

# *The Impacts of the Clean Water Act on the U.S. Economy*

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**Abstract:** The purpose of our study is to delve into how the Clean Water Act influenced the United States economy. We used some secondary research such as results from previous studies, textbooks, relevant news articles, published academic research papers, government legal documents, and statistical databases. By using this solid data which was published on the government legal documents, we can ensure the accuracy of this data. We found the results of the Clean Water Act (CWA) are controversial, and they are two-sided. However, The CWA now looks like a pretty successful act. In 1972 the United States administration enacted the CWA to restrict the discharge of pollutants into waters of the United States and regulation of surface water quality standards [12]. So our research question is how the Clean Water Act influenced the United States economy both beneficial and harmful. Previous studies have shown that the Clean Water Act actually has improved the economy drastically which we will talk about later. But there are some critics who examine the realistic aspect of the huge funds used to support this legislation which could be harmful to the economy.

**Keywords:** Clean Water Act, influences, beneficial, harmful, economy

## 1. Introduction

With the rapid population growth and industrialization worldwide, humans have to face a serious problem, which is how to utilize water sources rationally and protect its purity. To solve this problem, the Federal Water Pollution Control Act was enacted in 1948, which was the basis for the CWA. However, this only establishes the fundamental structure to restrict discharges of pollutants into the rivers and streams and regulate quality standards for surface waters. This Act was significantly redressed in 1972 and the Act's name turned into "Clean Water Act". Under the Clean Water Act, the EPA enforces pollution control plans, including setting standards for industrial wastewater. The EPA also sets national water quality standards and makes recommendations for pollutants in surface water.

On a certain level, the CWA is successful, it eliminates the risks of having fire by the river. The Act also prevents large amounts of polluted water from entering rivers and uncontaminated water sources. Not only is the Clean Water Act beneficial towards the environment, but this law has helped increase opportunities in the market. The government has laid out huge amount of funds (over \$1 trillion dollars) into reducing water pollution which may seem costly [8]. In spite of that,

the money might be worth the trouble considering the long term benefits that the Clean Water Act provides. Reductions of water pollution have also “prevented 205,000 deaths and the loss of 10.4 million I.Q. points in children” [4]. Water quality improvements have increased “waters suitable for fishing” by 12 percent [8]. Evidently, former examples demonstrate some valuable influences that the Clean Water Act has brought to society that can be tied back into the broad range of economic benefits.

So this article will primarily focus on how the legislation's effectiveness that protects water quality in the United States helps improve economic development.

## 2. Literature Review

The purpose of this paper is to discuss the influence of the Clean Water Act (CWA). The role of the CWA is controversial. According to the Environmental Protection Agency (EPA), the goal of the Clean Water Act is to regulate people to utilize water sources rationally and protect the water purity. In 1948, the US government published the Federal Water Pollution Control Act, which was the basis for the CWA. However, this only formed the fundamental structure for restricting the release of pollutants into the waters and for governing the quality standards for surface waters. The Act was significantly amended in 1972 and the name of the Act became the Clean Water Act [11]. Some argue that it improves the ecology, protects water and air, which allows people to have clean water to use. In addition, the Clean Water Act has preserved the natural beauty of some areas, allowing for the development of tourism in the area. For example, Jimmy Orth, executive director of St. Johns River claims the CWA improved the well-being of Florida's citizens by protecting the state's land through watershed protection. Jimmy says the Clean Water Act also has a positive impact on the state's economy, drawing millions of visitors and creating thousands of jobs each year. He argues that the economic and health benefits of environmental regulations often far outweigh the cost. In addition, the US Gross Domestic Product (GDP) has increased by 207% [9]. The CWA will generate approximately \$11 billion per year for the country [9]. To some extent, the CWA has been successful in that it has eliminated the risk of fires along the river and the Act has prevented millions of pounds of polluted water from entering rivers and streams. The CWA not only benefit the environment, but it also helps to increase market opportunities. The US government has invested huge amounts of funds to reduce water pollution, which seems costly [8]. Nevertheless, the money may be worth it, given the long-term benefits provided by the CWA. Water quality is vital to people's well-being, thus, it's good that the government is protecting their citizens by allocating some funds, which is one of the most essential public goods. However, some people claim that the Clean Water Act was not a success. Stephen Chapman, the reporter of Chicago Tribune, claimed that the CWA turned an idealistic enterprise into a trash bin with as much political appropriation as environmental funding. Despite the large amount of money that has been invested - 2.5 times the initial estimate - the project has achieved far less than expected. For the first dozen years of the Clean Water Act it was not considered a success. Since, the amount of money invested by the government is not proportional to the benefits it brings. For instance, a county spent \$53-million on a wastewater treatment plant near Las Vegas to handle a pollution problem that doesn't exist. An investigation in 1981 by Washington Post found that of the 18,000 plants envisioned in 1972, only 2,000 had been completed, and most of them are in small towns without serious water pollution problems [5]. Although these expensive investments seem to be worthwhile and have more positive results, we must still consider some of the negative effects. The Clean Water Act did bring about the desired results of improved water quality and preservation of water quality. But this is only a few years away and it is only a matter of time before the results start to show. In the first 12 years of the CWA's implementation, it seems that no progress has been made. Huge sums of money had been spent and it looked like it had fallen down the drain - in fact, the US government had spent 2.5

times the original estimate. At the time, improving water pollution did not appear to be a long-term solution that would bring benefits. After a lot of early investment, improved strategies and a long period of time to settle down, the effectiveness of the CWA began to emerge in 1990s, and people began to realize the importance of the Clean Water Act. While previous articles by a number of researchers have focused on the impact of a single aspect of Clean Water Act, the history of Clean Water Act and the expected effects of Clean Water Act and this paper will focus on both the positive effects of Clean Water Act, the negative influences of the act and why it was so controversial in the early days of its implementation.

### 3. Methods

To understand how the CWA promote economic development, the first thing we should do is to know the benefits of these regulations. According to Jimmy Orth, the Executive Director St. Johns River-keeper, the CWA is crucial to Florida's economy and residents' quality of life. Since the CWA protects Florida's natural resources which helps form thousands of jobs, improves the well-being for the citizens, and lures millions of tourists each year [9]. From these statements we can know that CWA and SDWA are indispensable in American economic development.

The second method we should implement in this research paper is to use secondary research such as results from previous studies, textbooks, relevant news articles, published academic research papers, government legal documents, and statistical databases. By using data that already exists, we will be able to ensure that the bias in the data is avoidable to be as least as possible and that the data will be accurate. For example, when we are talking about the Clean Water Act and need to know some quantitative data that supports our thesis, we could draw from relevant news articles. "For instance, the Clean Water Act's grantmaking program has cost the U.S. government about \$650 billion total, or about \$1.5 million per year to make one mile of river fishable" [8]. Therefore, in this research paper, the two methods we will use are quantitative and secondary research.

### 4. Results

The results of the Clean Water Act (CWA) are controversial, and they are two-sided. The most controversial result is the economic impact of the CWA. The benefits of the CWA can be broadly categorized as follows: improved aesthetic qualities, prevention of materials damage, avoided costs of discouraging behavior, information benefits, evaded expenses of market production, nonuse advantages, and human health enhancements[10]. The Executive Director St. Johns Riverkeeper Jimmy Orth claims that the CWA enhanced the well-being of the citizens in Florida by protecting the waters conserving the state's lands. According to Jimmy, the CWA also has a positive impact on the state's economy, which helps attract millions of tourists each year and creates thousands of jobs. He argues that the economic and health benefits of environmental regulations often far outweigh the cost, resulting in more job opportunities. In addition, the US gross domestic product (GDP) has increased by 207%. the CWA can generate \$11 billion in annual benefits [9]. The CWA improves the water quality effectively. In 1970, for instance, every day there was more than 15 million gallons of natural sewage released into the St. Johns. Thus, the United States Senator called the river "a cesspool" which shows how serious the water pollution is. The governor Claude Kirk states that "if you fall in, you will die of pollution before you drown." The Clean Water Act has definitely made some improvements even though the rivers still has some pollution concerns. However, for the first dozen years of the Clean Water Act it was not considered a success. Stephen Chapman claimed that the CWA changed a realistic enterprise into a waste of money, with funds made as environmental grounds as well as political ones. A tremendous amount of money has been spent—2.5 times as much as initially anticipated—but the plan has achieved far less than promised [5].

Stephan Chapman explained that by citing the evidence that, A county has spent \$53 million on a sewage treatment plant near Las Vegas to deal with a pollution problem that doesn't exist. A 1981 study by the Washington Post found that of the 18,000 plants projected in 1972, only 2,000 had been completed, and most were located in remote towns with no critical water pollution issues. The CWA therefore appeared to be a waste of money at the time.

## 5. Conclusion

This research paper examines the economic impacts of the Clean Water Act in the United States both on the beneficial side and the disadvantageous side. From the National Benefits Analysis for Drinking Water Regulations by EPA study, the general benefits overall are human health improvements, enhanced aesthetic qualities, avoided costs of averting behavior, avoided materials damages, avoided costs of market production, nonuse benefits and information benefits. As mentioned in our results section, it is clear to see that the US government has spent large funds to improve the water quality such as the urban wastewater treatment plants that cost \$650 billion. Water quality is crucial to people's wellbeing so it can be a good thing that the government is protecting their citizens, one of the most fundamental public goods, by allocating some funds towards this issue. Another area that the US government has spent their funds in is that they made a one river-mile fishable for a year that cost around \$1.5 million [1]. The Clean Water Act had drastic changes on water quality as it was improving successfully as predicted. Good water quality brought good health to people living in that environment, but that is not all. The economy of the United States (US) had some profitable influences from the Clean Water Act as well. By protecting the water quality surrounding Florida (and many other peninsula states), the US government attracts millions of tourists who come to see the beautiful scenery that the Clean Water Act has helped preserve. This kind of situation brings more funds and profits of margins to the US government as well as the citizens who gain profits from the jobs regarding this matter.

Although these costly investments seem like it may be worth it and there are more positive outcomes, there are still some downsides that we have to consider. The Clean Water Act did indeed bring the desired outcome of improving water quality and preserving it. But that was only years later and a matter of time where the results were beginning to emerge. In the first 12 years of the Clean Water Act, no progress seemed to have shown. Huge funds have been spent and seemed like it went down the drain being the fact that the US government spent 2.5 times the original estimated fund. At the time, improving water pollution didn't seem like a long-term solution that would bring benefits.

Our research paper, however, cannot be a perfect representation of how the Clean Water Act influenced the United States economy. The margin of errors could be that we are not experts in this legislation that we might not have the accurate whole picture of this, it could be that there could be a potential bias towards the information extracted from these research articles, and it could also be that we weren't able to experience this research first-hand (e.g. conducting surveys, research lab, etc). That being said, our research paper still has much to offer. We tried to prevent potential bias by using multiple reliable sources so that there are even both sides to the claim.

In conclusion, this research paper was able to delve into how the Clean Water Act influenced the United States economy both beneficially and unfavorably.

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Ashley Li and Zidong Zhu contributed equally to this work and should be considered co-first authors.

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