The Lone Star Ranking

Texas' National Ranking for Key Environmental Indicators

Public Interest Sunset Working Group Issue Paper No. 1

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Executive Summary

Texas ranks relatively high among the 50 U.S. states in terms of the scope of its environmental challenges and yet our state ranks at the bottom when it comes to allocating resources to solve these problems. See **Tables 1 and 2**. Overall, Texas ranks 1st among states for total toxic pollutants released to air, land and water. Conversely, we rank 46th in the country in terms of per capita spending to address these environmental problems.

Certainly, the size and scope of the Texas economy contributes to the large amounts of pollutants produced in the state—Texas ranks 3rd among states in terms of Gross State Product ($601.64 billion in 1997) and 2nd in terms of dependence on manufacturing ($94.96 billion of the GSP).[1] Nonetheless, the state's spending to control pollution is disproportionately small in comparison to the size of its industry. Spending to improve our negative ranking does not necessarily have to affect our GSP. Spending more can also make a difference, especially when funding several programs at the Texas Natural Resource Conservation Commission (TNRCC) that lack sufficient resources.

The accompanying issue paper on funding of the TNRCC demonstrates that several programs at the agency lack sufficient funding. In particular, the TNRCC's water quality protection program has been severely undermined by a consistent lack of sufficient resources. Of course, additional resources alone will not necessarily improve conditions in Texas or result in better protection of public health. These resources must be accompanied by effective laws, a good permitting system, strong enforcement and sufficient environmental monitoring. Nevertheless, as this report demonstrates, Texas lags far behind many other states in its willingness to devote sufficient resources to environmental protection programs, even though we have some of the most challenging problems in the country.

For selected environmental indicators, Texas ranks:

- **Water Quality**: Texas ranks 46th among states for water resources protection, devoting only about $3.00/person/year to this effort.
- **Drinking Water**: We also rank 46th in per capita spending for drinking water protection, spending about $0.26/person/year for the state's monitoring and oversight program.
- **Air Quality**: Texas ranks higher—17th—in terms of per capita spending on air quality. However, we lead the nation in emissions of toxic air pollutants, carbon monoxide, nitrogen oxides, volatile organic compounds and carbon dioxide (which contributes to the greenhouse effect).
- **Hazardous Waste**: While we rank relatively high—15th among states—for per capita spending on hazardous waste management, Texas also leads the nation in the management of hazardous waste.
- **Pesticides**: Texas ranks 31st among all states for per capita spending on pesticide control and conversely ranks 11th among states in agricultural pesticide use.

Reliance on voluntary pollution reduction efforts by regulated industry, an increasing trend in Texas over the last several years, will not be enough to solve these problems. While some voluntary efforts, such as the Clean Industries 2000 program, have helped encourage pollution reduction, they are not sufficient given the scope of the state's environmental problems. For example, while Clean Industries 2000 members reduced TRI releases by 47 percent between 1987 and 1996, Texas still leads the nation in overall TRI releases (accounting for 261.7 million pounds of toxic releases in 1997).

Other voluntary efforts have been less successful. For example, the Clean Air Responsibility Enterprise (CARE) program was designed to allow "grandfathered" industrial facilities to pledge to reduce their air emissions. However, actual reductions of air emissions have been relatively small (3,062 of 900,000 tons or

[1] U.S. Bureau of Economic Analysis, "Regional Accounts Data: Gross State Product," available at www.bea.doc.gov/bea/regional/gsp/gsplist.htm

less than half of 1% of grandfathered emissions) and to date only three companies have actually reduced their emissions.[2]

The purpose of this report is to examine environmental trends as measured by different indicators including environmental spending. To further examine these trends, the report is broken down into general categories, which include: water quality, drinking water, air quality, hazardous waste, pesticide regulation, and enforcement. We hope this information can be used to provide a context for the various issues that arise during the TNRCC's Sunset Review. In our assessment, Texas has problems with its air and water quality programs in part resulting from the sheer size of the state's industries and the proportionately under-funded effort dedicated to regulating these industries.

[2] Environmental Defense Fund, "Too Little, Too Late: An Analysis of the Voluntary Permitting Program," November 1998.

Table 1. High Rankings of Environmental and Other Indicators

Rank					
1st	2nd	3rd	4th	5th	6th
TRI Releases (261,709,979 lbs.)	Emissions of PM-10 (3,307,000 short tons)	Hazardous Waste Injection Wells per capita (4.55 lbs.)	Total Population in Areas not Meeting Federal Air Standards (8,245,000 people)	Insecticide Use (5,975,071 lbs.)	Population in Ozone Nonattainment Areas (6,450,000 people)
TRI Air Pollution Emissions (108,366,675 lbs.)	Manufacturing Industry ($94.96 billion of the GSP)	TRI Surface Water Pollution Discharges (20,788,710 lbs.)	RCRA Hazardous Waste Shippers (1306 companies)	Emissions of SO_2 (1,151,000 short tons)	Herbicide Use (18,615,657 lbs.)
Carbon Dioxide Emissions from Fossil Fuels (553,000,000 metric tons)	State Population (19.4 million)	Gross State Product ($601.64 billion)	Value of Agricultural Exports ($3.6 billion in 1996)		State Sales Tax (6.25% as of July 1998)
Emissions of CO (6,479,000 short tons)	Federal Farm Income ($764.8 million in 1996)				
Emissions of NO_x (1,843,000 short tons)					
Emissions of VOCs (1,615,000 short tons)					
RCRA Hazardous Waste Managed (75,074,857 tons)					
Facilities in Significant Non-Compliance for Clean Water Permits (22.0 percent of all facilities)					
Quantity of Hazardous Wastewater and Non-Wastewater Managed (75,074,857 tons)					

Table 2. Low Rankings of Environmental and Other Indicators

Rank				
31st	37th	43rd	46th	47th
Per Capita Spending on Pesticides Control ($0.37 per person)	Percentage of Drinking Water Systems in Violation of Standards (5.45%)	Per Capita Spending on Fish and Wildlife ($3.60 per person)	Per Capita Spending on the Environment ($27.47 per person)	Per Capita Spending on Water Quality and Resources ($2.96 per person)
Per Capita Personal Income ($22,324 per person)		Per Capita State Revenues ($4,461 per person)	Per Capita Spending on Drinking Water ($0.26 per person)	Per Capita Spending on Public Health ($61.69 per person)

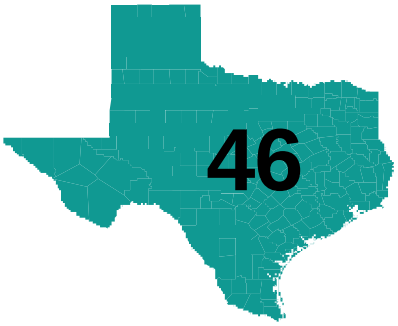
Texas Environmental Spending

Environmental spending covers spending on air quality, drinking water, hazardous waste, and a variety of other programs designed to preserve and protect the state's natural resources. These programs are instrumental in regulating activities that affect the state's environmental health. However, while environmental protection continues to be a major concern for most Texans, the state's spending on the environment ranks among the lowest in the nation.

In fact, for 1996 Texas ranked 46th among states for per capita spending on the environment. The state spent roughly $27.47 per person that year.[3]

Environmental expenditures by no means guarantee a pristine environment, but these funds do support a myriad of activities at the Texas Natural Resource Conservation Commission (TNRCC), as well as the Texas Water Development Board, Texas Parks and Wildlife and a variety of other agencies mandated to help protect the environment. Chief among them, the TNRCC is charged with "protecting our state's precious human and natural resources consistent with sustainable economic development." The TNRCC's goal is clean air, clean water, and safe management of waste with "an emphasis on pollution prevention."[4] The section below and those that follow discuss Texas's spending on the environment and how effectively the TNRCC is meeting its goals of environmental protection.

Per Capita Spending on the Environment



$27.47 per person

Source: The Council of State Governments, Resource Guide to State Environmental Management, 5th Edition (1999), 35.

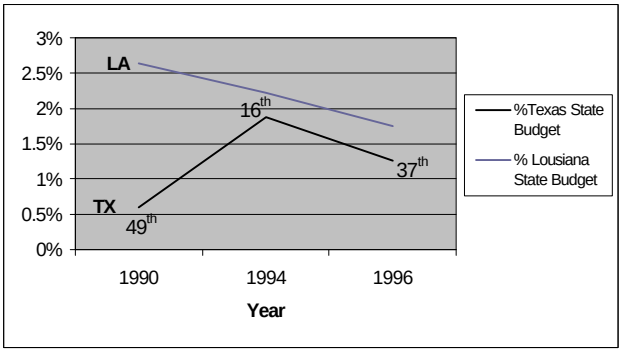
Environmental Indicators

In 1990, Texas ranked 49th among states for environmental spending as a percentage of the state budget. While this figure improved to 37th in 1996, environmental spending accounts for only 1.26 % of the state's budget. In each of these years, Texas ranked lower in environmental spending as a percentage of its budget, than the neighboring state of Louisiana.

Over the last decade, the Texas legislature has shifted from funding environmental protection with general revenue to a "fee funding" approach. Fees from air, water resources, hazardous waste, and solid waste disposal are now important sources of revenue for the state.[5] Together, fee assessments now amount to more than $351 million or 83% of the TNRCC's budget.

Overall, Texas ranks 1st among states for Toxics Release Inventory emissions to air, water, and land. In 1997, industries in the state released 261,709,979 lbs. of toxics to the environment.[6] Louisiana, the next largest state, released 186,038,253 lbs or 71 percent of Texas's total.

Environmental Spending as % of State Budget



Source: The Council of State Governments, *Resource Guide to State Environmental Management*, 1st, 4th and 5th Editions.

[3] Per capita spending figures were calculated with most recent data available. 1996 state spending figures were used from the Council of State Governments, *Resource Guide to State Environmental Management*, 5th Edition (1999). 1997 state population figures were taken from U.S. Census Bureau, *State Population Estimates and Demographic Components of Population Change: July 1, 1997 to July 1, 1998*.

[4] Texas Natural Resource Conservation Commission (TNRCC), *Self-Evaluation Report*, Draft 16 July 1999.

[5] See Public Interest Sunset Working Group Issue Paper No. 2 for a more detailed discussion of the fee funding structure.

[6] EPA, "National Overview of the 1997 *Toxics Release Inventory*," Table 2-4.

Water Quality

Water quality refers to the minimum water standards necessary to support and preserve human life and a healthy environment. Water quality spending by the state of Texas covers water pollution abatement programs,[7] as well as water resource management.

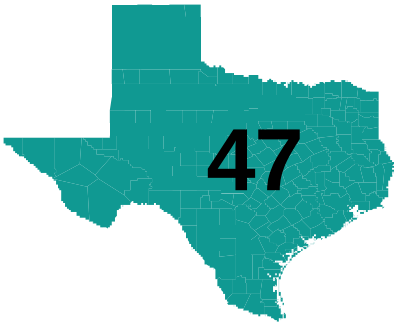
Texas ranks low—47th respectively—among states for per capita spending on water quality and water resources. In 1996, Texas spent only $2.96 per citizen on water resource programs.

State and federal regulations set three different types of water quality standards for Texas. These are:

1. Surface water quality standards ,
2. Effluent standards (set for waste waters), and
3. Drinking water standards.

In order to comply with regulations, Texas "monitors" its waters according to how they are used and determines whether the water quality is adequate for its classified use. Unfortunately, Texas has "classified" only 36% (or 14,359 of 40,194 perennial river miles) of its streams.[8] There is little information on the quality and uses of the remaining 64% of Texas's rivers and streams.

Per Capita Spending on Water Quality



$2.96 per person

Source: The Council of State Governments, Resource Guide to State Environmental Management, 5th Edition (1999), 35.

Water Quality Indicators

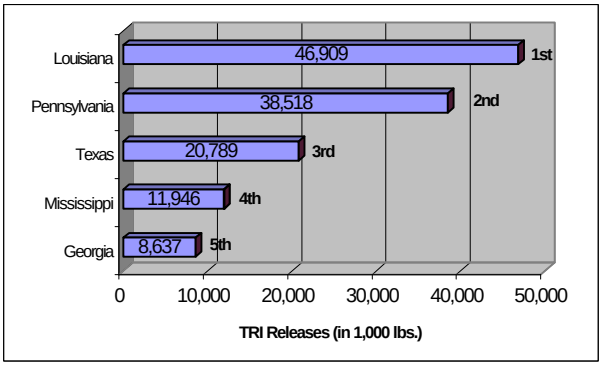
In 1997, Texas ranked 3rd among states in the nation for toxic surface water pollution discharges according to the EPA's "National Overview of the 1997 Toxics Release Inventory." This ranking corresponds to the release of 20,788,710 pounds of toxics pollutants into Texas waterways.

Texas also ranks relatively high on the number of miles of polluted water in rivers and streams according to the EPA's *National Water Quality Inventory*, from 1996. The *Inventory* lists 4,433 miles of rivers and streams that do not comply with federal Water Quality Standards. This correlates to 31 percent of Texas's classified waters and ranks 18th among all states.

According to the *National Water Quality Inventory*, Texas's lakes, reservoirs, and ponds are threatened by pollution as well. Although Texas ranks 9th among states with lakes that meet federal clean water standards, 22 percent of Texas's inland lakes, reservoirs, and ponds do not meet the "fishable-swimable" standards for recreational use.

Finally, Texas ranks high on a list of states that have lost wetlands. In comparison with other states, Texas ranks as having lost the 11th largest percentage of wetlands between 1780 and 1992 (losing 65 % of its original wetland areas).[9]

TRI Surface Water Pollution Discharges, 1997



Source: EPA, National Overview of 1997 *Toxics Release Inventory*, Table 2-4.

[7] Definition given to water quality spending by the Council of State Governments, *Resource Guide to State Environmental Management*, 5th Edition (1999), 29.
[8] Texas Center for Policy Studies, *Texas Environmental Almanac*, 1st Edition (1995), 44.
[9] U.S. Department of Agriculture, "Agricultural Resources and Environmental Indicators, 1996-1997."

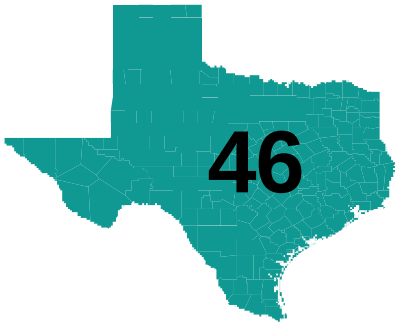
Drinking Water

Drinking water systems in Texas draw their water from two primary sources: ground water and surface water. Currently, the state is charged with monitoring and regulating these systems. State spending on drinking water is for regulation. Therefore, state spending ensures that public systems are regularly tested for contaminants and if contaminants are found that appropriate action is taken.

In 1996, Texas ranked 46th among states for spending on drinking water. This amounted to a paltry $0.26 per person spent to test and regulate public drinking water systems.

The relative lack of drinking water spending matches the fact that 419 public water systems in Texas were found in violation of significant monitoring requirements. Low spending on regulating drinking water systems contributes to the problem of violating significant monitoring requirements.

Per Capita Spending on Drinking Water



$0.26 per person

Source: The Council of State Governments, Resource Guide to State Environmental Management, 5th Edition (1999), 35.

Drinking Water Indicators

In 1996, Texas ranked 9th among states for total population served by drinking water systems in violation of applicable standards. About 1.658 million people, or 8% of Texas residents, were served by public water systems found to be in violation.

The TNRCC ensures compliance with federal and state drinking water standards through self-reported monitoring, conducting compliance and complaint inspections, issuing notices of violation, and seeking administrative orders and penalties when violations are not corrected. The state requires drinking water systems to test for 126 chemicals, of which 73 have maximum contaminant levels or MCLs, though many systems have been granted "wavers" form these testing requirements. In addition, the state runs tests for the presence of bacteria, lead, and copper in public drinking water.[10]

In 1996, 598 public water systems were found in violation of drinking water standards, which is 6% of all systems in Texas. According to the EPA's *1997 National Public Water Systems Compliance Report*, the national average for systems in violation of drinking water standards was 8.6%.[11]

In total, Texas reported 1221 drinking water violations for 1996. This ranks 23rd among all states. Violations include exceeding the limits for MCLs, treatment technique, or significant monitoring standards. These violations result in drinking water that is not always safe to drink for residents of some areas of Texas.

Population Affected by Drinking Water Violations

1,658,406 people

Source: EPA, 1997 National Public Water Systems Compliance Report - Appendix B.

[10] Texas Center for Policy Studies, *Texas Environmental Almanac*, 1st Edition, 76.
[11] Clean Water Network, "Texas Waters," November 1998, available at www.cwn.org/docs/state/tx/txwq.htm

Air Quality

Air quality spending covers funds used to administer Texas's clean air laws and the federal Clean Air Act. Smog (ozone) and other air pollutants measured above federal standards can result in metropolitan areas being designated as "non-attainment."

Texas ranks 17th among states for spending on air quality. In 1996, this amounted to $49,493,000 or $2.50 per person.

Money spent on air quality allows the TNRCC to devise state implementation plans (SIPs) for air quality in order to meet federal Clean Air Act standards. If nonattainment areas fail to comply with air pollution standards or if the state implementation plans do not bring areas into compliance, the EPA may force the TNRCC and local areas to adopt more stringent control standards for cars, small commercial operations, and large industries. Even more drastically, federal highway funds for nonattainment areas may be withheld. Air quality spending, then, is important for the environmental and economic health of Texas's metropolitan areas.

Per Capita Spending on Air Quality

$2.50 per person

Source: The Council of State Governments, Resource Guide to State Environmental Management, 5th Edition (1999), 35.

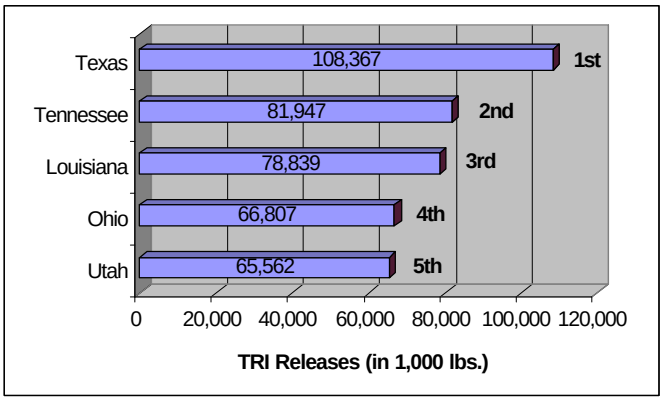
Air Quality Indicators

Texas ranks 1st among states in toxic air pollution emissions. According to the EPA's "National Overview of the 1997 Toxics Release Inventory," 108,367,000 pounds of toxic air pollutants were released into the state's atmosphere. While total emissions of these compounds are small compared to the criteria air pollutants—they are measured in pounds, not tons—their potential impact on human health can be great.

For instance, the large release of air pollutants can result in added cancer risks for Texas residents. In 1998, there were 260 people per 1,000,000 with an added cancer risk resulting from the presence of hazardous air pollutants (HAPS) in the environment.[12] This ranks Texas 9th among states for added cancer risk due to hazardous air pollutants.

Texas also monitors for criteria air pollutants as part of the Clean Air Act standards. The more readily definable and monitored air pollutants include: ozone (O_3); carbon monixide, particulate matter (PM-10), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and sulfur doxide (SO_2). These air pollutants are produced by agricultural activities, industrial processes, automotive traffic, and other activities that release pollutants into the air.[13] Each of these air pollutants as well as greenhouse gasses are monitored and regulated by the state.

TRI Air Pollution Emissions, 1997



Source: EPA, National Overview of 1997 *Toxics Release Inventory*, Table 2-4

[12] Environmental Defense Fund, *Scorecard*, available at www.scorecard.org/env-releases/hap/rank-states.tcl

[13] Discussion of "What is Air Pollution?" found in Texas Center for Policy Studies, *Texas Environmental Almanac*, 1st Edition, 164.

Criteria Air Pollutant Emissions

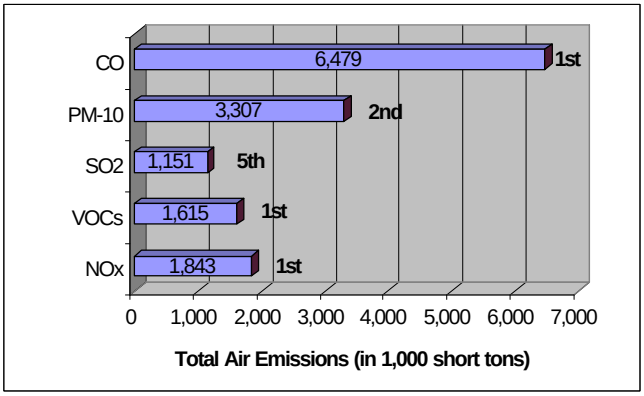
Texas ranks 1st in emissions of carbon monixide (CO), 1st for nitrogen oxides (NO_x), and 1st for volatile organic compounds (VOCs). Additionally, Texas ranks 2nd for emissions of particulate matter (PM-10) and 5th for sulfur dioxide (SO_2).

As a result of these releases, Texas ranks 4th among states for total population living in nonattainment areas. In 1997, 8,245,000 residents of Texas lived in areas exceeding federal air quality standards.

Texas also ranks 6th among states for population living in ozone nonattainment areas. According to the EPA, 6,450,000 people lived in municipal areas exceeding ozone (O_3) limits in 1996. Ozone reacts with lung tissues and can cause serious health effects for susceptible populations, most notably the elderly and children.

The southeastern airshed of Texas is currently smog-riddled by ozone non-attainment areas, making it some of the most polluted air in the country. Texas cities have posted 15 of the nation's top 30 1-hour ozone concentrations for 1999. This includes the Houston-Galveston area, which has posted seven of the top ten 1-hour ozone peaks and the only two readings over 200 parts per billion in the U.S. (EPA standards are 124 ppb ozone averaged for 1-hour and 84 ppb averaged for 8 hours).[14] Houston's 143 ppb average of 8-hours in 1999 is the nation's highest 8-hour ozone reading. Dallas-Fort Worth's highest 1999 8-hour ozone reading of 135 ppb is the third highest in the U.S. behind Houston's 143 ppb and Atlanta's 139 ppb. Finally, three other metropolitan areas—including Austin, San Antonio, and Tyler-Longview—are likely to be added to the list of non-attainment areas based on their 8-hour ozone emissions.

Criteria Air Pollutant Emissions, 1997



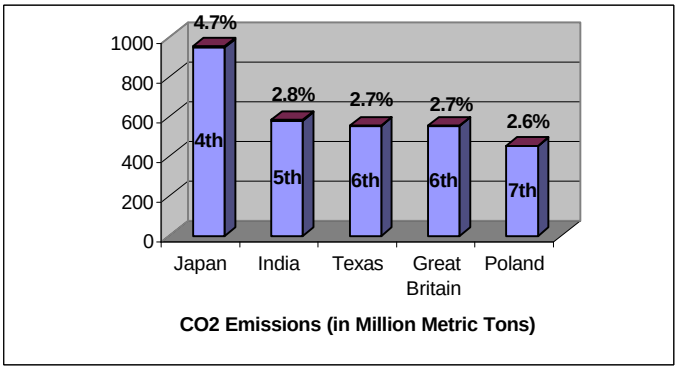
Source: EPA, *National Air Pollutant Emission Trends, 1990-1997*, A-11.

Greenhouse Gasses

According to a 1990 report, Texas ranks as the 6th largest producer of carbon dioxide CO_2 from fossil fuels in the world.[15] Texas released 553,000,000 metric tons of CO_2, comprising 2.7% of the world's total CO_2 emissions. This total ranks just behind the countries of Japan and India, equal to Great Britain and ahead of Poland. California is the next largest state releasing CO_2 emissions; it emits 310 million metric tons of CO_2 per year.

In 1995, Texas ranked 1st among states for CO_2 emissions based on state energy data. This amounted to 489,940,000 metric tons of CO_2.[16]

Emissions of CO_2 from Fossil Fuels, 1990



Source: Lashof and Washburn. *The State House Effect*. A-3.

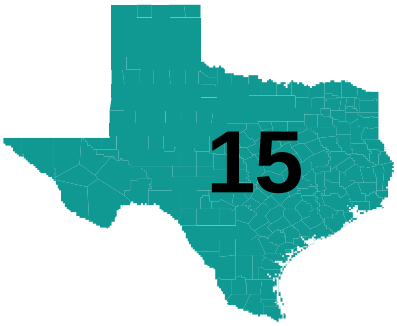
[14] Sierra Club Lone Star Chapter, "Texas' Ozone Smog Worst in U.S.," 16 August 1999.
[15] Daniel Lashof and Eric Washburn, *The Statehouse Effect: State Policies to Cool the Greenhouse* (Washington, DC: Natural Resource Defence Council, 1990) A-3.
[16] EPA, "Carbon Dioxide Emissions based on State Energy Data Report," on EPA's *State and Local Climate Change Database* available at http://134.67.55.16:7777/dc/ghg.nsf

Hazardous Waste

State spending on hazardous waste finances programs designed to manage and help reduce the generation of hazardous waste in Texas. The state's waste management account, which includes funds for hazardous and municipal solid waste regulation, comprises more than 53.0% of the TNRCC's annual budget. Yet, while the TNRCC devotes considerable resources to the management of hazardous waste, it spends considerably less effort on hazardous waste reduction, relying instead on voluntary programs.

Texas ranks 15th among states for per capita spending on hazardous waste. This amount totaled $206,895,000 or approximately 4 times that spent on drinking water in 1996.

Per Capita Spending on Hazardous Waste



$10.47 per person

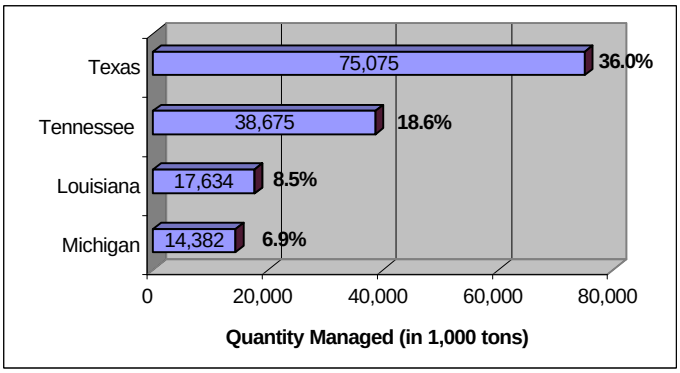
Source: The Council of State Governments, Resource Guide to State Environmental Management, 5th Edition (1999), 35.

Hazardous Waste Indicators

Interestingly, Texas has relied on voluntary programs to encourage hazardous waste reduction. Chief among them is the Texas Clean Industries 2000 program, which allows companies to pledge to reduce their hazardous waste generated by 50 percent relative to 1987 levels. Texas also relies on the Waste Reduction Policy Act of 1991, which requires facilities that generate more than 100 kilograms a moth of hazardous waste to develop and submit source reduction and waste minimization plans to the TNRCC. While these programs have enjoyed some success in reducing hazardous waste generation, Texas remains the nation's largest generator of hazardous waste.

Overall, Texas ranks 1st among states for tons of hazardous waste managed. In 1995, Texas facilities managed 75,074,857 tons of hazardous waste, accounting for 36.0% of the nation's total. Tenessee, the next largest state, managed just over 18.6% of the nation's total, or half the quantity of hazardous waste as Texas.

Quantity of RCRA Hazardous Waste Managed, 1995



EPA, *National Biennial RCRA Hazardous Waste Report, 1997*, 2-8.

In addition, Texas ranks 1st for toxics disposed of by underground injection. In 1997, 89,929,000 pounds of toxics were injected into Class I wells in Texas.[17] Louisiana is the next largest state that disposes toxics by underground injection; it injected approximately 54 million pounds of toxics in 1997 (60% of Texas's total).

According to the *National Biennial RCRA Hazardous Waste Report, 1997*, Texas also ranks 1st for the number of RCRA hazardous waste TSD facilities. These 68 facilities receive waste hauled by 1,306 licensed hazardous waste shippers, which ranks 4th among states. These facilities also manage 284,262 tons of hazardous waste imported into the state, which ranks 6th among all states.

The large amount of hazardous waste managed in Texas has created some environmental problems. For instance, 33 hazardous waste sites are now listed on the National Priority List for the EPA's Superfund program. This ranks 10th among all states.[18]

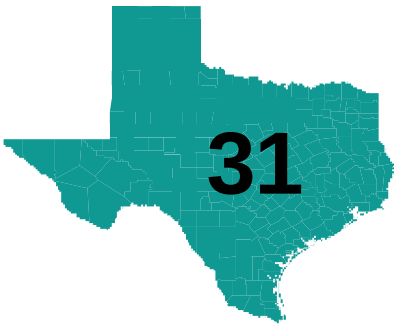
[17] EPA, "National Overview of the 1997 *Toxics Release Inventory*," Table 2-4.
[18] EPA, "Background Information: *National Priorities List*," September 1998.

Pesticides

Spending on pesticides control covers funds used to regulate the sale, use, and disposal of agricultural or commercial pesticides. Pesticide regulation in the state of Texas is primarily handled by the Texas Department of Agriculture (TDA). It looks over pesticide use in agriculture. Pesticide spending finances pesticide registration and enforcement by the TDA as well as the state's Integrated Pest Management (IPM) program.

Texas ranks 31st among all states for spending on pesticides per capita. In 1996, it spent $0.37/capita on pesticide control.

Per Capita Spending on Pesticide Contro



$0.37 per person

Source: The Council of State Governments, Resource Guide to State Environmental Management, 5th Edition (1999), 35.

Pesticide Use Indicators

Available information on pesticide use in Texas is limited. There are some rough estimates of agricultural pesticide use. Information on pesticides used for purposes other than agriculture, however, is difficult to find. Only through an extremely laborious process would it be possible to put together a picture of pesticide by government agencies, schools, and other entities subject to the state's open records act. As far as can be determined, such an exercise has not yet been undertaken in Texas.

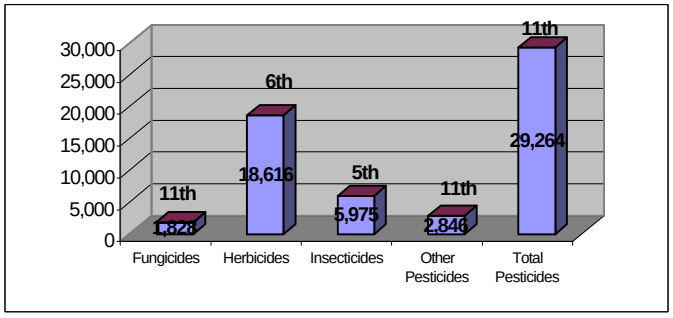
According to the National Center for Food and Agricultural Policy's report, *Pesticide Use in U.S. Crop Production*, in 1995 Texas ranked 11th among states in agricultural pesticide use. This corresponded with 29,264,000 pounds of pesticides applied on farms.

Comprising this total are 1,828,000 pounds of fungicide, 18,626,000 pounds of herbicides, 5,975,000 pounds of insecticides, and 2,846,000 pounds of other pesticides.

Scientific research is uncovering important health-related issues associated with pesticide use. For example, the National Cancer Institute identified pesticides as a likely cause of elevated rates of certain cancers among farmers. These cancers include: non-Hodgkin's lymphoma, skin melanomas, multiple myeloma, leukemia and cancers of the lip, stomach, prostate and brain. [19]

To help reduce the risk of health-related issues associated with pesticide use, many scientists and environmentalists argue for the further development of Integrated Pest Management (IPM). IPM acknowledges the need for limited pesticide applications, but focuses on non-toxic methods of pest control, such as growing pest resistant crops, crop rotation, using beneficial insects, and relying on targeted applications of pesticides to control specific pests.

Agricultural Pesticide Use, 1995 (in 1,000 pounds)



Source: NCFAP, *Pesticide Use in U.S. Crop Production*, 1995

[19] Texas Center for Policy Studies, "Realm of the Unknown: Pesticide Use in Texas," January 1999.