
YEARS

# EPA 40th ANNIVERSARY

10 WAYS EPA HAS STRENGTHENED AMERICA

*PREPARED BY*

THE ASPEN INSTITUTE

ENERGY AND ENVIRONMENT PROGRAM

# FOREWORD

## The Aspen Institute's Energy and Environment Program is honored to take part in EPA's 40th anniversary celebration.

This occasion provides a unique opportunity to look back at the path blazed by the Agency during its first forty years and recognize the important achievements that have made it a leading model for environmental regulatory agencies worldwide.

The list of achievements that could be offered since the Agency's founding is too long to give complete, proper recognition during this time of public commemoration. To help highlight the most significant accomplishments, the Aspen Institute's Energy and Environment Program convened a roundtable discussion featuring more than twenty environmental thought leaders, including several former EPA officials, to develop a list that reflects the Agency's brief but stellar history, and which demonstrates the Agency's potential to protect America's environment in the future.

The Aspen Institute's Energy and Environment Program provides a neutral venue for convening nonpartisan leadership and improving energy and environmental policymaking through intentional, values-based dialogue. The goal of these discussions is to create an impartial atmosphere for thought leaders and experts to engage in informed discussion around some of the most important and complex environmental issues of our time.

Summaries such as this are issued under the auspices of the Aspen Institute's Energy and Environment Program. This particular summary is an attempt to represent ideas and information presented during a recent roundtable, but all views expressed were not unanimous and participants were not asked to agree to the content or wording. The speakers and participants at the roundtable are not responsible for its contents.

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## Before the EPA

For those old enough to remember, vivid images of American rivers so contaminated they burst into flames and woefully smog-filled skies over the nation's cities are etched in the mind. It was only forty years ago — not so long, when one considers the profound improvements that have occurred in the nation's air and water quality since then.

Today, young people with no personal recollection of the disturbing environmental conditions two generations ago swim without concern for health risks in major harbors such as Boston, where it would have been practically unthinkable twenty years ago. The skies above previously choked urban centers have cleared, making the days when people understandably feared for their health — just from breathing — seem like a distant bad dream.

It was forty years ago, on December 2, 1970, amid growing public concern about the nation's deteriorating air and water quality, that the US Environmental Protection Agency was formed by the executive order of President Richard Nixon. The new Agency was charged with a mission to "permit coordinated and effective government action on behalf of the environment." Fifteen divergent environmental programs from various federal offices were combined and placed within the newly created EPA, which would serve going forward as the single administrative agency for most federal environmental laws, regulations, scientific research and policies.


# THE TOP EPA ACCOMPLISHMENTS OVER 40 YEARS

### 1. Banning Widespread Use of DDT

In 1972 it was feared that the bald eagle, America's symbolic bird, was on the verge of extinction. The same was true for peregrine falcons, osprey and brown pelicans, which were all suffering from the effects of DDT, a pervasively used pesticide at the time which interrupted birds' reproductive cycles.

Following three years of intensive governmental inquiries into the uses of DDT, EPA Administrator William D. Ruckelshaus issued an order canceling nearly all federal registrations of DDT products. Ruckelshaus said at the time he was convinced that the continued massive use of DDT posed unacceptable risks to the environment and potential harm to human health. Subsequent legal challenges to the EPA cancellation of DDT were successfully defended in federal courts.

Twenty-five years later, in 2007, having made a remarkable recovery as a result of the DDT ban and the efforts of wildlife biologists nationwide, the bald eagle flew off the Endangered Species Act's "threatened" list.

### 2. Removing the Acid from Rain

During the 1970s, scientists observed an increase in the acidity of some lakes and streams and a decrease in their fish populations, as well as chemical changes in soil and freshwater ecosystems, nitrogen saturation, decreases in the amount of nutrients in soil, regional haze, and damage to historical monuments.

At the same time, amid growing public concern, research into long-range transport of atmospheric pollutants such as sulfur dioxide (SO2), which is produced by many power plants, indicated a possible link to distant sources of pollution. Scientists realized that emissions from many of these plants could be transported from the midwest to the northeast and acid rain became viewed as a regional rather than a local problem.

Formed in response to the crisis, EPA's Acid Rain Program is designed to achieve significant environmental and public health benefits through reduction of SO2 and nitrogen oxides (NOx) emissions — the primary causes of acid rain. To achieve this goal at the lowest cost to society, the program employs both traditional and innovative market-based approaches for controlling air pollution. In addition, the program encourages energy efficiency and pollution prevention.

Begun in 1995, EPA's innovative, market-based, SO2 allowance trading component of the Acid Rain Program allows utilities to adopt the most cost-effective strategy for reducing SO2 emissions at their power plants. More recently, in 2005, EPA issued the Clean Air Interstate Rule (CAIR), which provides states with a solution to the problem of power plant pollution and

will permanently cap emissions of SO2 and NOx in the eastern United States.

### 3. Rethinking Waste as Materials

Under the Resource Conservation and Recovery Act of 1976, working with state and local governments, EPA succeeded in driving a change in thinking about the nature of waste, how it is managed, and its effect on our environment.

Bad actors in the waste management business have been forced to either comply with standards for safely handling hazardous waste, or cease operations. Good corporate citizens in the waste management industry, on the other hand, have been encouraged to design better environmental protection systems that still support sustainable business models.

Just as importantly, EPA's Office of Waste Management has led a shift in thinking throughout key industries, sector by sector, about how products are manufactured, what materials they use, and where those materials end up at the end of a product's lifecycle. In an era when producing alternative energy sources is a matter of national concern, EPA is helping drive innovation in drawing the potential energy from waste streams and getting more value out of materials before their ultimate disposal.

### 4. Removing Lead from Gasoline—and from the Air

Historically, automobile engines burned gasoline with lead added to it as a lubricant to prevent excessive wear of engine valves. Unfortunately, after decades of use, lead absorbed by humans breathing gasoline vapors and fumes was discovered to be extremely toxic.

By the early 1970s, medical studies showed that exposure to high concentrations of lead, particularly by young children, can result in damage to the central nervous system, and might be associated with high blood pressure in adults. Adverse health effects from elevated levels of lead in the blood range from behavior disorders and anemia to mental retardation and permanent nerve damage.

Responding to the alarm, in 1973 EPA initiated a program designed to reduce the levels of lead in several phases, finally eliminating its use altogether in 1995. Between 1984 and 1995, airborne lead concentrations throughout the country decreased 89 percent, directly due to the phase-out of leaded gasoline, as well as to the majority of cars equipped with pollution control devices that require using unleaded fuel. Average blood lead levels for both children and adults in the US today have dropped more than 80 percent since the late 1970s.

### 5. Clearing Secondhand Smoke

Secondhand smoke, also known as environmental tobacco smoke (ETS), is a mixture of the smoke given off by the burning end of a cigarette, pipe, or cigar, and the smoke exhaled from the lungs of smokers. It contains more than 4,000 substances, more than 40 of which are known to cause cancer in humans or animals and many of which are strong irritants.

Passive smoking causes an estimated 3,000 lung cancer deaths in nonsmokers each year. It also causes irritation of the eyes, nose, throat and lungs. ETS-induced irritation of the lungs leads to excess phlegm, coughing, chest discomfort and reduced lung function. Secondhand smoke may also affect the cardiovascular system, and some studies have linked exposure to it with the onset of chest pain.

By classifying secondhand smoke as a known cause of cancer in humans, based on sound science, in the face of determined opposition from various business interests, EPA has been instrumental in the movement to ban smoking from indoor public places in order to protect the health of all Americans, particularly children.

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## 6. Vehicle Efficiency and Emissions Controls

Starting in the mid-1970s, in the face of growing public concern about air quality, EPA established progressively more stringent emission standards for carbon monoxide, hydrocarbons, nitrogen oxides, and particulate matter emitted by on-road vehicles.

As a result, auto manufacturers responded by improving engine and vehicle technology, including designing highly efficient combustion systems; introducing vapor recovery systems to capture evaporating gasoline; using computer technology to monitor and control engine performance; and developing effective "after treatment" technology, such as catalytic converters and particulate filters that remove pollutants from the exhaust stream before they can escape into the atmosphere.

Regulations and voluntary programs designed to improve engine and vehicle technology are continuing to greatly reduce mobile source emissions. EPA studies show that today's cars emit 75-90 percent less pollution for each mile driven than their 1970s counterparts, thanks largely to advancements in engine and vehicle technology.

Technological advances in engine and vehicle design, together with cleaner, higher-quality fuels, have reduced emissions so much that EPA expects the progress to continue, even as Americans drive more miles and use more power equipment every year.

## 7. A Cleaner Environment for All

There is no concept more essential to America's democracy than the idea that every person, regardless of ethnicity or income, has the right to a clean and healthy environment. In this spirit, the EPA formally acknowledged in the early 1990s a growing body of evidence that — despite some notable successes—the nation as a whole was still falling short in terms of equitable environmental protection.

Working with the Congressional Black Caucus as well as other civil rights leaders, through deliberate and systematic investigation, EPA determined that low-income and minority communities were exposed to higher-than-average levels of selected air pollutants, hazardous waste facilities, contaminated fish and agricultural pesticides in the workplace. Minority children were also found to have significantly higher levels of harmful lead in their blood.

These unsettling findings led to the formation of EPA's Office of Environmental Justice, which embodies a formal recognition of the need to give focused attention to the greater environmental risks faced by low-income and minority communities resulting from historical patterns of commerce, geography, state and local land-use decisions and other factors that affect where people live and work.

Since then, EPA has played an integral role in successful efforts to revitalize brownfield sites in low-income and minority neighborhoods, making communities safer to live in, with an added bonus in many cases of stimulating new economic opportunities. The Agency's Superfund program, through partnerships with states, tribes, other federal agencies, local governments, communities, land owners, lenders, developers and potentially responsible parties for contamination, has ensured clean-ups are done faster, without compromise to the principle that those responsible for pollution are held accountable, while preventing minority and low-income populations from bearing the brunt of pollution.

## 8. Controlling Toxic Substances

Chemicals provide a wide range of benefits to American consumers and strengthen the US economy. However, past experience with certain chemicals such as asbestos, DDT, and leaded gasoline have shown that adverse effects sometimes occur when there is insufficient information about potential toxicity and widespread exposure to humans or wildlife.

Acting under authority of the Toxic Substances Control Act since 1976, EPA has compiled an inventory of roughly 84,000 chemicals that have been produced in, or imported into the United States. The agency has taken over 4,000 regulatory or voluntary actions to gather data or restrict use of roughly 10 percent of all chemical pre-manufacture notices (PMNs) and received information gathered through voluntary testing for at least 300 chemicals. In addition, over 1,700 PMNs have been withdrawn, often in the face of likely action by the Agency.

EPA also has acted proactively to encourage the development of more benign chemicals by sharing its set of models with manufacturers to help them avoid designing or developing chemicals that are likely to raise concerns and prompt requests for additional data.

One of the models developed by EPA, called EPI Suite, evaluates chemical structures and estimates the melting and boiling points, vapor pressure, and other physical and chemical characteristics of new compounds. Another model, OncoLogic, analyzes chemical structures to determine the likelihood that they might cause cancer. By using EPA's models, manufacturers have been able to design "greener" products that do not require investments in extensive toxicity tests.

### 9. Cleaner Water

The Federal Water Pollution Control Act Amendments of 1972 — the modern Clean Water Act — established a national commitment to restore and maintain the chemical, physical and biological integrity of the nation's waters. At the time, two-thirds of the country's lakes, rivers and coastal waters had become unsafe for fishing or swimming. Untreated sewage was being dumped into open water.

The Clean Water Act has been instrumental in improving the health of rivers, lakes and coastal waters. It has stopped billions of pounds of pollution from fouling the water, and dramatically increased the number of waterways that are safe for swimming and fishing. The percentage of fishable and swimmable US rivers and lakes has increased from approximately 36 percent in 1972 to nearly 62 percent by 1998. Also, 74 percent of the population was served by sewage treatment plants in 1998, as opposed to 32 percent twenty-six years before.

Challenges remain, but EPA is working to develop more innovative approaches to target enforcement to the most serious violations and the most significant sources. As part of this, EPA has set strict benchmarks for state regulators and is working to compel companies to submit electronic pollution records so violations can be detected and punished more easily.

### 10. Public Information and Community Right To Know

Every American has the right to know the chemicals and/or pollutants to which they may be exposed in their daily lives. Right-to-know laws overseen by EPA, including most notably the Emergency Planning and Community Right-to-Know Act (EPCRA) and the Toxics Release Inventory (TRI), provide important information to the public about possible chemical exposures, as well as a guide for planning local response in the event of significant, accidental releases. Community right-to-know provisions help increase public knowledge and access to information on chemicals, hazardous substances and pollutants at individual facilities, their uses, and releases into the environment. Working with facilities, states and communities can also use the information to improve chemical safety and protect public health and the environment.

## A CROSS-CUTTING, MULTIDISPLINED AGENCY

Over its forty-year history, EPA has evolved into the world's preeminent environmental regulatory agency through a balanced, three-pronged strategy, combining excellent science, regulatory enforcement, and engagement of all stakeholders in developing new solutions to environmental problems. EPA's balanced, multifaceted structure and operation sets the standard around the world for applying strong science, as well as economic incentives and disincentives, to achieve positive environmental outcomes while allowing businesses to grow and prosper.

It is no secret that EPA operates in frequently controversial spaces. Issues surrounding environmental protection often raise great passion, and understandably so, given the economic, health and social values at stake. Over the years, the agency has often found itself in the middle of competing interests, often in court, either as a plaintiff enforcing the nation's environmental laws, or as defendant against claims it has infringed or failed to protect certain stakeholder rights. In the end, it is the protection of the health and safety of the American people and their natural environment that the EPA has fought for so successfully, whenever necessary.

While its early days might understandably be characterized as focusing more narrowly on the notion of cleaning up the environment — an important mission that it still pursues — EPA has evolved beyond this basic idea to a more nuanced understanding of the innate talent of the American people for technological ingenuity and innovation.

Consistent enforcement of baseline standards is essential to EPA's primary mission of protecting America's environment and health. But by conducting and sharing cutting-edge science and encouraging innovation by the private sector, EPA has helped expand the concept of environmental protection from a more narrow focus on enforcement and punishment to a broader concept of how to improve business practices, product manufacturing and waste management.

Like any effective regulatory body driving proactive change, EPA has successfully used the power of the carrot — positive incentives — to stimulate innovation for new, cleaner technologies, while creating new business opportunities. Rather than simply putting a device at the end of an industrial pipe or a stack to capture harmful substances before they escape into the air or water, with help and encouragement from EPA, the private sector in America, to a noteworthy degree, has accepted the challenge to remove waste — toxic or otherwise — from their industrial processes altogether.

This shift from a concept of cleanup after the fact to a culture of innovation has helped to make many American businesses competitive in areas where they might not have been otherwise. Their technological innovations and best business practices have found markets around the world. EPA, by setting reasonable and feasible standards in consultation with businesses, has served to develop stable markets for innovative, cleaner technologies that contribute to economic growth.

Recruiting and retaining top scientific and technical talent for a federal agency in a competitive market represents a real challenge, and EPA's success in building a world-class scientific organization lies at the very core of its mission to understand the effect of environmental factors on human health and natural ecosystems. The work done by EPA's dedicated scientific staff informs policy decisions and advances the public's awareness of environmental factors that are fundamental to their well being.

EPA's science organization helps foster the development of new environmental technologies through financial support for small private companies, universities and other nonprofit organizations. The agency also provides in-kind support by working collaboratively with private or government laboratories to share facilities and expertise in technology development.

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# THE NEXT FORTY

The list of accomplishments made by the EPA represents a remarkable level of achievement in protecting the nation's human health and the environment. Over the course of forty years, a culture of innovation and cooperation has made the EPA a model for regulatory agencies around the world, setting an example for how effective laws and regulations, combined with consistent enforcement and voluntary compliance, can reverse the impacts of harmful practices and products, creating a healthier environment for everyone.

Throughout its forty year history, the EPA has accepted one major challenge after another, taking its mandate from the American people and their elected officials and working diligently to achieve the diverse goals assigned to it. The responsibility to ensure public health and safety represents an enormous ongoing challenge, but the agency's 18,000 highly educated, motivated and committed employees have proven their willingness and ability to take on difficult problems, always looking for better, more efficient ways achieve the Agency's critical mission.

It is in this spirit that the EPA as a whole looks forward to the emerging challenges and risks ahead, with a growing national population and increasing demand for natural resources, energy, waste management, as well as rising concerns over greenhouse gas emissions and the effects of climate change. The agency stands committed to building on its past achievements as it addresses new issues emerging within its purview.

If the past is any guide, the EPA will play an important role in driving the innovation required to continue on a path begun forty years ago, when noxious smog over urban centers began to clear, our contaminated waters began to recover, and a sense of environmental justice for all citizens at every level of society started taking firm root.


The Aspen Institute mission is twofold: to foster values-based leadership, encouraging individuals to reflect on the ideals and ideas that define a good society, and to provide a neutral and balanced venue for discussing and acting on critical issues. The Aspen Institute does this primarily in four ways: seminars, young-leader fellowships around the globe, policy programs and public conferences and events. The Institute is based in Washington, DC; Aspen, Colorado; and on the Wye River on Maryland's Eastern Shore, it also has an international network of partners