



Conference Paper

VI Student Roundtable: State. Right. Society: Modern Problems and Development Trends

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The Roundtable works as a venue for sharing and shaping anticipation from a diversity of views: with and between disciplines, expertise and practices. We ask participants to engage through their own fields and to find and meet those of others.

The formats provided also offer openings for emerging and challenging ideas and ways to communicate them creatively and critically.

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**Protecting America's Environment:
Priorities of the U.S. Environmental Protection Agency
for Water and Toxins**

Abstract

In the mid-1900s, the environment in the United States was polluted and unhealthy for humans and other species. By the 1970s, it was clear that environmental laws and regulations were necessary to protect the public and preserve and rehabilitate lands and waters. A robust series of laws was enacted which are still in effect today. This paper focuses on the creation of the U.S. Environmental Protection Agency and regulatory impacts of laws directed at clean water and reducing toxins. It is clear that while passage of these laws and their related regulations has made a tremendous impact on the environment and human health, it is necessary for citizens to stay vigilant and ensure that these laws and regulations are enforced.

Seventy years ago, the landscape of the United States looked much different. Factories spewed pollution from smokestacks into the air and from pipes into rivers, which actually caught on fire. Car exhaust deposited particles of lead onto lawns and into the air. Children were poisoned through ingesting lead from paint. Forests were cleared, mines left rubble in their wake, and species went extinct from pesticides, chemicals, and polluted water.

Following World War II, many of the technological advances developed during the war made their way into regular business and society. These new pesticides, preservatives, and chemicals became part of life faster than the potential downsides to human and environmental health could be studied. In 1962, Rachel Carson published *Silent Spring*, which documented the detrimental effects of pesticides on wildlife. (Carson, 1962) One of these pesticides was DDT, which affected the thickness of eggshells such that baby birds could not survive to hatch, and is responsible for the near extinction of the bald eagle, America's national bird. By the late 1960s, it was clear things had to change. Carson's book caused an outcry from the public and spurred the banning of DDT and major changes in the laws affecting the air, water, and land.

1970 marked the beginning of a turnaround for the environment in the United States. In addition to the first Earth Day, the creation of the U.S. Environmental Protection Agency (EPA) by President Richard Nixon and a bipartisan group of members of the U.S. Congress consolidated and strengthened various research, monitoring, and enforcement activities into one organization to focus on environmental protection. Since that time, the environment has improved, and so has the health of Americans and the species with which we share our environment.

EPA's mission is to protect human health and the environment (U.S. EPA, 2019). This paper will focus on two areas, water and toxins.

Protecting America's waters includes both water quality and water quantity. Water quality includes how clean the water is, by human health and environmental measures. Water quantity means ensuring there is enough water for people and wildlife. EPA regulates these concerns through two main laws, the Clean Water Act of 1972 and the Safe Drinking Water Act of 1974 (both

amended since then). These laws and their corresponding regulations have improved the quality of surface waters caused by discharges from industrial, municipal, agricultural, and stormwater sources. As a result, the quality of surface water (lakes, rivers) has improved and drinking water is safer. Today, America's rivers are not catching on fire, and nonpoint source pollution is the greatest source of water pollution. Nonpoint source pollution is pollution that is not from a single source. It may include pollution from chemicals and fertilizers running off farm fields, excess sedimentation from construction projects, and oil runoff from cars.

Nonpoint source pollution does not just occur at industrial or commercial sites. It can also occur in our own backyards, through lawn chemicals or pet waste that runs off into storm drains during rains. These storm drains lead to rivers and, eventually, to the ocean.

Loss of habitat and habitat fragmentation such as clear-cutting forests make it easier for pollutants to reach water sources, including lakes, rivers, and wetlands. These issues are less easily regulated. Climate change will magnify all of the issues related to protecting water. (United Nations, n.d.)

EPA also regulates toxins. Thousands of chemicals are in our everyday lives, and exist in places least expected. These toxins are released into the environment and therefore our bodies as a result of their manufacture, processing, use, and disposal. Research shows children receive greater exposure to chemicals because they inhale or ingest more air, food, and water on a body-weight measure than adults. (Grigg, 2004) Low-income, minority, and native populations are also disproportionately impacted by and at risk from chemicals. (Pastor, Sadd, & Hipp, 2001)

In 1976, the Toxic Substances Control Act (TSCA) was passed (it has subsequently been amended). TSCA regulates the introduction of new or already existing chemicals, such as lead in paint. It also regulates pesticides, which are of particular concern from an environmental and human health perspective. Use of pesticides is one factor affecting the survival of honeybees and other important pollinators, which in addition to being a vital link for biodiversity also perform more than \$217 billion U.S. in worldwide economic value in pollination services for the main crops that we eat. This equates to 9.5 percent of the total value of worldwide agriculture production. (Heimholtz Association of German Research Centres, 2008)

The Pollution Prevention Act (1990 and amended since then) created a national policy to prevent or reduce pollution where it is created. By working with other agencies, EPA enhances efforts to advance sustainable practices, less harmful chemicals, greener processes, and safer products. It primarily tries to achieve these results by working with companies, state and local governments, and individuals in a collaborative manner by implementing conservation, promoting reuse of materials, and making production processes more sustainable.

Case Study of Toxins and Water #1: Flint, Michigan

In 2014, the city of Flint, Michigan, changed its water source to the Flint River to save money. The Flint River is loaded with contaminants. During treatment of the water at municipal water plants, the City failed to add a chemical to the water that prevents corrosion of lead in water pipes leading to homes. It was later found that children had elevated levels of lead in their blood, which has been shown to cause developmental and learning deficiencies. People in Flint could not drink the water and even bathing in it caused rashes for some.

This is an example of all levels of government failing its citizens. Despite environmental laws at each of these levels, lack of enforcement and a propensity for saving money caused devastating effects on people, especially children. Despite changing the source of drinking water and replacing many water pipes to homes, most residents now do not trust the government when it says the water is safe. They are still drinking bottled water. (Winowiecki, 2019)

Case Study of Toxins and Water #2: Blue River Watershed, Kansas City, Missouri

The Blue River Watershed covers about one-half of the Kansas City metropolitan area. This study (Wilkison, et al., 2005) looked at issues of water quality, including presence of over-the-counter and prescription drugs and fecal matter. The study illustrated the issue of pet waste mentioned earlier, as from 26 to 32 percent of the fecal waste found in the river was from dogs. There is also a question of how well the municipal wastewater treatment plants are functioning, as from 28 to 42 percent of the fecal waste found was from humans.

In addition to the above results, the study showed low concentrations of medications, including antibiotics, in the water. Although the amounts were small, it is a concern that residents may be taking more medications than the body can absorb, or that they are not properly administering them and are flushing leftover medications into the sewer system where municipal treatment plants do not filter them out before returning the water to the river. Medication in the water can be ingested by other animals living in or drinking from the river, such as fish or deer.

Conclusion

Without laws and regulations, environmental pollution would continue at a devastating level in the United States, resulting in illness and death in citizens, malformities and extinction of species, inequities in where polluting industries are located and which communities receive the most negative impacts, and unrestricted use of natural resources by those with the most money and power. Some of these issues continue, meaning that it is up to the people in the country to remind elected officials that the laws and regulations must be enforced. Some ways to do that include using the court system, participating in civic engagement activities, voting, supporting investigative journalism, and supporting those leaders that protect the environment and its inhabitants (humans and other species).

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