



# Public Administration Ecology: Environmental Integration Into Policy

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## Abstract

*This research aims to explore the integration of ecology in public policy. There is often a conflict between short-term economic interests and long-term environmental protection goals. Governments and other stakeholders often prioritize economic growth over ecological sustainability. In this study, the method used is qualitative. qualitative research method is a study used to research on natural objects where the researcher is the key instrument, data collection techniques are combined, data analysis is inductive, and qualitative research results emphasize meaning rather than generalization. This article emphasizes the importance of ecological integration into public policy, not only for environmental preservation but also for social and economic benefits. Specific examples mentioned include sustainable agricultural practices and ethical water management policies, which can improve people's well-being and food security. Environmental challenges faced by governments, such as pollution, deforestation and climate change, require a holistic and science-based policy approach. Public policies that consider ecological principles can ensure that economic and social development go hand in hand with environmental conservation.*

**Keywords:** Ecology, Public Administration, Public Policy

## 1. INTRODUCTION

Ecology is the study of how living organisms interact with their environment. Given that government policies affect the natural environment, ecology becomes crucial in public administration. Through sustainable policies, strong regulations, and conservation programs, governments play a vital role in preserving the environment. Ecological principles help ensure that economic and social growth does not come at the expense of ecosystem health. In recent decades, the relationship between ecology and public administration has gained increasing importance in global discourse. This shift is driven by growing awareness of the limitations of natural resources and the impact of human activities on the environment. Public administration, as the backbone of governance, plays a crucial role in directing policies and actions that influence the relationship between humans and their environment (Meadowcroft, 2002).

The importance of ecology in the context of public administration is increasingly recognized for several fundamental reasons. First, healthy ecosystems are the foundation of human life and economic activities. Ecosystem services, as identified by the Millennium Ecosystem Assessment (2005), include provisioning services (e.g., food, clean water), regulating services (e.g., climate regulation, water purification), supporting services (e.g., soil formation, nutrient cycling), and cultural services (e.g., recreation, spiritual value). Second, environmental degradation can threaten national security through resource scarcity, conflict, and forced migration (Homer-Dixon, 1999). Third, environmental sustainability is a prerequisite for long-term economic development, as argued in the concept of the "green economy" (UNEP, 2011).

Governments worldwide face various complex environmental issues. Climate change, air and water pollution, deforestation, biodiversity loss, and uncontrolled urbanization are some of the major challenges. For example, climate change affects weather patterns, water availability, and public health, all of which require comprehensive policies. Deforestation and biodiversity loss disrupt the natural balance essential for human survival, while air and water pollution threaten human health and ecosystems. Climate change poses an existential threat that requires collective global action. The



Intergovernmental Panel on Climate Change (IPCC) report indicates that global warming has reached 1°C above pre-industrial levels and is projected to reach 1.5°C between 2030 and 2052 if the current rate continues (IPCC, 2018). Deforestation, particularly in tropical forests, not only threatens biodiversity but also contributes to climate change. Global Forest Watch reports that the world lost 3.8 million hectares of primary tropical forests in 2019 alone (World Resources Institute, 2020). Water and air pollution remain serious problems, especially in developing countries. The World Health Organization estimates that 9 out of 10 people breathe air containing high levels of pollutants (WHO, 2018). Meanwhile, biodiversity loss is occurring at an alarming rate, with the WWF Living Planet Report showing an average 68% decline in mammal, bird, amphibian, reptile, and fish populations between 1970 and 2016 (WWF, 2020).

In the face of these challenges, integrating environmental considerations into public policy is imperative. The primary goal of this integration is to achieve sustainable development, defined by the Brundtland Commission as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). The Sustainable Development Goals (SDGs), adopted by the UN in 2015, embody a global commitment to this principle, with 17 goals encompassing the social, economic, and environmental aspects of sustainable development (United Nations, 2015). Integrating environmental considerations into public policy has several specific objectives. First, to ensure that environmental considerations are included in all stages of the policy cycle, from planning to implementation and evaluation. Second, to promote policy coherence across different sectors and levels of government. Third, to encourage innovation in environmentally friendly technologies and practices. Fourth, to increase resource use efficiency and reduce negative environmental impacts. Fifth, to build resilience against environmental risks and climate change (Jordan & Lenschow, 2010).

Implementing environmental integration into public policy requires various instruments and approaches. These include regulatory instruments (such as emission standards), economic instruments (such as carbon taxes), and voluntary instruments (such as environmental certification schemes). Additionally, ecosystem-based approaches and nature-based solutions are increasingly recognized as effective strategies for addressing environmental challenges while providing social and economic benefits (Cohen-Shacham et al., 2016). Integrating ecology into public administration is no longer an option but a necessity in the Anthropocene era. The complex and interconnected environmental challenges require holistic, adaptive, and science-based policy responses. By integrating environmental considerations into every aspect of governance, governments can better balance development needs with ecological imperatives, paving the way for a more sustainable and resilient future.

## 2. METHOD

This study employs qualitative methods. Qualitative research is used to explore natural settings where the researcher acts as the key instrument. Data collection techniques are combined, data analysis is inductive, and the results of qualitative research emphasize meaning over generalization (Sugiyono, 2007). The qualitative method allows for in-depth exploration of the integration of ecology into public administration within public policy. This approach is well-suited for understanding individuals' experiences, perceptions, and interpretations of complex subjects. It enables a detailed and accurate portrayal of how public administration ecology operates and how it integrates into public policy. The researcher uses literature review techniques, gathering data from books, journals, articles, and relevant information media related to the cases or issues encountered. Consequently, this research can provide more accurate and in-depth insights into public administration ecology, particularly concerning environmental integration into public policy.



### 3. RESULT AND DISCUSSION

#### Basic Concepts of Ecology in Public Administration

The term "ecology" was first introduced in the mid-1860s by the German biologist Haeckel. Derived from the Greek words "oikos" (meaning house) and "logos" (meaning study or knowledge), ecology is essentially the study of the living environment or the science of the habitats of living beings (Otto, 1998). Ecology examines the reciprocal interactions between living organisms and their environments. As a new discipline in biology, ecology connects physical and biological processes and bridges natural and social sciences. It serves as the foundation for various fields that are inherently linked to daily life, particularly the environment, and is, therefore, the basis of environmental knowledge. Ecology is interconnected with other sciences such as technology, socio-culture, economics, and politics. Governments and stakeholders may prioritize economic growth over ecological sustainability (Howlett, 2006). These interest groups often resist policy changes that could restrict their activities (Meadowcroft, 2007). Although crucial, ecology is not the sole basis for decision-making in environmental issues. It is one component within the broader environmental management system, which must be balanced with other factors to achieve fair decisions. Environmental management requires human ecology—a specific branch of ecology that includes plant, animal, and microorganism ecology—focusing on the reciprocal relationship between humans and their environment. Humans and the universe are inseparable entities, where humans represent the microcosm, and the universe and the environment represent the macrocosm, interacting continuously.

In governmental studies, the principle of ecology likens the government to an "organism" that interacts with its environment, composed of various factors or dimensions, with the dominant factor chosen as the ecological dimension in government or public administration (Muchlis, 2015). The environment refers to the surrounding conditions that encompass an organism or life. Everything has its unique environment (Riggs, 1990), and without identifying what is encompassed, the environment cannot be clearly defined. The relationship between the environment and what is encompassed is expressed in the concept of ecology, which explains how organisms interact with their environment. Originally from biology, the field of ecology expanded to include human ecology, illustrating how humans impact their environment. Sociologists call this social ecology to describe human behavior, especially in urban areas. The relationship between government decision-making and the environment leads to the concept of administrative ecology, emerging in response to variations in public administration systems and communities across different locations.

Ecology plays a critical role in maintaining the balance of the natural environment. As a scientific discipline, ecology analyzes the interactions between various living beings and their environments and the impact of these natural processes on the entire ecosystem. Through ecological studies, we can understand how different life forms, from the smallest to the largest, interact within complex ecosystems. This knowledge allows us to recognize the impact of human activities on the environment and develop strategies to maintain ecosystem balance. Ecology also provides deep insights into the management of natural resources such as forests, water, and land. By understanding the essence of ecology, we can design policies and conservation methods that promote the sustainable use of natural resources without harming the environment.

Through ecological studies, we can identify environmental issues like air pollution, habitat degradation, and climate change. A strong understanding of ecology enables us to design effective solutions to complex environmental problems. Thus, ecology's role is vital not only in maintaining environmental balance but also in ensuring the overall well-being of humanity.



## Ecological Principles

A crucial step in ensuring that environmental conservation aligns with economic and social development is the integration of ecology into public policy. This means considering ecological aspects when making policies across all fields, such as agriculture, industry, transportation, energy, and urban development. This is essential to ensure that economic growth does not come at the expense of natural resource sustainability and environmental health. Public policies must encourage sustainable natural resource management, such as sustainable agriculture, forest management, and responsible fishing, ensuring that current and future generations can use natural resources without compromising future needs (FAO, 2017).

Incorporating ecological aspects into public policy brings various significant and sustainable benefits to environmental, economic, and social well-being. Key benefits include environmental protection, economic sustainability, improved public health, and reduced climate change impacts. By adopting an approach that integrates ecology into every aspect of public policy, governments can ensure that development and growth do not harm the environment and support long-term sustainability.

To integrate ecology into public policy, certain principles must be applied to ensure that policies are sustainable and oriented toward the welfare of society and the environment. These principles include:

- 1) **Sustainability:** Emphasizing the importance of considering the long-term impact of policies to ensure that current actions do not harm future generations. Public policies should be based on the principle of sustainability, which means meeting present needs without compromising the ability of future generations to meet their own needs. Sustainability includes environmental, social, and economic aspects, considering the long-term impact of policies on ecosystems and natural resources.
- 2) **Public Participation and Transparency:** Ensuring active public involvement in the decision-making process related to public policy. This is important to ensure that policies align with the needs and aspirations of the public. Public policies related to ecology should involve the participation of relevant stakeholders, such as non-governmental organizations, local communities, and the private sector. The policymaking process should be transparent and open to ensure public accountability and trust (UNDP, 2012).
- 3) **Holistic Approach:** Viewing ecosystems as complete entities where each part interacts and impacts the others. Policies that focus only on one aspect without considering the overall effects can lead to future problems. For example, infrastructure development policies should consider their effects on water, soil, flora, fauna, and humans.

## Integration Process

To achieve sustainability and environmental preservation, it is crucial to incorporate ecological principles into public policy. This involves actions such as:

- 1) **Developing and Enforcing Laws**

Firstly, laws and regulations that incorporate ecological principles need to be created and updated. This includes environmental law enforcement, natural resource management, and regulations related to environmental protection. For example, Law No. 32 of 2009 on Environmental Protection and Management in Indonesia is one such law.



However, challenges include long-term perspectives, ongoing violations, unmet regulations, excessive exploitation, improper permits, inadequate supervision, pollution, large-scale damage, insufficient sanctions, pragmatic interests, neglect of sustainability principles, short-term economic priorities, illegal logging, illegal mining, indiscriminate waste disposal, ecological disasters, destructive neglect, systemic failures, fragile commitments, and rampant impunity. These issues highlight the poor implementation of environmental laws in Indonesia, characterized by continuous violations, lack of law enforcement, excessive natural resource exploitation, inadequate monitoring, widespread pollution, significant environmental damage, insufficient sanctions, neglect of sustainability principles, and illegal activities like illegal logging and mining.

To address these issues, unity is essential to protect the Earth, establish environmental laws, and enforce regulations without discrimination. Prevent violations by monitoring activities closely and addressing problems from the start. Regular monitoring is crucial for success as it involves the public to enhance transparency and hold stakeholders accountable. Habitat restoration should be a top priority for biodiversity protection. Firmly control pollution and manage waste expertly. By offering green incentives, the younger generation will be motivated to learn about the environment. Focus on sustainability for the future and strengthen visionary commitment and leadership. Eco-friendly practices are valued, and cross-sector cooperation is essential. In every step, exercise caution, involve all key elements for success, and continuously evaluate for adjustments, compliance, and effective implementation. We must work together to implement environmental laws with full awareness.

## 2) Long-Term Planning

To achieve sustainable development, long-term planning that considers the environmental impacts of every policy and project is increasingly important. This approach ensures that economic growth and development do not compromise environmental preservation and natural resources for future generations. Environmentally-conscious long-term planning is crucial for ensuring the sustainability of natural resources and quality of life for future generations. Every policy and project should be based on a thorough environmental impact assessment, considering ecological risks and applying precautionary principles (Jeffrey, 2015). Key aspects to consider in long-term planning include:

- a. **Comprehensive Environmental Impact Assessment:** Before implementing policies or projects, a thorough assessment must be conducted. This assessment should cover potential impacts on air, water, and soil quality, biodiversity, and social and economic effects on local communities.
- b. **Precautionary and Preventive Principles:** In environmental management, policies and projects should follow precautionary and preventive principles. Precaution involves taking preventive actions even without complete scientific certainty about risks, while prevention means taking steps to avoid environmental damage before it occurs.
- c. **Stakeholder Engagement:** To ensure long-term planning meets community needs and aspirations, relevant stakeholders such as NGOs, local communities, and the private sector must be involved. This builds ownership and support for implementation.
- d. **Transparency and Accountability:** Long-term planning should be carried out with high transparency and accountability. Decision-making processes and information should be publicly available, with mechanisms to ensure decision-makers are held accountable.
- e. **Evaluation:** Long-term planning is not static; it needs to be evaluated and adjusted periodically by reviewing and assessing environmental impacts and current conditions.





- f. Achieving sustainable development and preserving natural resources for future generations requires long-term commitment, collaboration among various stakeholders, and transparency and accountability in decision-making processes.

### **Implement a Holistic Approach and Case Studies**

To achieve sustainable development, a holistic approach that considers environmental, social, and economic aspects is needed. This approach involves inclusive spatial planning and conducting Environmental Impact Assessments (EIAs). EIAs are efforts to assess whether the utilization or management of natural resources or government policies will have environmental impacts (Rahmadi, 2011).

A thorough EIA should include evaluations of potential environmental, social, and economic impacts. This includes impacts on air, water, and soil quality, as well as on local communities such as settlements, livelihoods, and culture. Spatial planning should also involve active participation from relevant environmental and community stakeholders, such as NGOs, local communities, and the private sector.

To ensure development focuses not only on economic growth but also on comprehensive social and environmental impacts, a holistic approach requires integrating economic, social, and environmental elements in decision-making. Spatial planning and EIA implementation should be conducted with high transparency and accountability. All information and decision-making processes should be publicly accessible, with mechanisms to ensure decision-makers are held accountable. Effective spatial planning and EIA require a strong legal framework and law enforcement, including clear regulations, oversight systems, and strict sanctions for violations.

In 2010, the German government launched a major program called *Energiewende* aimed at transforming the energy sector by replacing fossil fuels with renewable energy sources, improving energy efficiency, and gradually phasing out nuclear energy. This policy emerged from increased awareness of the environmental impact of fossil fuels and nuclear energy security threats, especially after the 2011 Fukushima nuclear disaster in Japan. Germany is committed to *Energiewende* to significantly reduce greenhouse gas emissions and transition to more sustainable energy sources.

The results of *Energiewende* have been remarkable. By 2021, Germany's share of renewable energy reached 42.5%, up from 6.6% in 2000 (Agentur für Erneuerbare Energien, 2022). Additionally, greenhouse gas emissions in Germany have decreased significantly. However, the program has faced several challenges, including high costs, resistance from conventional energy industries, and difficulties integrating distributed renewable resources into the grid.

Germany's *Energiewende* is a real-world example of how public policies can integrate ecological elements, transitioning to renewable and sustainable energy sources. Despite some obstacles, the program has made significant progress in making Germany's energy mix more environmentally friendly and reducing greenhouse gas emissions.

### **Benefits of Integrating Ecology into Public Policy**

#### **1) Environmental Benefits**

Integrating ecological principles promotes the preservation of natural habitats and ecological corridors, facilitating species movement and interaction. This can enhance biodiversity by providing more ecological niches, supporting larger and more diverse populations, and improving ecosystem resilience to disturbances. Integrated methods for managing river flows and



agricultural lands can also improve water and soil quality by reducing erosion and sedimentation, increasing water infiltration, replenishing aquifers, and decreasing pollution from agricultural runoff. Additionally, it contributes to climate change mitigation through increased carbon sequestration by vegetation and soil, reduced greenhouse gas emissions from land management practices, and improved ecosystem resilience to climate impacts.

## 2) Social and Economic Benefits

- a. Integrating ecology into public policy is increasingly crucial for sustainable development. This approach not only protects the environment but also offers significant social and economic benefits. For example, sustainable agricultural practices like agroforestry and organic farming can maintain soil fertility and biodiversity while enhancing long-term productivity and farmer profitability. Research shows that agroecological farming systems can improve food security, reduce dependence on external inputs, and increase smallholder farmers' incomes in developing countries (Altieri and Nicholls, 2017).
- b. Ecologically-informed water management policies also offer substantial social benefits. For instance, river basin restoration programs involving local communities can improve water quality, reduce flood risks, and create new economic opportunities through sustainable fisheries and ecotourism. Research indicates that maintaining river basins can significantly reduce water treatment and flood costs while providing additional benefits like recreation and carbon sequestration (Postel and Thompson, 2005).
- c. Integrating ecology into public policy is about more than just environmental protection; it's about creating synergies between ecological, social, and economic well-being. Ecologically-informed policies can enhance quality of life through environmental improvements, better health, and new economic opportunities, while sustainable resource management can yield long-term economic benefits.

## Policy Recommendations

Integrating ecology into state administration has become essential in an era where environmental degradation and climate change are increasingly urgent global issues. This approach requires a significant shift in our perspective on managing and developing natural resources. However, incorporating ecological considerations into an established administrative system is not an easy task. To ensure the sustainability of this integration, a comprehensive set of recommendations and concrete actions is needed.

Several concrete actions should be taken to ensure this integration occurs effectively. These include enacting laws that establish a strong legal framework for ecological integration, allocating adequate budgets for the implementation of environmental policies and programs, strengthening inter-agency coordination, developing human resources, actively participating in international environmental cooperation, and promoting environmentally friendly technological innovations.

Integrating ecology into state administration requires a holistic approach that involves institutional changes, capacity building, increased public participation, and the use of creative policy instruments. Policymakers can ensure that ecological considerations become a crucial part of decision-making processes and resource management, fostering truly sustainable development by adopting these recommendations and concrete actions. Despite the many challenges faced, successful ecological integration offers numerous benefits for the environment, society, and economy. The efforts required to achieve this far outweigh the benefits.



#### 4. CONCLUSION

Integrating ecology into state administration is an urgent necessity in the modern era. Environmental challenges such as pollution, deforestation, and climate change require a holistic and science-based policy approach. Public policies that incorporate ecological principles can ensure that economic and social development aligns with environmental preservation. This integration aims not only to protect natural resources and biodiversity but also to enhance public well-being, health, and resilience to climate change. Achieving this requires active participation from the community and various stakeholders, along with strict and consistent law enforcement. Long-term approaches in planning and policy implementation are also crucial to ensuring environmental sustainability for future generations. Thus, through integrated and ecology-oriented public policies, governments can create a more sustainable and resilient future, where a balance between development and environmental preservation is achieved.

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