

Environmental Policy Changes Over Time – A Comparative Analysis

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Abstract. Through this paper, the historical evolution of the environmental policy in New York State has been discussed, to bring to light the general environmental policy orientation and progress of the state. The strategy emphasizes the analysis of representative regions and countries (such as China and Germany), and identifies the best policies and innovative practices that are suitable for New York State policymaking through the comparative study. This research carefully defines the past and current complexities of the state policy regarding the environment, and points out the efficacy of the main legislation, such as the Environmental Conservation Law (ECL), and the role of significant historical events of the U.S. and the world like the Deepwater Horizon oil spill and Superstorm Sandy. The scoping review method extracts a wide set of guidance and thought experiments that reveal underlying strategies suitable for adoption for sustainable development and conservation actions in New York State, such as sustainable development projects, protected areas policies, renewable energy laws, and environmental justice considerations. To sum up, this paper tries to clarify the multifaceted challenges of the environmental policy in New York State, and also provides a complete analysis of its historical context, modern standards, and innovative solutions needed to make a benevolent and sustainable environment in New York State.

Keywords: New York State, environmental policy, policymaking, sustainable environment, Environmental Conservation Law (ECL).

1. Introduction

Today, many people are concerned about environmental degradation and its detrimental impact on the planet. Rising temperatures, low air quality, water pollution, and other environmental issues have become key ecological problems. Responsible organizations and officials, in many parts of the world, are struggling to develop mitigation measures to minimize the effects of these issues. Therefore, developing and implementing effective environmental policies has become an imperative requirement for governments around the world (Lazarus). A number of American states are on the front lines of the fight against environmental degradation. Particularly, with the advancing scientific understanding of the impacts of pollution and climate change along with public pressure, New York State has been an early adopter of laws and initiatives aimed at protecting the environment (Rolston III; Karapin). Over the years, the state has taken many steps and implemented stringent policies regarding air and water quality standards, ecosystem conservation, waste management, pollution mitigation, biodiversity protection, chemical regulation, and promoting environmental sustainability.

One of the most important laws passed in New York State is the Environmental Conservation Law (ECL). This regulation became the basis for the protection and management of the environment. Adopted in 1970, the ECL created a framework for a comprehensive environmental regulation that covers important aspects, such as air and water quality, waste management, and land conservation (Aicher). Other initiatives and laws that New York state has passed over the years include the Clean Air Act of 1971, the State Environmental Quality Review Act (SEQRA) of 1978, the Climate Leadership and Community Protection Act (CLCPA), and the Regional Initiative. In addition, there are Greenhouse Gas Regulations (RGGI) and the Clean Energy Standard (CES), which demonstrate a commitment to environmental conservation and sustainable development (Aicher; Stafford-Smith et al.). These examples only superficially describe the efforts made by New York State to minimize environmental degradation. By comparing these laws and initiatives with the actions taken by other

regions around the world, such as Jiangsu Province in China and cities in Europe, the effectiveness and impact of these policies can be established and recommendations can be made accordingly.

The purpose of this study is to examine the evolution of environmental policy development in New York State, in comparison with the practices and standards of other regions and countries to determine how effective the state's approach is in addressing environmental problems. The study covers a period from the first steps taken in the field of environmental protection to modern strategies and achievements that have been recently adopted. The examination of the historical development of environmental policies in New York State and their comparison to the global effectiveness of those policies in promoting environmental conservation and sustainable development underscores the importance of proactive and adaptive policy-making to address evolving environmental challenges.

2. Historical Development of Environmental Policy in New York State

2.1 Early Environmental Policy Initiatives

New York State's early environmental policy initiatives reflect an awareness of the importance of conserving natural resources and protecting the environment. At the beginning of the 20th century, similar to many other states, the state of New York faced serious environmental problems caused by industrialization and population growth. This led to the first legislative initiatives to protect the environment, including the creation of park areas and nature reserves. In addition, enacted in 1970, the ECL became the fundamental legislation, establishing the principles and standards for environmental protection in New York State. It entails provisions for air and water pollution control, waste management, protection of biodiversity and ecosystems, and the conservation of natural resources (Aicher). An important milestone was the creation of the New York State Department of Environmental Conservation (DEC) in 1970, which became the central authority for managing and monitoring the environmental policy in the state (Aicher). Currently, DEC continues to play a key role in the development and implementation of environmental protections in New York State (Aicher). At the same time, earlier initiatives are also related to the fight against air pollution in the state of New York, for which purpose programs and measures were adopted to reduce emissions of harmful substances from industrial and transport sources. This includes air quality standards, programs to reduce greenhouse gas emissions, and other initiatives (Karapin). Ultimately, in the early stages of the environmental policy, New York State endorsed several laws and regulations governing waste management, including waste sorting, recycling, and disposal. This legislation helps reduce the impact of waste on the environment and public health (Karapin). Thus, New York State's early environmental policy initiatives laid the foundation for the subsequent development and strengthening of legislation and programs aimed at improving environmental quality and conserving natural resources. These efforts have not only preserved the state's natural beauty and biodiversity, but have also made it one of the leaders in environmental conservation in the United States.

2.2 Key Milestones and Legislative Enactments

New York State's environmental policy has a long history of development, including several key milestones and legislation. As stated earlier, throughout the 20th century, various laws and programs were enacted, which aimed at managing the state's natural resources and other areas of environmental protection. However, according to Karapin, an important period in the development of environmental policy in New York State was the beginning of the 2000s when the government began to more actively respond to environmental problems by adopting various laws and initiatives. Additionally, significant milestones entail the Clean Air Act and the Clean Water Act, both passed at the federal level, which have a direct impact on New York State's environmental policies. These laws set air and water quality standards and provided the government with tools to enforce and implement them. However, New York State has adopted several other pieces of legislation (see Table 1) that have formed the basis of the state's environmental policies, aiming to ensure sustainable development and preservation of natural heritage for future generations.

Table 1: New York State's Environmental Policy Milestones and Legislation

1970	The New York State Department of Environmental Conservation (DEC) is created.
1971	Ban on DDT (a widely used pesticide that can cause various diseases in humans, including cancer, and also poses a threat to nature and the environment).
1972	Passed the Environmental Quality Bond Act, which provides funding for projects aimed at improving the environment and ensuring sustainable use of natural resources in New York State.
1973	A ban on phosphorus in cleaning products other than dishwashing detergents to reduce water pollution and maintain water quality.
1975	New York State Energy Research and Development Authority (NYSERDA) is created.
1975	The State Environmental Quality Review Act (SEQRA) was passed.
1975	The Freshwater Wetlands Act was passed.
1976	Controls were introduced on aerosol cans containing chlorofluorocarbons (CFCs) to reduce their use and prevent further depletion of the ozone layer.
1978	New York State declared a public health emergency due to toxic pollutants entering homes. To contain and treat contamination, DEC and its partners installed a permanent wastewater collection system and a 22-acre clay cap on the site, which was later expanded to 40 acres, and a carbon capture facility.
1982	Passed the "Bottle Bill" also known as the "Bottle Deposit Law" to reduce waste, enforce environmental standards, and encourage recycling of materials to mitigate negative impacts on the environment.
1984	DEC initiated the state's Acid Deposition Control Act, which established policies to control acid rain in affected areas.
1986	The Environmental Quality Bond Law was adopted. This law provided significant funds to address environmental problems in the state.
1987	DEC created a comprehensive solid waste management plan and implemented Part 360 solid waste regulations to comply with the federal Resource Conservation and Recovery Act.
1988	The Solid Waste Management Law was adopted, which established rules and regulations for the effective management and disposal of solid waste to minimize its impact on the environment.
1991	The use of lead shot when hunting waterfowl was prohibited.
1992	New York State's first Open Space Plan was signed.
1993	Creation of the Environmental Defense Fund (EDF), which was intended to finance programs and projects aimed at protecting and restoring the environment in the state.
1996	Approved the \$1.75 billion Clean Water/Clean Air Bond Act.
1997	DEC signed an important agreement with the state setting the framework for managing and protecting New York's watershed.
1998-2003	DEC created different programs, departments, and a number of policies to address environmental issues.
2003	Passage of the State Superfund/Brownfields Act.
2004	The use of the gasoline additive MTBE was prohibited due to concerns about chemical contamination of groundwater and impacts on drinking water and public health.
2005	Creation of the country's first Regional Greenhouse Gas Initiative (RGGI).
2009	A ban on open burning of garbage and waste was introduced in all areas of the state to improve air quality and prevent forest fires.

2010	Passed the Electronic Equipment Recycling and Reuse Act, the most comprehensive e-waste management program in the country.
2013	The importation of captive deer or elk was prohibited unless authorized by the State Department of Agriculture and Markets.
2015	Banning large-scale hydraulic fracturing (“fracking”).
2017	Passed the \$2.5 billion Clean Water Infrastructure Act to support key drinking water and clean water infrastructure projects and improve water quality protections across the state.
2017-2018	A wide range of initiatives and actions were taken by New York State and DEC to address various environmental issues.
2019	Ban on the sale of single-use plastic bags from March 2020 to reduce pollution and protect fish and wildlife.
2019	Passed legislation to ban offshore drilling in its waters, prohibiting the issuance of permits for oil or gas drilling or exploration in state-controlled offshore areas.
2019	Passed the Climate Leadership and Community Protection Act, which cemented the state's Green New Deal strategy and established nation-leading climate goals.
2019	Launched the Resilience and Economic Development Initiative (REDI), which aims to mitigate flooding and erosion, rebuild the economy, and strengthen coastal defenses with a budget of more than \$300 million.

Sources: Department of Environmental Conservation (DEC); Aicher; Karapin.

2.3 Analysis of the Environmental Conservation Law (ECL) and its Impact

The Environmental Conservation Law (ECL) was passed by the New York State Legislature and signed into law in 1971 and, subsequently, incorporated as Section 3A into state law. This ordinance establishes the basic principles and standards for protecting the environment in New York State, incorporating managing natural resources, regulating pollution, controlling the use of chemicals and industrial waste, and protecting ecosystems and biodiversity (Aicher). New York State's ECL is the central piece of legislation governing environmental protection and management in the region. It includes a wide range of provisions relating to water and air quality, waste management, protection of natural resources and biodiversity, pollution control, and industrial safety (Aicher). The impact of ECL is felt at various levels of society and the economy, since the law encourages the development and implementation of environment-friendly technologies, raises awareness of environmental issues, and improves the quality of life of the residents. In addition, ECL promotes environmental entrepreneurship and contributes to job creation in the environmental sector. It is important to note that the law is also a tool for regulating and punishing those who violate environmental standards and damage the environment, thereby promoting compliance with environmental regulations and encouraging the sustainable use of resources. Therefore, ECL is an important mechanism for ensuring sustainable development and preserving the environment in the long term.

2.4 Major Environmental Policies and Initiatives

New York State's major environmental policies and initiatives include a wide range of activities designed to preserve and improve the region's environmental quality. Important strategies comprise of reducing air and water pollution, managing waste, protecting biodiversity and ecosystems, and combating climate change (Karapin). One of the main initiatives is the establishment of strict air and water quality standards and regular monitoring and control of emissions of harmful substances into the air and water resources. This involves the development and implementation of technologies to treat wastewater and improve the quality of drinking water, along with limiting emissions of harmful substances from industrial plants and vehicles (Department of Environmental Conservation, DEC). Another significant aspect of environmental policy is waste management. New York State is actively developing programs to sort, recycle, and dispose waste, and to reduce the volume of waste produced.

This implies encouraging the use of alternative energy sources, such as renewable energy, and reducing resource consumption (Karapın). Moreover, combating climate change is another essential aspect of New York State's environmental policy. The strategies undertaken include the implementation of programs to reduce greenhouse gas emissions, develop green technologies and infrastructure, and support initiatives for adapting to climate change. Ultimately, New York State's climate policy initiatives include various energy efficiency programs that have brought the state's fossil fuel energy production levels down to 1 million Btu, which is considerably below the national level of 174 million Btu (Karapın). Thus, New York State's key environmental policies and initiatives are aimed at creating a sustainable and healthy environment for the region's residents and promoting the conservation of natural resources and biodiversity for future generations.

3. Comparative Analysis of Global Environmental Policies

3.1 Introduction to Comparative Analysis

A comparative analysis of global environmental policies allows to evaluate diverse approaches to environmental management in different countries and regions of the world. This context considers differences in legislation, policies, priorities, and implementation of environmental programs and initiatives. Benchmarking enables to identify successful practices, share experiences, and develop more effective international approaches to addressing global environmental challenges, such as climate change, air and water pollution, biodiversity loss, and sustainable use of natural resources. In addition, it is important to consider not only variances in approaches, but also the common goals of conservation and sustainable development to jointly achieve maximum positive impact on the environment at the global level. As a result, individual countries or regions will be able to learn useful lessons for their environmental policies.

3.2 Selection of Representative Regions/Countries

The choice of China and Germany for a global comparative analysis of environmental policies is based on their significant influence on the world economy, and the differences in approaches to environmental protection. In this case, China is the world's largest consumer of resources and one of the largest polluters of air and water resources. However, in recent years, China has become one of the largest investors in renewable energy and clean technology (Adam). After this, the number of environmental groups increased significantly indicating a growing commitment to and environmental consciousness in the German society (see Figure 1) (Adam). This was also largely facilitated by the adoption of the Basic Law in 1990, which became not only the general law of the country but also provided opportunities and laid the foundation for the environmental development of the region (Adam). The country's environmental and climate policies serve as an example for other countries. Therefore, a comparison of the environmental policies of China and Germany will reveal the measures by which countries cope with the problems of pollution and resource management.

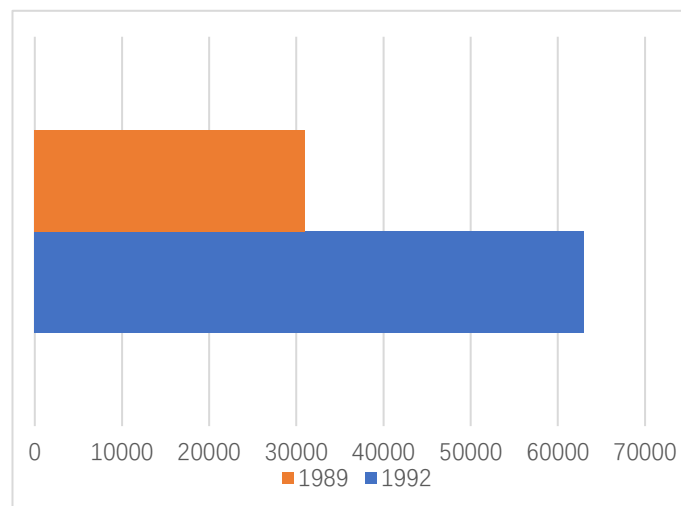


Figure 1: Growing Trend in the Number of Green Groups in Germany

3.3 Comparison of Policy Frameworks and Approaches

In Germany, environmental policy is closely linked to the fundamental legal and political structure of the state, and is integrated into the general strategy for sustainable development. Specifically, the first step toward the country's environmental policy was the creation of the Expert Council on the Environment in 1972 and the Federal Environmental Protection Agency in 1974 (Adam). However, in 1990, the country adopted the Basic Law, which not only became the general law of the state, but also provided numerous opportunities and laid the foundation for the ecological development of the region (Adam). Germany has strict environmental standards and legislation that obliges companies to comply with certain regulations to reduce emissions and manage waste. In particular, there are laws on nature conservation, water conservation, and legislation on greenhouse gas emissions. In addition, Germany actively pursues a sustainable development policy, which implies balancing economic growth with environmental and social responsibility. Strategies in this area are aimed at ensuring long-term sustainability in the economy, society, and ecology. It is important to note that the state is characterized by strong political pressure from society to adopt stricter environmental standards. Constitutional provisions and legal mechanisms are oriented toward the public interest, reflecting Germany's rise as an environmentally responsible state (Adam). Ultimately, the government actively supports innovation in the field of renewable energy sources and energy efficiency. In 2016, Germany ranked first among European countries in terms of the innovation index, which was 140 (see Table 2). Given this, Germany's policy framework and approaches demonstrate the country's commitment to creating an environmentally sustainable socio-economic system, and highlighting its role as a leader in the international environmental movement.

Table 2: Eco-Innovation Index Scores for European States (Source: Adam)

Country	Eco-Innovation Index Score 2016
Germany	140
Luxembourg	139
Finland	137
Denmark	126
Sweden	115
United Kingdom	110

China's policy framework and approaches to environmental policy have their unique characteristics. The state began to seriously pay attention to environmental problems and develop appropriate policies when faced with serious problems related to the environment, such as air, water, and soil pollution. This was due to the rapid industrial development and growth of production in the country. Over the following decades, the Chinese government gradually tightened its environmental

policies by passing laws, regulations, and programs aimed at reducing pollution and improving environmental quality. Particular attention was paid to reducing emissions of harmful substances, developing renewable energy sources, and protecting natural resources (Adam). However, it is only recently that has China made significant progress in addressing some environmental problems. In addition to the fact that the government has increased funding for environmental initiatives since 2014, the country is now investing more than any other in the development of renewable energy (Adam). Particularly, the state is actively developing solar and wind energy by building many solar and wind power plants, which helps reduce dependence on coal and other energy sources, thus decreasing greenhouse gas emissions. In addition, China has become an active participant in international initiatives to combat climate change, such as the Kyoto Protocol and the Paris Agreement. Along with that, the country actively cooperates with other states and international organizations in the field of environmental protection and sustainable development (Adam). However, despite its success in implementing environmental policies, China still has much to do to overcome difficulties and achieve positive results in this area.

3.4 Best Practices and Innovative Strategies

China and Germany represent different but equally effective approaches to environmental policy, bringing innovation and best practices to the field. China is the world leader in installed solar and wind power capacity. The country is actively investing in the development of these technologies, introducing innovations in production and improving efficiency. Initiatives such as the Green Wall or Green Belt aim to impede desertification in desert areas, by planting trees and restoring natural vegetation. In addition, China is developing and implementing innovative technologies to reduce pollutant emissions, such as wastewater treatment systems and air emissions (Adam). For its part, Germany is pursuing a large-scale program to transition to renewable energy sources, known as the Energy Transformation. The strategy is intended to stimulate the development of solar and wind energy and energy-efficient technologies. Germany also sets high environmental standards for industry and transport, thereby encouraging innovation in environment-friendly technologies and processes. Ultimately, the country has developed an effective waste return and recycling system, which encourages the recycling of materials and reduces the amount of waste sent to landfills (Adam).

Table 3: Best Practices and Strategies in Environmental Practices in China and Germany

China	Germany
Large-scale investment in renewable energy	Energy transformation
Combating desertification	Strict environmental standards
Technological innovations to combat pollution	Waste return and recycling system

3.5 Lessons Learned for New York State and Other Regions

Learning from the most effective practices and innovative strategies in environmental policy in China and Germany, may result in valuable guidance for improving the environmental policy for New York State and other regions. In particular, China's experience shows that implementing large-scale renewable energy programs and investments can help reduce dependence on fossil fuels and lower greenhouse gas emissions. In turn, based on German practice, promoting energy efficiency and developing innovative technologies can encourage efficient energy use and reduce environmental impact (Adam). Moreover, a lesson from both countries could be the implementation of strict environmental standards and regulations, which help decrease pollution, improve air and water quality, and are also important for protecting the health of citizens. At the same time, New York State and other regions can learn from the experiences of China and Germany in implementing climate change mitigation, adaptation programs, and waste management and recycling strategies that countries are demonstrating as part of their environmental policies. The innovative strategies and best practices of both countries provide useful examples for other regions. The exchange of experiences and cooperation between China and Germany, along with other countries can contribute to a more effective solution to global environmental problems. Consequently, applying these lessons to New

York State and beyond can help create more sustainable and resilient societies and achieve global climate change and environmental goals.

4. Policy Enactments and their Impact: Case Studies of Significant Environmental Events

4.1 Introduction to the Relationship between Policy Enactments and Environmental Events

Peaks in public attention to global warming and other environmental events play a major role in shaping political decisions and legislative measures to protect the environment. According to Karapin (2018), when public attention to environmental issues is at its highest, it often causes increased pressure on governments and political structures to take effective action. Figure 2 and Figure 3 demonstrate that at times of greatest public attention to the problems of global warming and other environmental events, such as natural disasters, water and air pollution, rising sea levels and so on, political leaders and authorities are usually forced to react to this by developing and adopting new laws and policies (Karapin). Some examples include tightening environmental standards, developing programs to reduce greenhouse gas emissions, investing in renewable energy, and making arrangements to protect natural resources. Such policy regulations often represent a response to the growing public concern and the desire of citizens and public organizations to address environmental problems (Karapin). Thus, there is a direct relationship between political regulations and environmental events, as public attention and pressure usually motivate governments to take concrete actions to mitigate the effects of climate change and other environmental problems.

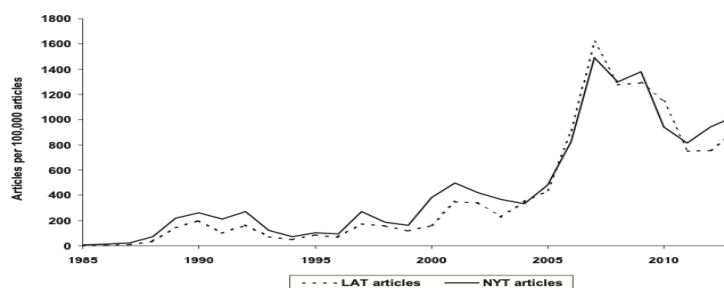


Figure 2: Public Attention to Environmental Issues Over Time (Source: Karapin.)

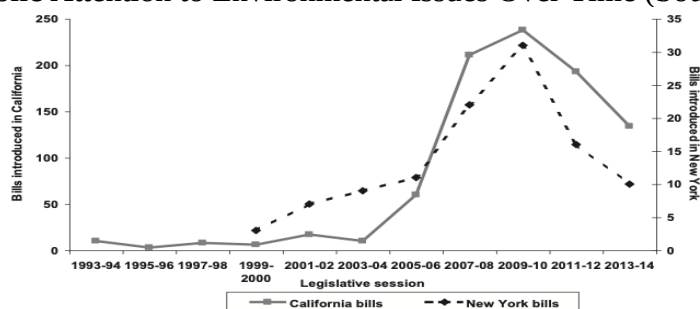


Figure 3: Legislative Response to Environmental Issues in California and New York (Source: Karapin.)

4.2 Selection of Significant Environmental Events

Significant environmental events include two key cases that have broad implications for environmental policy and public opinion. For example, the first largest deepwater oil spill in American history occurred in 2010, at the Deepwater Horizon oil platform off the coast of Louisiana. The spill lasted over three months causing enormous environmental destruction in the Gulf of Mexico (Farber). The event became a catalyst for changes in environmental policy, prompting strict safety measures in the oil industry and increased control over the activities of companies on offshore oil platforms. Another significant environmental event was Superstorm Sandy in 2012, which caused

severe destruction in the eastern United States, including New York and New Jersey. This hurricane caused massive flooding, infrastructure destruction, and hundreds of casualties (Friedman et al.). Sandy highlighted the vulnerability of coastal areas to extreme weather conditions and amplified discussions on climate change adaptation and disaster-proofing infrastructure. Both of these events had far-reaching consequences for environmental policy and public consciousness, bringing issues of sustainability and climate change to the forefront.

4.3 Analysis of Policy Responses and Changes

The deepwater oil spill and Superstorm Sandy were turning points in shaping policy responses and changes in environmental policy. Thus, the oil spill led to an immediate response and important policy changes, including the restructuring of government agencies and the adoption of a new approach. Under the Safety Case approach, businesses develop their own systems of standards and procedures that meet safety requirements, set by government agencies and professional associations. They conduct risk assessments, develop risk management plans, train staff, and regularly review and improve their security systems (Farber). Such changes can lead to more effective responses to threats and hazards, as businesses that are aware of their responsibility for safety, take proactive measures to ensure it. In turn, Superstorm Sandy, which severely damaged the US coast, drew attention to climate change and the need to adapt to its consequences. As a result of this event, policies were developed and improved to protect infrastructure and combat climate hazards, including improved warning systems, in collaboration with media and disaster response, along with investments in infrastructure capable of withstanding extreme weather conditions (Friedman et al.). Thus, both events led to major changes in political and environmental practices, thus highlighting the importance and the need for more effective measures to protect the environment and public safety in general.

4.4 Effectiveness and Impact of Policy Changes

An assessment of the effectiveness and impact of policy changes, following these events, suggests that these tragedies have had a significant impact on environmental policy and risk management, both in the United States and globally. As a result of the oil spill, strict laws and safety standards were passed for the oil industry, which considerably improved the level of prevention and response to such disasters (Farber). The Safety Case approach can substantially contribute to a more effective response to threats and hazards, as businesses that are aware of their responsibility for safety, take proactive measures to ensure it. In the case of Superstorm Sandy, policy changes led to improved preparedness and response to natural disasters, the development of more effective climate change adaptation strategies, and strengthened infrastructure to protect against environmental hazards (Friedman et al.). These policy initiatives signal an increased attention to environmental issues, and stimulate further efforts towards environmental sustainability and climate risk mitigation. Thus, it is clear that political changes following these events have had a positive impact on protecting the environment and reduced vulnerability to climate hazards.

4.5 Lessons Learned for Future Policy-making

Political regulations formed in response to the discussed environmental events have a significant influence on the formation of environmental policy. Lessons learned from these events highlight the importance of strong industrial safety measures, adaptation to climate change, and public involvement in decision-making. Future policies need to consider these lessons, encourage collaboration among different sectors of society, and strive for sustainable development to ensure environmental sustainability and equity for all.

5. Analysis of Sustainable Development and Conservation Efforts in New York State

5.1 Sustainability Initiatives

New York State is committed to developing and implementing sustainability initiatives to reduce greenhouse gas emissions, protect natural resources, and improve environmental sustainability. The devastation brought by Hurricane Sandy led to the creation of the state's first-ever sustainability plan in 2013 (NYK.gov). Moreover, in 2019, OneNYC 2050 was published in New York, which provides a strategic plan for the sustainable development of New York for 30 years ahead. It incorporates goals and initiatives to reduce greenhouse gas emissions, enhance the energy efficiency of buildings, improve public transport, adapt to climate change, and promote economic growth, while respecting the principles of social justice and involving the public in decision-making (NYK.gov). OneNYC 2050 aims to create a healthier, more equitable, and sustainable city for all its residents. As part of this plan, the state is taking a wide range of actions, including supporting renewable energy, introducing energy-efficient technologies, advancing public transport, and promoting a green economy. Subsidy programs for individuals and businesses, tax incentives, and regulatory measures help encourage environmentally responsible behavior and investment in sustainable projects (Schrader and Friedman). In addition, New York State actively participates in local and international agreements and initiatives to combat climate change, and promote sustainable development, thereby reaffirming its commitment to creating a healthy and safe environment for its citizens and future generations.

5.2 Conservation Efforts and Protected Areas

New York State has made significant conservation efforts and created protected areas. In 2022, New York State allocated \$400 million to maintain infrastructure, safe parks, and clean water and oceans (Schrader and Friedman). In addition, the state is actively enacting legislation to encourage investment in the protection and restoration of ecosystems around rivers and lakes, such as wetlands and riparian zones, to preserve their biodiversity and functionality (Schrader and Friedman). The establishment of wilderness and wildlife refuges and sustainable forest management and fisheries programs, demonstrates the state's serious efforts to preserve natural resources and the nation's heritage for future generations.

5.3 Renewable Energy Policies and Targets

New York State's renewable energy policies and goals reflect its ambitious commitment to reducing dependence on fossil fuels and decreasing greenhouse gas emissions. The state is determined to develop solar and wind energy, by supporting innovation in energy storage and expanding opportunities for residential and commercial users, to install renewable energy sources (NYK.gov). These efforts are supported by the adoption of a variety of ambitious goals that help create a more sustainable and energy-efficient infrastructure, reduce pollution, and promote the transition to cleaner energy sources. However, to achieve environmental victories and results in this area, New York State still needs to make considerable efforts.

5.4 Environmental Justice in Policy Implementation

In New York State, incorporating environmental justice into environmental policy is vital for ensuring equal access to environmental benefits, and protecting the health of all its residents, regardless of their social status or race. First, the state governor signed a cumulative impacts bill, ensuring that state environmental permitting is cognizant of the cumulative impacts on disadvantaged areas, where potentially polluting facilities apply for permits (Schrader and Friedman). In addition, New York is committed to the Leave No One Behind principle, which is central to OneNYC 2050, and includes taking a variety of measures to assess and manage environmental risks in vulnerable communities, increasing access to clean drinking water and quality air, and supporting infrastructure

projects in underserved areas (NYK.gov). The introduction of subsidy programs for less affluent communities, along with consultation and participation of communities in the environmental policy development process, help create more equitable and sustainable urban environments for all state residents. Ultimately, New York State passed the Green Bond Act, which aims to encourage investments in environmental protection and environmental justice (Schrader and Friedman). Thus, the state is actively pursuing policies in this area.

6. Challenges and Future Directions for Environmental Policy in New York State

6.1 Key Challenges and Obstacles

As in many other regions, major environmental policy issues in New York State include climate change, pollution, loss of biodiversity, and inequality in access to environmental benefits (e.g., figure 4). Barriers include difficulties in coordination between different sectors and industries, the economic interests of certain industries, and a lack of public consensus on environmental priorities. Addressing the major challenges and ensuring a sustainable future for New York State will require increased cross-sectoral collaboration, the development of innovative solutions, particularly in the area of renewable energy, and the implementation of strategies such as evidence-based and public opinion, with a particular focus on realizing New York State's commitment to environmental justice and sustainable development.

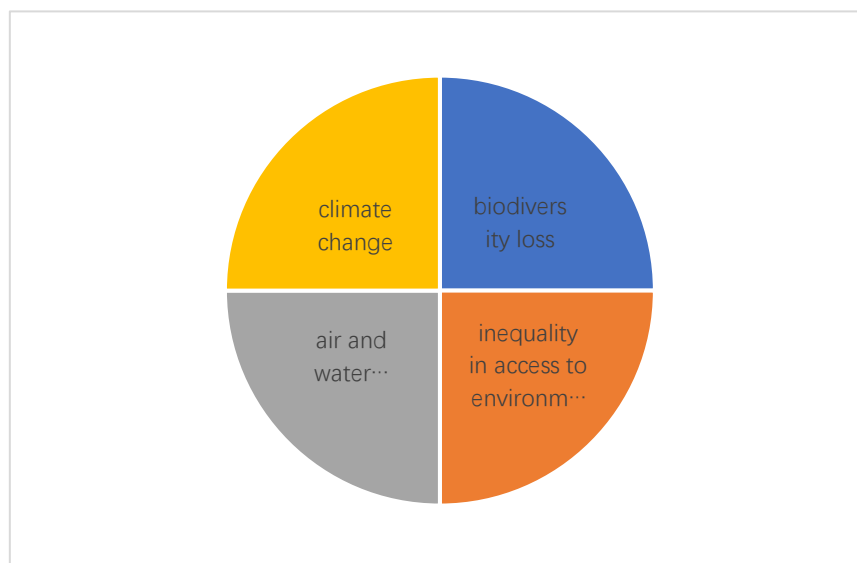


Figure 4: Key Environmental Policy Issues in New York State

6.2 Stakeholder Engagement and Public Participation

Stakeholder engagement and public participation play an important role in the formation and implementation of environmental policy in New York State. The analysis of the state's environmental policy demonstrates that civil society organizations, the business community, scientific institutes, and government agencies are actively involved in the decision-making process, and the development of environmental protection strategies. Public hearings, consultations, open dialogues, and feedback mechanisms are used to ensure broad public participation in the policy-making process. Subsequently, such an approach helps consider diverse points of view, identify key problems and needs, and also ensure transparency and responsibility in making environmentally significant decisions. The result of this interaction is relatively effective and sustainable environmental policies that meet the interests and needs of a wide range of stakeholders.

6.3 Emerging Environmental Issues and Policy Implications

Given the environmental events facing the United States, it is evident that New York State may continue to face a variety of environmental challenges in the future, including climate change, air and water pollution, loss of biodiversity, and health threats associated with these factors. These problems can lead to catastrophic consequences, for example, floods, droughts and rising sea levels, public health problems, and the disappearance of rare species of plants and animals, among others. However, some of these problems can be addressed and the risks reduced. This requires further study, development of strategies, and implementation of policy measures that are important to ensure sustainable development and preserve the environment for future generations.

6.4 Discussion of Potential Strategies and Policy Recommendations

To address emerging environmental issues, New York State may consider some potential strategies. The proposed approaches can be incorporated into policy recommendations and implemented through legislative and administrative measures, collaboration with the public and private sectors, and active public participation (See Table 4).

Table 4: Strategies and Policy Recommendations for New York State

1	Continued investment in renewable energy
2	Strengthening the protection of natural resources
3	Taking strict measures to reduce emission
4	Expanding environmental education and public awareness programs
5	Strengthening control over pollutants
6	Constantly updating laws and regulations in accordance with the situation in the region and the needs of the state and society.

7. Conclusion

Summarizing the analysis of the historical development of environmental policy in New York State, and its comparison with global approaches proves the significant effectiveness of the state policy in promoting environmental conservation and sustainable development. History shows that New York State has been proactive in protecting nature and reducing impacts on ecosystems by implementing innovative strategies and collaborating with a variety of stakeholders. The comparative analysis also highlights the importance of proactive and adaptive policies to address the evolving environmental challenges. New York's policies are characterized by its strong standards, investments in renewable energy, and natural resource conservation, which makes the state an exemplary leader in environmental sustainability. Although the practices of such countries as Germany or China can serve as lessons for creating more sustainable societies, examples of the use of various environmental strategies will help combat climate change and protect the environment. As cases associated with catastrophic environmental events put forth, timely political measures and changes are important to prevent or reduce the impacts of various disasters on the environment and society as a whole. In view of this, the analysis shows that today's environmental policy in New York State covers a wide range of activities, which are aimed at conserving and restoring natural resources, improving air and water quality, and supporting sustainable land use and the development of green technologies. These efforts are crucial for the provision of the well-being of the state's residents, and the preservation of its natural heritage for future generations. However, further efforts and joint actions with other regions and countries are also important and necessary to successfully overcome global environmental challenges. In the future, new research into environmental problems and further active implementation of effective strategies to solve them are needed. Therefore, it is recommended to consider some potential strategies and policy changes that New York State could adopt to achieve these goals.

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