

Pollution Abatement and Control Expenditures, 1993

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REAL SPENDING for pollution abatement and control (PAC) increased 4.2 percent in 1993, compared with a 4.7-percent increase in 1992. Prices of PAC goods and services, as measured by the PAC fixed-weighted price index, increased 2.3 percent after a 1.6-percent increase. PAC expenditures consist of spending for goods and services that U.S. residents use to produce cleaner air and water and to manage solid waste.

In addition to the estimates for 1993, this article presents revised estimates of PAC expenditures for 1988–92. The revisions, which incorporate updated source data, are small and do not substantially alter the general picture of PAC spending throughout the economy.

The following are highlights of the PAC estimates for 1993:

- Real pollution abatement (PA) spending, which makes up over nine-tenths of PAC, continued to increase at a moderate rate: It increased 4.6 percent after increasing 5.0 percent in 1992.
- The other two PAC components continued to decrease as a share of total PAC. Real spending for regulation and monitoring increased 2.3 percent, in contrast to a 2.2-percent decrease in 1992. Real spending for research and development fell 12.7 percent after decreasing 2.6 percent.
- Real PA spending continued to increase across all sectors of the economy; substantial increases were in business capital spending (5.8 percent) and State and local government purchases (12.0 percent).
- Real spending for air PAC and for solid waste disposal increased 7.2 percent and 7.0 percent, respectively, while water PAC decreased 1.1 percent. Each of these types had increased in 1992.
- Real PAC spending as a percent of gross domestic product (GDP) inched up to 1.8 percent from 1.7 percent in 1987. Business PAC capital spending as a percent of the fixed in-

vestment component of GDP was 2.5 percent, compared with 2.0 percent in 1987.

The first section of this article examines real PAC spending and PAC prices in 1993. The second section discusses patterns in PAC spending during 1987–93. The last section briefly describes the sources of the estimates.

Recent estimates

Real PAC spending in 1993.—Real PAC spending increased \$3.7 billion, or 4.2 percent, to \$91.8 billion in 1993 (table 1). It had increased 4.7 percent in 1992.

Within PA, spending increased for all sectors in 1993 (chart 1). The business sector—which accounts for about two-thirds of PA spending—increased \$2.3 billion, or 4.0 percent. Business spending on capital account increased \$1.1 billion, or 5.8 percent, compared with an 11.3-percent increase for total fixed investment in GDP. The 1993 increase primarily reflected growth in purchases of motor vehicle emission abatement devices, all for air PA, and in purchases of new plant and

Key Terms

In this article, PAC expenditures are presented by *sector* (personal consumption, business, and government), by *type* (air, water, solid waste, and other), and by *function* (pollution abatement, regulation and monitoring, and research and development). Over nine-tenths of all PAC spending is for pollution abatement (PA); the rest is for regulation and monitoring and for research and development. PA, which is the principal function, directly reduces pollutant emissions by preventing the generation of pollutants, by recycling the pollutants, by treating the pollutants prior to discharge, or by restoration (for example, site clean-up). *Regulation and monitoring* is a government activity that stimulates and guides action to reduce pollutant emissions. *Research and development* by business and government not only supports abatement, but also helps to increase the efficiency of regulation and monitoring.

equipment by electric utilities, primarily for air PA. Business spending on current account—that is, for the operation of PA capital—increased \$1.2 billion, or 3.1 percent.¹ The increase was mainly in spending to operate water PA plant and equipment by nonmanufacturing establishments excluding electric utilities and in spending by residential customers for solid waste disposal. A decrease in costs recovered, which is a negative component of current-account spending, also contributed to the current-account spending increase; costs recovered is the value of reclaimed materials and energy from pollution abatement.

1. Operation of PA capital refers to operation, maintenance, and minor repairs of PA capital.

Government PA expenditures increased \$1.3 billion, or 6.4 percent. The increase mainly reflects an increase in State and local government spending for solid waste disposal.

Personal consumption expenditures, which consists of the purchase and operation of motor vehicle emission abatement devices, increased \$0.3 billion, or 4.5 percent, in 1993. The entire increase was for purchases of devices (for example, catalytic converters), which increased along with unit sales of vehicles.²

By type, real spending increased in 1993 for air PAC and solid waste disposal, but decreased for water PAC (chart 1 and table 2, with detail in tables 7 and 8). Air PAC increased 7.2 percent

2. Operating costs of these devices—which consist mainly of the additional cost of using unleaded, rather than leaded, gasoline in vehicles with catalytic converters—have not been discernable since 1990, reflecting a market for leaded gasoline that has so diminished that any price difference between unleaded and leaded gasoline is not measurable. For more information, see the box discussing the operating costs of emission abatement devices on motor vehicles in "Pollution Abatement and Control Expenditures, 1972–90," SURVEY OF CURRENT BUSINESS 72 (June 1992): 33.

Table 1.—Constant-Dollar Spending for Pollution Abatement and Control in 1993: Summary by Type, by Function, and by Sector

	Millions of 1987 dollars			Percent change from preceding year ^P
	1992 ^r	1993 ^P	Change from preceding year ^P	
Pollution abatement and control	88,083	91,826	3,743	4.2
Air	26,078	27,964	1,887	7.2
Water	33,880	33,503	-378	-1.1
Solid waste	29,001	31,025	2,024	7.0
Other and unallocated ¹	-876	-667	209	.....
Pollution abatement and control	88,083	91,826	3,743	4.2
Pollution abatement	84,817	88,731	3,915	4.6
Personal consumption	7,037	7,356	318	4.5
Motor vehicle emission abatement device purchases	7,037	7,356	318	4.5
Business	57,028	59,299	2,270	4.0
On capital account	19,175	20,281	1,106	5.8
Motor vehicle emission abatement devices	5,250	5,778	528	10.1
Plant and equipment	12,478	12,909	432	3.5
Air	5,837	6,798	961	16.5
Water	4,041	3,426	-615	-15.2
Solid waste	2,600	2,685	85	3.3
Other	1,447	1,593	146	10.1
Of which: Residential systems	1,444	1,590	147	10.1
On current account	37,854	39,018	1,165	3.1
Motor vehicle emission abatement devices	0	0	0	.....
Plant and equipment	23,757	24,141	384	1.6
Air	6,121	6,052	-68	-1.1
Water	5,814	6,133	319	5.5
Solid waste	11,822	11,955	133	1.1
Public sewer systems ²	11,076	11,088	12	.1
Costs recovered	-1,578	-1,256	322	.....
Other	4,599	5,045	446	9.7
Of which: Residential systems	4,392	4,887	496	11.3
Government	20,751	22,077	1,326	6.4
State and local purchases	10,437	11,691	1,254	12.0
Public sewer system fixed capital ³	9,123	9,111	-12	-1
Other	1,192	1,275	84	7.0
Regulation and monitoring	1,619	1,656	38	2.3
Research and development	1,648	1,438	-210	-12.7

^P Preliminary.

^r Revised.

1. See footnote 2 to table 7.

2. Spending to operate public sewer systems is classified in the national income and product accounts as business spending.

3. Consists of government enterprise purchases of fixed capital (primarily for the construction of public sewer systems), which is classified in the national income and product accounts as government spending.

NOTE.—The entries in this table are key components from tables 7 and 8; the "other" entries are consolidations of detail from those tables.

CHART 1

Real Spending for Pollution Abatement, 1972–93

Billion 1987 \$

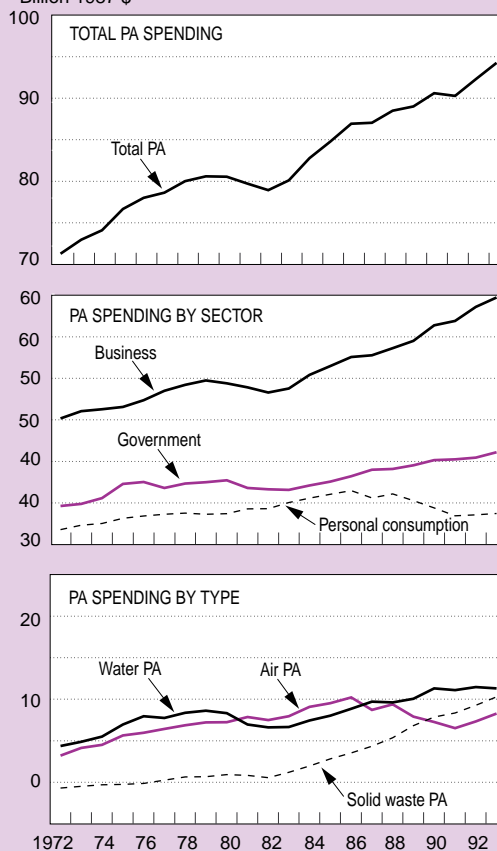


Table 2.—Percent Change in Spending and Prices for Pollution Abatement and Control by Type, 1987–93

	Change from preceding year						
	1987	1988 ^r	1989 ^r	1990 ^r	1991 ^r	1992 ^r	1993 ^p
Total:							
Current dollars	3.0	6.9	5.5	7.1	2.1	6.2	7.1
1987 dollars .....	.2	3.9	1.4	3.5	-6	4.7	4.2
Fixed-weighted price index	2.8	2.9	4.1	3.8	2.6	1.6	2.3
Air:							
Current dollars	-6.9	7.0	-6.5	-3.5	-2.6	7.6	9.0
1987 dollars	-9.6	4.7	-9.5	-5.8	-5.0	6.4	7.2
Fixed-weighted price index	2.9	2.4	3.7	3.7	2.3	1.2	1.5
Water:							
Current dollars	8.1	2.1	7.0	10.9	.7	3.0	2.6
1987 dollars	5.9	-6	3.1	8.0	-1.2	2.4	-1.1
Fixed-weighted price index	2.0	2.7	3.8	2.6	2.2	1.1	3.4
Solid waste:							
Current dollars	13.0	15.6	19.6	14.6	7.0	9.6	9.2
1987 dollars	9.2	11.0	13.8	8.7	3.6	6.7	7.0
Fixed-weighted price index	3.5	4.2	5.1	5.5	3.4	2.8	2.1

^p Preliminary.
^r Revised.

after increasing 6.4 percent in 1992; the 1993 increase was attributable to business and consumer spending for motor vehicle emission abatement devices and to business spending for PA plant and equipment. Real spending for solid waste disposal increased 7.0 percent after increasing 6.7 percent; the 1993 increase was mainly attributable to growth in State and local government spending.³ Real spending for water PAC decreased 1.1 percent after increasing 2.4 percent; the decrease was due mainly to a decline in purchases of plant and equipment by business, both in manufacturing establishments and in nonmanufacturing establishments except for electric utilities.

PAC prices in 1993.—The fixed-weighted price index for total PAC spending increased 2.3 percent in 1993, following a 1.6-percent increase in 1992 (table 2). Price increases accelerated for air and water PAC goods and services, but decelerated for solid waste disposal.

PAC spending in 1987–93

This section discusses selected patterns in PAC spending during 1987–93, with emphasis on real PAC spending and on changes in its composition. The estimates of real spending are presented by sector in tables 3 and 4 and by type in tables 5 and 6. The sectors are defined in accordance with national economic accounting conventions.

3. Throughout this article, solid waste management—which includes the collection and disposal of solid waste and the alteration of production processes to generate less solid waste—is referred to in the tables as solid waste PAC and in the text as solid waste disposal.

The types are defined in accordance with Federal environmental legislation.⁴

During 1987–93, PAC spending grew along with general economic activity, as reflected in GDP. Before adjustment for price change, PAC spending and GDP grew at comparable average annual rates, 5.8 percent and 5.7 percent, respectively; however, after adjustment for price change, PAC spending grew faster than GDP—2.8 percent, compared with 2.1 percent. As a result of this faster PAC growth, real PAC spending as a percent of GDP inched up from 1.7 percent in 1987 to 1.8 percent in 1993.

Spending by sector.—Business spending as a share of total PAC spending increased from 60.0 percent in 1987 to 65.7 percent in 1993 (table 4). Within business spending, the share spent on capital account has generally increased, while that on current account has generally decreased, reflecting the higher average annual rate of growth of capital spending during 1987–93—5.9 percent, compared with 3.7 percent for spending to operate this capital (table 3). This 5.9-percent average annual increase in business capital spending for PAC is about three times the rate for the fixed-investment component of GDP; as a result, the PAC share of business fixed investment rose from 2.0 percent in 1987 to 2.5 percent in 1993.

Government spending as a share of total PAC spending increased from 25.8 percent in 1987 to 26.3 percent in 1993. The government share was boosted by State and local government spending, which grew at an average annual rate of 11.0 percent during 1987–93, mostly for solid waste disposal. The share of government spending accounted for by public sewer system fixed capital decreased (from 50.1 percent to 37.7 percent), reflecting a decline in public sewer construction spending. Government PAC spending increased at a 3.2-percent average annual rate during 1987–93, three times faster than the government-purchases component of GDP; as a result, the PAC share of government purchases rose from 2.3 percent in 1987 to 2.6 percent in 1993.

While the government and business shares of PAC spending have generally risen since 1987, the share accounted for by personal consumption has declined. The decline mainly reflects a dropoff in the cost of operating motor vehicle emission abatement devices, which started falling in 1987

4. For air PA, the Clean Air Act classifies the sources of pollutants as mobile (for example, automobiles) or stationary (for example, factories). For water PA, the Federal Water Pollution Control Act classifies the sources of pollutants as point (for example, factories) or nonpoint (for example, highway construction projects).

and reached zero by 1991; this cost mainly reflects the price difference between unleaded and leaded gasoline. Since 1991, all spending by persons for PAC has been for the purchase of motor vehicle emission abatement devices. Such purchases have been relatively volatile, with increases in 1988 and 1992-93 and decreases in the intervening years, primarily reflecting changes in vehicle sales. However, the overall average annual change for emission abatement device purchases was negative (-2.9 percent) during 1987-93. Spending by persons for PAC declined at a 6.6-percent average annual rate, in contrast to a 2.1-percent average annual increase in personal consumption spending within GDP; such PAC spending continued to account for less than one-half percent of total personal consumption expenditures.

Spending by type.—The share of total PAC spending accounted for by air PAC declined from 37.2 percent in 1987 to 30.5 percent in 1993 (table 6). The share of total PAC spending accounted for by water PAC fluctuated from 1987 through 1993: From 39.0 percent in 1987, it peaked at 39.6 percent in 1990 and settled at a relatively low 36.5 percent in 1993. The share accounted for by spending for solid waste disposal increased steadily from 24.6 percent in 1987 to 33.8 percent in 1993.

Within air PA, the share of spending accounted for by stationary sources generally rose in relation to that for mobile sources. Stationary source spending was boosted by industrial purchases of new plant and equipment, which increased at

an average annual rate of 11.8 percent (table 5). Despite increases in 1992 and 1993, spending for mobile sources—both in the purchase and operation of emission abatement devices—was lower in 1993 than it had been in 1987.

Within water PA, point sources continued to dominate spending, accounting for about 95 percent of the total. Spending by both point and nonpoint sources has tended to fluctuate during 1987-93; however, spending for point sources has risen, on average, outweighing the decline in nonpoint spending and resulting in a 1.7-percent average annual increase for total water PA spending.

Table 4.—Composition of Constant-Dollar Pollution Abatement and Control Spending by Sector, 1987-93

	1987	1988 ^r	1989 ^r	1990 ^r	1991 ^r	1992 ^r	1993 ^p
	Percent of total PAC spending						
Personal consumption	14.3	15.0	12.8	10.2	8.1	8.0	8.0
Business	60.0	59.8	61.2	63.2	65.0	65.8	65.7
Government	25.8	25.2	26.1	26.6	27.0	26.2	26.3
	Percent of spending within each PAC sector						
Personal consumption:							
Motor vehicle emission abatement devices	79.4	83.2	90.7	97.7	100.0	100.0	100.0
Operation of these devices	20.6	16.8	9.3	2.3	0	0	0
Business:							
On capital account	30.8	30.2	29.1	31.1	32.5	33.1	33.6
On current account	69.2	69.8	70.9	68.9	67.5	66.9	66.4
Government:							
State and local purchases	31.3	34.1	37.4	39.4	42.6	45.3	48.3
Public sewer system fixed capital	50.1	47.3	44.1	43.6	40.8	39.6	37.7
Other	18.6	18.6	18.4	17.0	16.7	15.2	14.0

^p Preliminary.
^r Revised.
PAC Pollution abatement and control

Table 3.—Constant-Dollar Spending for Pollution Abatement and Control by Sector, 1987-93

	Millions of 1987 dollars							Percent change from preceding year						1987-93 average annual growth rate
	1987	1988 ^r	1989 ^r	1990 ^r	1991 ^r	1992 ^r	1993 ^p	1988 ^r	1989 ^r	1990 ^r	1991 ^r	1992 ^r	1993 ^p	
Pollution abatement and control	77,649	80,698	81,802	84,648	84,152	88,083	91,826	3.9	1.4	3.5	-0.6	4.7	4.2	2.8
Personal consumption	11,075	12,069	10,445	8,659	6,783	7,037	7,356	9.0	-13.5	-17.1	-21.7	3.7	4.5	-6.6
Motor vehicle emission abatement devices	8,799	10,041	9,474	8,462	6,783	7,037	7,356	14.1	-5.6	-10.7	-19.8	3.7	4.5	-2.9
Operation of these devices	2,276	2,028	971	197	0	0	0	-10.9	-52.1	-79.8	-100.0			
Business	46,552	48,254	50,036	53,465	54,666	57,982	60,286	3.7	3.7	6.9	2.2	6.1	4.0	4.4
On capital account	14,354	14,585	14,584	16,631	17,769	19,175	20,281	1.6	0	14.0	6.8	7.9	5.8	5.9
Motor vehicle emission abatement devices	4,926	5,792	5,230	5,278	5,292	5,250	5,778	17.6	-9.7	.9	-3	-8	10.1	2.7
Plant and equipment	7,312	7,028	7,636	9,718	11,151	12,478	12,909	-3.9	8.6	27.3	14.8	11.9	3.5	9.9
Other	2,116	1,765	1,718	1,636	1,325	1,447	1,593	-16.6	-2.7	-4.8	-19.0	9.2	10.1	-4.6
On current account	32,198	33,669	35,452	36,834	36,898	38,807	40,005	4.6	5.3	3.9	.2	5.2	3.1	3.7
Motor vehicle emission abatement devices	1,613	1,437	737	218	0	0	0	-10.9	-48.7	-70.5	-100.0			
Plant and equipment	19,861	21,185	22,519	23,779	22,830	23,757	24,141	6.7	6.3	5.6	-4.0	4.1	1.6	3.3
Public sewer systems ¹	7,792	8,269	8,803	9,430	10,171	11,076	11,088	6.1	6.5	7.1	7.9	8.9	.1	6.1
Other ²	2,932	2,778	3,393	3,407	3,897	3,974	4,776	-5.2	22.1	.4	14.4	2.0	20.2	8.5
Government	20,022	20,375	21,321	22,524	22,703	23,063	24,184	1.8	4.6	5.6	.8	1.6	4.9	3.2
State and local purchases	6,266	6,953	7,982	8,864	9,661	10,437	11,691	11.0	14.8	11.0	9.0	8.0	12.0	11.0
Public sewer system fixed capital ³	10,035	9,629	9,412	9,822	9,253	9,123	9,111	-4.0	-2.3	4.4	-5.8	-1.4	-1	-1.6
Other ⁴	3,720	3,793	3,927	3,839	3,788	3,504	3,383	2.0	3.5	-2.2	-1.3	-7.5	-3.5	-1.6

^p Preliminary.
^r Revised.
1. Spending to operate public sewer systems is classified in the national income and product accounts as business spending.
2. For this table, private purchases for research and development are included with business pollution abatement

spending on current account.
3. Consists of government enterprise purchases of fixed capital (primarily for the construction of public sewer systems), which are classified in the national income and product accounts as government spending.
4. For this table, government regulation and monitoring and government research and development are included with "other" government pollution abatement spending.

Within solid waste PA, both the industrial and "other" categories increased strongly—at average annual rates of 6.5 percent and 10.7 percent, respectively. The share of industrial spending fell in relation to the "other" share (mainly State and local government spending for solid waste disposal)—from 53.6 percent in 1987 to 47.9 percent in 1993.

Sources of the estimates

The estimates of PAC components that are derived from direct sources account for about two-thirds of total PAC spending. The most important of these direct data sources are the following surveys conducted by the Bureau of the Census: The Pollution Abatement Costs and Expenditures Survey (for capital and operating spending by manufac-

Table 6.—Composition of Constant-Dollar Pollution Abatement and Control Spending by Type, 1987–93

	1987	1988 ^r	1989 ^r	1990 ^r	1991 ^r	1992 ^r	1993 ^p
	Percent of total PAC spending						
Air	37.2	37.5	33.5	30.5	29.1	29.6	30.5
Water	39.0	37.3	37.9	39.6	39.3	38.5	36.8
Solid waste	24.6	26.3	29.5	31.0	32.3	32.9	33.5
	Percent of spending within each PA type						
Air:							
Mobile sources ...	64.2	67.2	63.6	57.8	52.4	49.8	49.4
Stationary sources	35.8	32.8	36.4	42.2	47.6	50.2	50.6
Water:							
Point sources	93.8	94.8	95.0	95.4	95.7	95.5	95.6
Nonpoint sources	6.2	5.2	5.0	4.6	4.3	4.5	4.4
Solid waste:							
Industrial	53.6	53.6	53.2	52.0	50.6	50.5	47.9
Other	46.4	46.4	46.8	48.0	49.4	49.5	52.1

^p Preliminary.
^r Revised.
 PAC Pollution abatement and control
 PA Pollution abatement

Table 5.—Constant-Dollar Spending for Pollution Abatement and Control by Type, 1987–93

	Millions of 1987 dollars						Percent change from preceding year						1987–93 average annual growth rate	
	1987	1988 ^r	1989 ^r	1990 ^r	1991 ^r	1992 ^r	1993 ^p	1988 ^r	1989 ^r	1990 ^r	1991 ^r	1992 ^r		1993 ^p
Pollution abatement and control	77,649	80,698	81,802	84,648	84,152	88,083	91,826	3.9	1.4	3.5	-0.6	4.7	4.2	2.8
Pollution abatement	74,349	77,263	78,266	81,453	80,806	84,817	88,731	3.9	1.3	4.1	-8	5.0	4.6	3.0
Air ¹	27,421	28,732	25,817	24,493	23,031	24,649	26,560	4.8	-10.1	-5.1	-6.0	7.0	7.8	-5
Mobile sources ²	17,614	19,297	16,412	14,154	12,076	12,288	13,134	9.6	-15.0	-13.8	-14.7	1.8	6.9	-4.8
Emission abatement devices	13,725	15,833	14,704	13,740	12,076	12,288	13,134	15.4	-7.1	-6.6	-12.1	1.8	6.9	-7
Operation of these devices	3,889	3,465	1,709	414	0	0	0	-10.9	-50.7	-75.8	-100.0			
Stationary sources	9,807	9,435	9,405	10,339	10,955	12,362	13,426	-3.8	-3	9.9	6.0	12.8	8.6	5.4
Facilities	3,728	3,104	3,218	3,898	5,047	5,975	7,153	-16.7	3.6	21.1	29.5	18.4	19.7	11.5
Industrial ³	3,482	2,989	3,008	3,717	4,885	5,837	6,798	-14.2	.6	23.6	31.4	19.5	16.5	11.8
Other ⁴	246	115	210	180	162	138	354	-53.2	82.5	-14.2	-10.0	-14.7	156.4	6.3
Operation of facilities	6,079	6,331	6,187	6,442	5,908	6,387	6,274	4.1	-2.3	4.1	-8.3	8.1	-1.8	.5
Industrial	5,843	6,096	5,963	6,225	5,689	6,121	6,052	4.3	-2.2	4.4	-8.6	7.6	-1.1	.6
Other ⁵	236	234	224	217	220	266	221	-6	-4.2	-3.4	1.4	21.0	-16.9	-1.1
Water	29,420	29,221	30,127	32,641	32,225	32,954	32,612	-7	3.1	8.3	-1.3	2.3	-1.0	1.7
Point sources ⁶	27,608	27,704	28,608	31,147	30,846	31,478	31,168	.3	3.3	8.9	-1.0	2.1	-1.0	2.0
Facilities	13,835	13,208	13,470	14,914	14,286	14,007	13,450	-4.5	2.0	10.7	-4.2	-2.0	-4.0	-5
Industrial ³	2,566	2,483	2,976	4,060	4,191	4,041	3,426	-3.2	19.9	36.4	3.2	-3.6	-15.2	4.9
Public sewer systems	10,035	9,629	9,412	9,822	9,253	9,123	9,111	-4.0	-2.3	4.4	-5.8	-1.4	-1	-1.6
Other ⁷	1,233	1,096	1,082	1,031	841	843	913	-11.2	-1.2	-4.7	-18.4	.2	8.3	-4.9
Operation of facilities	13,773	14,496	15,138	16,234	16,560	17,471	17,718	5.2	4.4	7.2	2.0	5.5	1.4	4.3
Industrial	5,257	5,538	5,649	6,135	5,719	5,814	6,133	5.3	2.0	8.6	-6.8	1.7	5.5	2.6
Public sewer systems	7,792	8,269	8,803	9,430	10,171	11,076	11,088	6.1	6.5	7.1	7.9	8.9	.1	6.1
Other ⁵	724	690	686	668	670	581	496	-4.8	-5	-2.6	.2	-13.3	-14.6	-6.1
Nonpoint sources	1,811	1,517	1,518	1,494	1,379	1,476	1,445	-16.3	.1	-1.6	-7.7	7.0	-2.1	-3.7
Solid waste	18,698	20,726	23,619	25,713	26,674	28,538	30,594	10.8	14.0	8.9	3.7	7.0	7.2	8.6
Industrial	10,024	11,107	12,559	13,359	13,497	14,422	14,640	10.8	13.1	6.4	1.0	6.9	1.5	6.5
Other ⁸	8,675	9,619	11,059	12,354	13,177	14,116	15,953	10.9	15.0	11.7	6.7	7.1	13.0	10.7
Other ⁹	-1,190	-1,416	-1,297	-1,395	-1,123	-1,325	-1,035	19.0	-8.4	7.6	-19.5	18.0	-21.9	-2.3
Regulation and monitoring	1,519	1,643	1,657	1,636	1,654	1,619	1,656	8.1	.9	-1.3	1.1	-2.2	2.3	1.5
Air	410	430	452	446	488	467	487	4.9	5.1	-1.2	9.4	-4.3	4.2	2.9
Water	583	617	616	597	608	660	690	5.7	-2	-3.0	1.9	8.5	4.5	2.8
Solid waste	300	371	369	372	363	339	348	23.7	-6	.9	-2.5	-6.6	2.5	2.5
Other ⁹	226	225	220	220	195	152	132	-4	-2.1	-3	-11.5	-22.0	-12.9	-8.6
Research and development	1,781	1,792	1,879	1,560	1,692	1,648	1,438	.6	4.8	-17.0	8.5	-2.6	-12.7	-3.5
Air	1,089	1,103	1,114	866	992	961	918	1.3	1.0	-22.3	14.6	-3.2	-4.5	-2.8
Water	253	241	262	249	263	266	201	-4.5	8.7	-5.1	5.5	1.1	-24.5	-3.8
Solid waste	113	119	153	150	135	124	84	4.9	28.9	-1.9	-10.1	-8.2	-32.3	-4.9
Other ⁹	326	329	350	295	302	298	236	1.1	6.2	-15.7	2.5	-1.5	-20.6	-5.2

^p Preliminary.

^r Revised.

1. The Clean Air Act classifies sources of pollutants as either mobile, such as passenger cars, or stationary, such as factories.

2. Cars and trucks only.

3. Consists of new plant and equipment for pollution abatement from the Pollution Abatement Costs and Expenditures Survey and the Structures and Equipment Survey—Supplement for Pollution Abatement by the Bureau of the Census and of indirect estimation by BEA for selected nonmanufacturing industries.

4. Consists of spending for fixed capital of government enterprises, such as the Tennessee Valley Authority.

5. Consists of spending to operate abatement facilities by government enterprises and spending to acquire and

operate government facilities other than those covered in footnote 4; data on the acquisition costs of these facilities are inseparable from the data on operating costs.

6. The Federal Water Pollution Control Act defines point sources as facilities that discharge to a body of water through a pipe or ditch.

7. Consists of spending for private connectors to public sewer systems, capital spending by owners of feedlots, and spending for fixed capital of government enterprises.

8. Consists of Federal, State, and local government spending for the collection and disposal of solid waste and of household payments to business for the collection and disposal of solid waste.

9. Consists of "other and allocated" spending—for example, for abatement of multimedia pollution (see footnote 2, table 7).

turing establishments), the Pollution Abatement Plant and Equipment Expenditures Survey (for electric utilities capital spending and, to a lesser extent, mining and petroleum enterprises), surveys of government finances (for government spending to operate public sewer systems and for solid waste disposal), and a survey of new construction put in place (for government spending to construct sewer systems). Other relevant surveys are conducted by the Bureau of Economic Analysis (for PAC by Federal agencies) and by the Energy Information Administration of the U.S. Department of Energy (for a key component of electric utility operating costs for PA).

The estimates of the remaining one-third of PAC spending are based on sources that provide more general information used in indirect methods of estimation. The most significant of these estimates are for nonmanufacturing and residential customers' spending for solid waste disposal, spending for motor vehicle emission abatement devices and their operation, and nonmanufacturing operation and maintenance spending for PA (excluding electric utilities). For more information about these indirect methods, see the

Preparation of the estimates was a divisionwide effort, supervised by Gary L. Rutledge, Chief of the Environmental Economics Division. Christine R. Vogan coordinated preparation of the article and analysis of the estimates. Christian Thieme provided computer programming support and, along with Mary L. Roy, coordinated the compilation of the estimates. Shirley D. Tisdale provided statistical services.

discussion of "other sources" at the end of [the PAC expenditures article](#) in the May 1994 SURVEY OF CURRENT BUSINESS.

To convert current-dollar estimates to constant (1987) dollars, selected Bureau of Labor Statistics (BLS) price data, together with cost and price indexes mainly derived from BLS price data, are used. The basic approach is deflation with fixed-weighted indexes, which are constructed to correspond as closely as possible to a particular element of PAC. After each element is converted to constant dollars, estimates are summed to obtain the PAC published totals.


Tables 7 and 8 follow. 

Table 7.—Expenditures for Pollution Abatement and Control by Sector and by Type, in Current and Constant Dollars, and Selected Fixed-Weighted Price Indexes, 1987–93

Line	1987					1988 ^r					1989 ^r					
	Total ¹	Air	Water	Solid waste	Other and un-allocated ²	Total ¹	Air	Water	Solid waste	Other and un-allocated ²	Total ¹	Air	Water	Solid waste	Other and un-allocated ²	
Millions of dollars																
1	77,649	28,920	30,255	19,111	-638	83,020	30,944	30,878	22,100	-903	87,622	28,945	33,045	26,438	-806	
2	Pollution abatement	74,349	27,421	29,420	18,698	-1,190	79,453	29,349	29,991	21,592	-1,480	83,774	27,240	32,090	25,873	-1,428
3	Personal consumption	11,075	11,075				12,285	12,285				10,950	10,950			
4	Durable goods ³	8,799	8,799				10,248	10,248				9,872	9,872			
5	Nondurable goods ⁴	2,276	2,276				2,037	2,037				1,079	1,079			
6	Business	45,432	16,005	18,168	12,731	-1,472	48,415	16,868	18,854	14,559	-1,865	52,429	15,978	20,789	17,435	-1,773
7	On capital account	14,354	8,408	4,493	1,452		15,009	9,031	4,156	1,822		15,471	8,717	4,711	2,044	
8	On current account	31,078	7,597	13,675	11,278	-1,472	33,406	7,837	14,698	12,737	-1,865	36,958	7,261	16,078	15,391	-1,773
9	Private	24,602	7,456	5,867	11,278		26,733	7,676	6,321	12,737		29,240	7,109	6,740	15,391	
10	Government enterprise	7,949	141	7,808	(*)	1	8,540	161	8,377	(*)	2	9,492	152	9,338	(*)	2
11	Costs recovered ⁵	-1,473				-1,473	-1,867				-1,867	-1,775				-1,775
12	Government	17,842	341	11,252	5,968	282	18,752	196	11,138	7,034	385	20,395	311	11,301	8,438	345
13	Federal	1,237	80	707	250	200	1,402	65	707	300	330	1,379	70	729	300	280
14	State and local	6,266	15	452	5,718	82	7,283	10	484	6,734	55	8,705	12	489	8,138	65
15	Government enterprise purchases of fixed capital	10,339	246	10,094			10,067	121	9,947			10,312	229	10,083		
16	Regulation and monitoring	1,519	410	583	300	226	1,695	440	635	385	235	1,803	490	670	400	243
17	Federal	700	110	250	120	220	850	120	300	200	230	860	130	310	180	240
18	State and local	819	300	333	180	6	845	320	335	185	5	943	360	360	220	3
19	Research and development	1,781	1,089	253	113	326	1,872	1,155	252	123	342	2,044	1,216	285	165	379
20	Private	1,120	887	113	19	101	1,179	934	119	20	106	1,241	984	125	21	112
21	Federal	630	200	120	90	220	665	220	115	100	230	770	230	140	140	260
22	State and local	31	2	20	4	5	28	1	18	3	6	33	2	20	4	7
Millions of constant (1987) dollars																
23	Pollution abatement and control	77,649	28,920	30,255	19,111	-638	80,698	30,265	30,078	21,216	-861	81,802	27,383	31,004	24,140	-726
24	Pollution abatement	74,349	27,421	29,420	18,698	-1,190	77,263	28,732	29,221	20,726	-1,416	78,266	25,817	30,127	23,619	-1,297
25	Personal consumption	11,075	11,075				12,069	12,069				10,445	10,445			
26	Durable goods ³	8,799	8,799				10,041	10,041				9,474	9,474			
27	Nondurable goods ⁴	2,276	2,276				2,028	2,028				971	971			
28	Business	45,432	16,005	18,168	12,731	-1,472	47,131	16,476	18,459	13,973	-1,776	48,901	15,086	19,505	15,917	-1,607
29	On capital account	14,354	8,408	4,493	1,452		14,585	8,781	4,033	1,771		14,584	8,238	4,440	1,906	
30	On current account	31,078	7,597	13,675	11,278	-1,472	32,546	7,694	14,426	12,202	-1,776	34,317	6,848	15,065	14,011	-1,607
31	Private	24,602	7,456	5,867	11,278		25,878	7,533	6,143	12,202		26,962	6,700	6,251	14,011	
32	Government enterprise	7,949	141	7,808	(*)	1	8,446	161	8,283	(*)	2	8,965	148	8,815	(*)	2
33	Costs recovered ⁵	-1,473				-1,473	-1,778				-1,778	-1,609				-1,609
34	Government	17,842	341	11,252	5,968	282	18,063	188	10,762	6,753	361	18,920	286	10,621	7,701	311
35	Federal	1,237	80	707	250	200	1,340	64	675	292	309	1,271	66	670	283	252
36	State and local	6,266	15	452	5,718	82	6,953	10	431	6,461	52	7,982	11	495	7,418	59
37	Government enterprise purchases of fixed capital	10,339	246	10,094			9,771	115	9,656			9,667	210	9,457		
38	Regulation and monitoring	1,519	410	583	300	226	1,643	430	617	371	225	1,657	452	616	369	220
39	Federal	700	110	250	120	220	814	115	287	192	220	780	118	281	163	218
40	State and local	819	300	333	180	6	829	315	329	180	5	877	334	334	206	3
41	Research and development	1,781	1,089	253	113	326	1,792	1,103	241	119	329	1,879	1,114	262	153	350
42	Private	1,120	887	113	19	101	1,123	890	113	19	101	1,135	899	114	19	102
43	Federal	630	200	120	90	220	643	213	111	97	222	715	213	130	130	241
44	State and local	31	2	20	4	5	27	1	17	3	6	30	2	18	4	6
Selected fixed-weighted price indexes																
45	Pollution abatement and control	100.0	100.0	100.0	100.0	100.0	102.9	102.4	102.7	104.2	105.0	107.1	106.2	106.5	109.5	111.0
46	Pollution abatement	100.0	100.0	100.0	100.0	100.0	102.9	102.3	102.6	104.2	104.6	107.0	106.0	106.5	109.5	110.1
47	Personal consumption	100.0	100.0				101.9	101.9				105.5	105.5			
48	Business	100.0	100.0	100.0	100.0	100.0	102.8	102.6	102.1	104.2	105.0	107.2	106.3	106.5	109.6	110.3
49	On capital account	100.0	100.0	100.0	100.0		103.0	103.1	103.0	102.9		106.1	106.1	105.8	107.2	
50	On current account	100.0	100.0	100.0	100.0	100.0	102.6	102.0	101.8	104.4	105.0	107.7	106.6	106.7	109.9	110.3
51	Government	100.0	100.0	100.0	100.0	100.0	103.8	104.4	103.5	104.1	106.7	107.6	108.8	106.4	109.5	111.0
52	Regulation and monitoring	100.0	100.0	100.0	100.0	100.0	103.1	102.4	102.9	103.6	104.4	108.8	108.5	108.8	108.3	110.2
53	Research and development	100.0	100.0	100.0	100.0	100.0	104.4	104.7	104.2	103.7	103.9	108.8	109.1	108.7	108.2	108.3
Millions of dollars																
54	Addendum: Business capital consumption allowances: ⁶ Valued at replacement cost in current dollars	15,505					15,946					16,485				
55	Valued at replacement cost in constant (1987) dollars	15,285					15,274					15,229				

See footnotes at end of table.

Table 7.—Expenditures for Pollution Abatement and Control by Sector and by Type, in Current and Constant Dollars, and Selected Fixed-Weighted Price Indexes, 1987–93—Continued

Line	1990					1991 ^r					
	Total ¹	Air	Water	Solid waste	Other and unallocated ²	Total ¹	Air	Water	Solid waste	Other and unallocated ²	
Millions of dollars											
1	93,877	27,918	36,642	30,303	-987	95,893	27,199	36,906	32,431	-643	
2	Pollution abatement	90,321	26,460	35,709	29,724	-1,573	92,012	25,492	35,914	31,842	-1,235
3	Personal consumption	9,241	9,241	.....	.....	.....	7,425	7,425	.....	.....	.....
4	Durable goods ³	8,946	8,946	.....	.....	.....	7,425	7,425	.....	.....	.....
5	Nondurable goods ⁴	295	295	.....	.....	.....	0	0	.....	.....	.....
6	Business	58,498	16,936	23,630	19,855	-1,922	60,954	17,795	24,008	20,720	-1,569
7	On capital account	17,986	9,681	5,838	2,466	.....	19,733	11,278	5,750	2,705	.....
8	On current account	40,512	7,254	17,791	17,388	-1,922	41,220	6,517	18,257	18,015	-1,569
9	Private	32,008	7,100	7,520	17,388	.....	31,623	6,362	7,246	18,015	.....
10	Government enterprise	10,428	154	10,272	(*)	2	11,169	155	11,012	(*)	2
11	Costs recovered ⁵	-1,924	.....	.....	.....	-1,924	-1,571	.....	.....	.....	-1,571
12	Government	22,582	284	12,080	9,870	349	23,634	272	11,907	11,122	334
13	Federal	1,391	71	734	304	281	1,417	73	753	341	250
14	State and local	10,161	13	514	9,565	68	11,417	16	537	10,781	83
15	Government enterprise purchases of fixed capital	11,031	200	10,831	.....	.....	10,800	183	10,617	.....	.....
16	Regulation and monitoring	1,784	476	649	408	250	1,868	533	677	427	231
17	Federal	877	133	307	191	245	900	175	301	201	223
18	State and local	907	343	342	217	5	968	358	376	226	8
19	Research and development	1,772	982	284	171	336	2,013	1,174	315	162	362
20	Private	945	749	95	16	85	1,176	932	118	20	106
21	Federal	777	231	151	151	244	790	240	160	139	250
22	State and local	51	2	38	4	7	47	2	36	3	6
Millions of constant (1987) dollars											
23	Pollution abatement and control	84,648	25,806	33,487	26,236	-880	84,152	24,511	33,096	27,172	-627
24	Pollution abatement	81,453	24,493	32,641	25,713	-1,395	80,806	23,031	32,225	26,674	-1,123
25	Personal consumption	8,659	8,659	.....	.....	.....	6,783	6,783	.....	.....	.....
26	Durable goods ³	8,462	8,462	.....	.....	.....	6,783	6,783	.....	.....	.....
27	Nondurable goods ⁴	197	197	.....	.....	.....	0	0	.....	.....	.....
28	Business	52,630	15,581	21,568	17,175	-1,695	53,667	16,009	21,698	17,362	-1,402
29	On capital account	16,631	8,995	5,399	2,237	.....	17,769	10,177	5,201	2,391	.....
30	On current account	35,998	6,586	16,169	14,938	-1,695	35,898	5,832	16,498	14,971	-1,402
31	Private	28,111	6,443	6,730	14,938	.....	26,972	5,689	6,312	14,971	.....
32	Government enterprise	9,584	143	9,439	(*)	2	10,330	143	10,185	(*)	2
33	Costs recovered ⁵	-1,697	.....	.....	.....	-1,697	-1,404	.....	.....	.....	-1,404
34	Government	20,165	254	11,073	8,538	300	20,356	239	10,527	9,312	279
35	Federal	1,228	62	656	269	241	1,220	63	652	296	209
36	State and local	8,864	11	524	8,269	59	9,661	14	562	9,016	70
37	Government enterprise purchases of fixed capital	10,073	180	9,893	.....	.....	9,475	162	9,313	.....	.....
38	Regulation and monitoring	1,636	446	597	372	220	1,654	488	608	363	195
39	Federal	771	117	270	168	216	761	148	255	170	188
40	State and local	865	330	327	204	4	893	340	354	193	6
41	Research and development	1,559	866	249	150	295	1,692	992	263	135	302
42	Private	835	662	84	14	75	999	792	101	17	90
43	Federal	681	203	132	133	214	654	199	133	115	207
44	State and local	43	1	33	3	6	39	2	29	3	5
Selected fixed-weighted price indexes											
45	Pollution abatement and control	111.1	110.1	109.3	115.6	111.7	114.0	112.6	111.7	119.5	102.1
46	Pollution abatement	111.1	110.1	109.3	115.7	112.7	113.9	112.5	111.6	119.5	110.1
47	Personal consumption	109.9	109.9	.....	.....	.....	112.4	112.4	.....	.....	.....
48	Business	111.3	110.1	109.4	115.7	113.4	113.7	112.5	110.6	119.5	111.9
49	On capital account	107.9	107.7	107.4	110.3	.....	110.5	110.7	109.3	113.1	.....
50	On current account	112.9	112.9	110.1	116.4	113.4	115.2	114.5	111.0	120.3	111.9
51	Government	111.5	112.1	109.1	115.6	116.2	115.5	113.8	113.3	119.4	119.6
52	Regulation and monitoring	109.0	106.7	108.5	109.5	114.0	113.4	108.8	111.7	119.1	118.5
53	Research and development	113.5	113.3	113.9	114.0	113.8	118.9	118.3	119.5	120.3	119.9
Millions of dollars											
54	Addendum: Business capital consumption allowances: ⁶										
55	Valued at replacement cost in current dollars	16,890	.....	.....	.....	.....	11,316	.....	.....	.....	.....
	Valued at replacement cost in constant (1987) dollars	15,272	.....	.....	.....	.....	10,040	.....	.....	.....	.....

See footnotes at end of table.

Table 7.—Expenditures for Pollution Abatement and Control by Sector and by Type, in Current and Constant Dollars, and Selected Fixed-Weighted Price Indexes, 1987–93—Continued

Line	1992					1993 ^r					
	Total ¹	Air	Water	Solid waste	Other and unallocated ²	Total ¹	Air	Water	Solid waste	Other and unallocated ²	
Millions of dollars											
1	101,846	29,257	38,021	35,556	-989	109,044	31,902	39,015	38,844	-717	
2	Pollution abatement	98,134	27,586	37,005	35,006	-1,464	105,386	30,238	37,984	38,326	-1,161
3	Personal consumption	7,896	7,896				8,458	8,458			
4	Durable goods ³	7,896	7,896				8,458	8,458			
5	Nondurable goods ⁴	0	0				0	0			
6	Business	65,592	19,437	25,149	22,771	-1,764	69,983	21,274	25,932	24,202	-1,425
7	On capital account	21,557	12,416	5,739	3,402		23,272	14,324	5,281	3,667	
8	On current account	44,035	7,021	19,410	19,369	-1,764	46,711	6,950	20,650	20,536	-1,425
9	Private	33,677	6,832	7,477	19,369		35,431	6,813	8,083	20,536	
10	Government enterprise	12,124	189	11,933	(*)	2	12,707	137	12,568	(*)	2
11	Costs recovered ⁵	-1,766				-1,766	-1,427				-1,427
12	Government	24,646	253	11,857	12,236	300	26,945	506	12,052	14,124	264
13	Federal	1,215	75	656	281	203	1,068	80	567	250	171
14	State and local	12,630	22	556	11,955	97	14,583	21	595	13,873	93
15	Government enterprise purchases of fixed capital	10,801	156	10,645			11,295	404	10,890		
16	Regulation and monitoring	1,848	526	741	401	180	1,924	561	789	416	158
17	Federal	842	185	290	191	176	883	229	296	290	153
18	State and local	1,006	341	451	210	5	1,041	332	493	211	5
19	Research and development	1,864	1,144	275	149	295	1,734	1,104	243	102	286
20	Private	1,131	896	114	19	102	1,185	939	119	20	107
21	Federal	696	247	133	127	189	512	163	95	78	175
22	State and local	37	1	28	3	4	37	1	29	3	4
Millions of constant (1987) dollars											
23	Pollution abatement and control	88,083	26,078	33,880	29,001	-876	91,826	27,964	33,503	31,025	-667
24	Pollution abatement	84,817	24,649	32,954	28,538	-1,325	88,731	26,560	32,612	30,594	-1,035
25	Personal consumption	7,037	7,037				7,356	7,356			
26	Durable goods ³	7,037	7,037				7,356	7,356			
27	Nondurable goods ⁴	0	0				0	0			
28	Business	57,028	17,392	22,642	18,571	-1,576	59,299	18,764	22,463	19,326	-1,254
29	On capital account	19,175	11,087	5,146	2,941		20,281	12,576	4,638	3,066	
30	On current account	37,854	6,304	17,495	15,630	-1,576	39,018	6,188	17,824	16,260	-1,254
31	Private	28,157	6,121	6,407	15,630		29,035	6,052	6,723	16,260	
32	Government enterprise	11,274	184	11,089	(*)	2	11,239	136	11,101	(*)	2
33	Costs recovered ⁵	-1,578				-1,578	-1,256				-1,256
34	Government	20,751	221	10,313	9,967	251	22,077	440	10,150	11,268	219
35	Federal	1,040	64	565	242	170	902	68	480	213	142
36	State and local	10,437	18	613	9,725	81	11,691	18	541	11,055	77
37	Government enterprise purchases of fixed capital	9,274	138	9,136			9,484	354	9,129		
38	Regulation and monitoring	1,619	467	660	339	152	1,656	487	690	348	132
39	Federal	709	156	245	161	148	740	192	248	172	128
40	State and local	909	311	416	179	4	917	296	442	175	4
41	Research and development	1,648	961	266	124	298	1,438	918	201	84	236
42	Private	954	756	96	16	86	987	782	99	17	89
43	Federal	664	204	147	105	208	422	135	78	65	145
44	State and local	30	1	23	2	3	30	1	23	3	3
Selected fixed-weighted price indexes											
45	Pollution abatement and control	115.8	114.0	112.9	122.8	101.8	118.6	115.6	116.8	125.3	104.7
46	Pollution abatement	115.8	113.8	112.9	122.8	110.1	118.5	115.5	116.8	125.4	112.0
47	Personal consumption	114.5	114.5				116.4	116.4			
48	Business	115.3	113.3	111.3	123.0	112.0	118.2	114.9	115.5	125.5	113.6
49	On capital account	112.0	112.1	110.6	115.6		114.5	114.2	113.4	119.6	
50	On current account	116.8	114.6	111.6	123.9	112.0	119.8	115.6	116.2	126.3	113.6
51	Government	117.9	114.5	115.4	122.6	119.9	120.9	115.3	118.8	125.2	120.5
52	Regulation and monitoring	115.1	111.9	113.2	120.1	119.0	116.9	114.3	115.2	121.8	119.6
53	Research and development	119.5	119.0	120.0	120.6	120.2	120.6	120.3	121.1	121.3	121.1
Millions of dollars											
54	Addendum: Business capital consumption allowances: ⁶										
55	Valued at replacement cost in current dollars	11,595					12,075				
	Valued at replacement cost in constant (1987) dollars	10,212					10,387				

^r Preliminary.^r Revised.¹ Less than \$500,000.

1. Includes spending for air and water pollution abatement and control and expenditures for solid waste collection and disposal by means acceptable to Federal, State, and local governments. Excludes agricultural production except feedlot operations.

2. "Other" includes spending for abatement and control of noise, radiation, and pesticide pollution; "unallocated"

includes business spending not assigned to media.

3. Durables consists of purchases of motor vehicle emission abatement devices.

4. Nondurables consists of spending to operate motor vehicle emission abatement devices.

5. "Costs recovered" is the value of reclaimed materials and energy from pollution abatement.

6. Capital consumption allowances facilitate the conversion of expenditures to a cost basis.

NOTE.—Expenditures are attributed to the sector that performs, rather than pays for, the air or water pollution abatement or the solid waste collection and disposal.

Table 8.—Business and Government Expenditures for Air and Water Pollution Abatement In Current and Constant Dollars, 1987–93

	Air PA							Water PA						
	1987	1988 ^r	1989 ^r	1990 ^r	1991 ^r	1992 ^r	1993 ^p	1987	1988 ^r	1989 ^r	1990 ^r	1991 ^r	1992 ^r	1993 ^p
Millions of dollars														
Business (line 6)	16,005	16,868	15,978	16,936	17,795	19,437	21,274	18,168	18,854	20,789	23,630	24,008	25,149	25,932
On capital account (line 7)	8,408	9,031	8,717	9,681	11,278	12,416	14,324	4,493	4,156	4,711	5,838	5,750	5,739	5,281
Motor vehicle emission abatement	4,926	5,911	5,450	5,580	5,793	5,892	6,645	2,566	2,581	3,196	4,430	4,686	4,532	3,917
Plant and equipment ¹	3,482	3,120	3,266	4,102	5,486	6,525	7,679	1,924	1,572	1,512	1,405	1,081	1,203	1,361
Residential systems ²								3	3	4	3	3	3	3
Agricultural business ³								3	3	3	3	3	3	3
On current account (line 8)	7,597	7,837	7,261	7,254	6,517	7,021	6,950	13,675	14,698	16,078	17,791	18,257	19,410	20,650
Private (line 9)	7,456	7,676	7,109	7,100	6,362	6,832	6,813	5,867	6,321	6,740	7,520	7,246	7,477	8,083
Motor vehicle emission abatement	1,613	1,446	817	301	0	0	0	5,257	5,671	6,049	6,796	6,488	6,679	7,246
Plant and equipment ¹	5,843	6,230	6,292	6,799	6,362	6,832	6,813	601	642	682	714	749	788	828
Residential systems ²								8	8	10	9	9	9	8
Agricultural business ³								8	8	10	9	9	9	8
Government enterprise (line 10)	141	161	152	154	155	189	137	7,808	8,377	9,338	10,272	11,012	11,933	12,568
Publicly owned electric utilities	141	161	152	154	155	189	137	13	12	11	8	14	10	11
Public sewer systems ⁴								7,792	8,363	9,325	10,262	10,995	11,918	12,552
Other								3	2	3	2	3	5	5
Government (line 12)	341	196	311	284	272	253	506	11,252	11,138	11,301	12,080	11,907	11,857	12,052
Federal (line 13)	80	65	70	71	73	75	80	707	707	729	734	753	656	567
Federal except highways	80	65	70	71	73	75	80	700	700	725	730	749	652	563
Highway erosion abatement								7	7	4	4	4	4	5
State and local (line 14)	15	10	12	13	16	22	21	452	484	489	514	537	556	595
State and local except highways	15	10	12	13	16	22	21							
Highway erosion abatement								452	484	489	514	537	556	595
Government enterprise fixed capital (line 15)	246	121	229	200	183	156	404	10,094	9,947	10,083	10,831	10,617	10,645	10,890
Publicly owned electric utilities	246	121	229	200	183	156	404	58	28	49	77	64	14	21
Public sewer systems ⁴								10,035	9,918	10,034	10,755	10,553	10,631	10,869
Millions of constant (1987) dollars														
Business (line 6)	16,005	16,476	15,086	15,581	16,009	17,392	18,764	18,168	18,459	19,505	21,568	21,698	22,642	22,463
On capital account (line 7)	8,408	8,781	8,238	8,995	10,177	11,087	12,576	4,493	4,033	4,440	5,399	5,201	5,146	4,638
Motor vehicle emission abatement	4,926	5,792	5,230	5,278	5,292	5,250	5,778	2,566	2,483	2,976	4,060	4,191	4,041	3,426
Plant and equipment ¹	3,482	2,989	3,008	3,717	4,885	5,837	6,798	1,924	1,548	1,461	1,337	1,007	1,103	1,210
Residential systems ²								3	3	3	3	3	3	3
Agricultural business ³								3	3	3	3	3	3	3
On current account (line 8)	7,597	7,694	6,848	6,586	5,832	6,304	6,188	13,675	14,426	15,065	16,169	16,498	17,495	17,824
Private (line 9)	7,456	7,533	6,700	6,443	5,689	6,121	6,052	5,867	6,143	6,251	6,730	6,312	6,407	6,723
Motor vehicle emission abatement	1,613	1,437	737	218	0	0	0	5,257	5,538	5,649	6,135	5,719	5,814	6,133
Plant and equipment ¹	5,843	6,096	5,963	6,225	5,689	6,121	6,052	601	598	594	588	586	584	583
Residential systems ²								8	7	8	7	7	8	7
Agricultural business ³								8	7	8	7	7	8	7
Government enterprise (line 10)	141	161	148	143	143	184	136	7,808	8,283	8,815	9,439	10,185	11,089	11,101
Publicly owned electric utilities	141	161	148	143	143	184	136	13	12	10	7	12	8	9
Public sewer systems ⁴								7,792	8,269	8,803	9,430	10,171	11,076	11,088
Other								3	2	2	2	3	4	4
Government (line 12)	341	188	286	254	239	221	440	11,252	10,762	10,621	11,073	10,527	10,313	10,150
Federal (line 13)	80	64	66	62	63	64	68	707	675	670	656	652	565	480
Federal except highways	80	64	66	62	63	64	68	700	669	666	653	648	560	476
Highway erosion abatement								7	6	4	4	4	4	4
State and local (line 14)	15	10	11	11	14	18	18	452	431	495	524	562	613	541
State and local except highways	15	10	11	11	14	18	18							
Highway erosion abatement								452	431	495	524	562	613	541
Government enterprise fixed capital (line 15)	246	115	210	180	162	138	354	10,094	9,656	9,457	9,893	9,313	9,136	9,129
Publicly owned electric utilities	246	115	210	180	162	138	354	58	27	45	70	59	13	19
Public sewer systems ⁴								10,035	9,629	9,412	9,822	9,253	9,123	9,111

^p Preliminary.
^r Revised.
 1. Consists of manufacturing companies and of privately and cooperatively owned electric utilities and other non-manufacturing companies.
 2. Consists of private septic systems and sewer connections linking household plumbing to street sewers.
 3. Feedlot operations only; see footnote 1 to table 7.

4. Public sewer systems consist of treatment plants, collection sewers, interceptor sewers, pumping stations, and dry-waste disposal plants. Spending to operate public sewer systems is classified in the national income and product accounts as business spending. Government enterprise purchases of fixed capital (primarily for construction of public sewer systems) is classified in the national income and product accounts as government spending.

NOTE.—Line numbers refer to those in table 7.
 PA Pollution abatement