | 12,144           | 16                 | 3                | 12,163         | 21,690                 | 33,459                     |
| 1992  | 4,796           | 7,008           | 11,804      | 10,148               | 15                     | 10,163               | 12,817           | 11                 | 3                | 12,831         | 22,994                 | 34,798                     |
| 1993  | 4,575           | 6,851           | 11,426      | 5,410                | 12                     | 5,422                | 6,542            | 11                 | 3                | 6,557          | 11,978                 | 23,404                     |
| 1994  | 4,861           | 7,270           | 12,131      | 0                    | 10                     | 10                   | 0                | 10                 | 3                | 13             | 23                     | 12,154                     |
| 1995  | 0               | 0               | 0           | 0                    | 0                      | 0                    | 0                | 0                  | 0                | 0              | 0                      | 0                          |
| Total | 93537           | 128063          | 221600      | 177361               | 1525                   | 178886               | 175027           | 424                | 59               | 175510         | 354396                 | 575996                     |

**Table C-4.** Gross Domestic Product Index and Plant Cost Index used for inflation adjustment of O&M and capital expenditures. *Source: Council of Economic Advisors (1997) and CE (1995).*

| FY   | O&M<br>GDP | Capital<br>PCI |
|------|------------|----------------|
| 1955 |            |                |
| 1956 |            |                |
| 1957 |            |                |
| 1958 |            |                |
| 1959 | 25.6       |                |
| 1960 | 26.0       |                |
| 1961 | 26.3       |                |
| 1962 | 26.9       |                |
| 1963 | 27.2       |                |
| 1964 | 27.7       |                |
| 1965 | 28.4       |                |
| 1966 | 29.4       |                |
| 1967 | 30.3       |                |
| 1968 | 31.8       |                |
| 1969 | 33.4       |                |
| 1970 | 35.2       |                |
| 1971 | 37.1       |                |
| 1972 | 38.8       | 137.2          |
| 1973 | 41.3       | 144.1          |
| 1974 | 44.9       | 165.4          |
| 1975 | 49.2       | 182.4          |
| 1976 | 52.3       | 192.1          |
| 1977 | 55.9       | 204.1          |
| 1978 | 60.3       | 218.8          |
| 1979 | 65.6       | 238.7          |
| 1980 | 71.7       | 261.2          |
| 1981 | 78.9       | 297.0          |
| 1982 | 83.8       | 314.0          |
| 1983 | 87.2       | 316.9          |
| 1984 | 91.0       | 322.7          |
| 1985 | 94.4       | 325.3          |
| 1986 | 96.9       | 318.4          |
| 1987 | 100.0      | 323.8          |
| 1988 | 103.9      | 342.5          |
| 1989 | 108.5      | 355.4          |
| 1990 | 113.3      | 357.6          |
| 1991 | 117.6      | 361.3          |
| 1992 | 120.9      | 358.2          |
| 1993 | 123.5      | 359.2          |
| 1994 | 126.1      | 368.1          |
| 1995 | 129.9      | 379.1          |

## References

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