

EVOLUTION OF ENVIRONMENTAL JURISPRUDENCE IN PAKISTAN: FROM STATUTORY FRAMEWORKS TO CLIMATE JUSTICE

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Abstract

Pakistan's environmental jurisprudence has evolved from colonial resource-centric regulation to a decentralized and rights-based climate governance framework. The Pakistan Environmental Protection Act (PEPA) 1997 established the foundational structure for environmental regulation through Environmental Impact Assessment (EIA), pollution control mechanisms, and environmental adjudication. However, the increasing frequency of climate-induced disasters and the constitutional devolution introduced through the 18th Amendment shifted environmental governance toward provincial autonomy and climate resilience. This paper critically examines the evolution of environmental law in Pakistan from the colonial period to 2026, with particular emphasis on the transition from PEPA 1997 to the Climate Change Act 2017. It analyzes the emergence of environmental constitutionalism through judicial activism, especially under Article 9 of the Constitution, where the judiciary expanded the "Right to Life" to include environmental protection, sustainable development, and climate justice. Landmark cases such as Shela Zia v. WAPDA and Leghari v. Federation of Pakistan are examined as pivotal developments in climate jurisprudence. The study further evaluates provincial environmental governance, international environmental commitments, and implementation challenges related to institutional fragmentation, weak enforcement, and climate vulnerability. The paper argues that Pakistan's environmental legal regime has transitioned from conventional pollution-control governance toward a broader framework of environmental constitutionalism and climate justice grounded in sustainability, intergenerational equity, and ecological resilience.

Keywords: Environmental Jurisprudence, Environmental Constitutionalism, Climate Justice, PEPA 1997, Climate Change Act 2017, Judicial Activism, Sustainable Development, Climate Governance, Pakistan.

1. Introduction

Environmental degradation has emerged as one of the most pressing global challenges of the twenty-first century. Rapid industrialization, urbanization, deforestation, biodiversity loss, water scarcity, and climate change have intensified ecological vulnerabilities, particularly in developing countries. Pakistan, despite contributing less than one percent to global greenhouse gas emissions, ranks among the countries most vulnerable to climate change. Recurring floods, prolonged droughts, glacial melting, rising temperatures, air pollution, and water contamination have severely affected the country's economy, agriculture, infrastructure, and public health.

Pakistan possesses immense ecological diversity, including mountains, deserts, forests, wetlands, rivers, coastal ecosystems, and arid plains. This ecological wealth, however, has historically been subjected to unsustainable exploitation. At the time of independence in 1947, environmental governance was largely absent as a distinct legal and administrative domain. The primary focus of governance remained economic development, agricultural expansion, industrialization, and resource extraction.

The environmental movement in Pakistan gradually evolved under the influence of international environmental discourse and domestic ecological crises. Initially, environmental regulation focused primarily on forestry, wildlife conservation, and land management. However, environmental protection gained greater legal and institutional recognition during the 1970s following the United Nations Conference on the Human Environment held in Stockholm in 1972.

The evolution of environmental jurisprudence in Pakistan can broadly be categorized into several phases: the colonial resource management era, the post-independence institutional development period, the emergence of environmental legislation in the 1970s and 1980s, the consolidation phase under PEPA 1997, the decentralization era following the 18th Constitutional Amendment, and the contemporary climate justice phase characterized by judicial activism and climate governance.

The concept of environmental rights in Pakistan has undergone a significant transformation. Environmental protection is no longer viewed merely as a regulatory issue concerning pollution control. Instead, it is increasingly recognized as a constitutional and human rights issue intrinsically connected to public health, sustainable development, and climate resilience. Judicial interpretation of Article 9 of the Constitution, which guarantees the right to life, has expanded to include the right to a clean and healthy environment.

This paper aims to critically analyze the historical evolution of environmental jurisprudence in Pakistan and assess the contemporary shift toward climate justice. It examines the development of environmental laws, institutions, policies, judicial interventions, and international commitments while highlighting key implementation challenges and future directions.

2. Historical Evolution of Environmental Law in Pakistan

2.1 Pre-Colonial Environmental Practices

Before British colonial rule, environmental management in the Indian subcontinent largely operated through customary practices and community-based resource management systems. Forests, grazing lands, rivers, and water bodies were often treated as common property resources managed collectively by local communities. Traditional ecological knowledge and indigenous conservation practices played a significant role in regulating the use of natural resources (Urooj, 2015).

Agricultural societies depended heavily on seasonal cycles, water availability, and ecological balance. Resource use was generally localized, and environmental degradation remained relatively limited due to lower population density and restricted industrial activities. However, environmental governance during this period was informal and lacked codified legal structures.

2.2 Colonial Environmental Governance (1857–1947)

The colonial era fundamentally altered environmental governance in the region. Following the establishment of British rule, natural resources became instruments of economic exploitation and revenue generation. Forests were systematically managed to support railway expansion, shipbuilding, military logistics, and industrial production.

The British administration introduced centralized legal and bureaucratic systems for resource control. One of the most significant developments was the Forest Policy of 1894, which emphasized state ownership and commercial exploitation of forests. The policy prioritized economic gains over ecological sustainability and local community rights.

Several important colonial laws laid the foundation for future environmental governance in Pakistan, including: The Indian Forest Act 1927; The Canal and Drainage Act 1873; The Fisheries Act 1897; The Explosives Act 1884, and The Factories Act 1934.

Although these laws addressed certain environmental dimensions, their primary objective remained resource extraction and administrative control rather than ecological protection.

The colonial governance model also disrupted traditional community rights over forests and grazing lands, contributing to deforestation and social conflict. Environmental concerns such as biodiversity conservation, pollution control, and ecological sustainability received little attention.

3. Environmental Governance after Independence (1947–1972)

Following independence in 1947, Pakistan inherited the colonial legal and administrative structure. During the early decades, the newly formed state prioritized nation-building,

industrial growth, irrigation expansion, and agricultural development. Environmental protection remains a secondary concern.

Nevertheless, several institutional initiatives were established, such as the Pakistan Forest Institute (1947), the Zoological Survey Department (1948), Wildlife conservation departments gradually emerged in different provinces, Research institutions focusing on agriculture, irrigation, and forestry were developed.

Environmental legislation during this era remained fragmented and sector specific. Major laws included: Capital Development Authority Ordinance 1960; West Pakistan Wildlife Protection Ordinance 1959; Land Reform Act 1972, and Provincial wildlife preservation acts were formulated during this period.

Industrialization during the 1960s contributed to increasing pollution levels in urban centers. However, environmental issues were still not integrated into national development planning.

4. International Influence and Environmental Awakening (1972–1997)

4.1 Stockholm Conference and Global Environmentalism

The United Nations Conference on the Human Environment held in Stockholm in 1972 marked a turning point in global environmental governance. Pakistan participated in the conference and subsequently began integrating environmental concerns into policy planning.

The conference emphasized sustainable development, pollution control, and ecological conservation. Influenced by global environmental discourse, Pakistan established its first federal environmental institution in 1975.

4.2 Institutional Development

The post-Stockholm era witnessed significant institutional progress:

- Establishment of the Federal Ministry of Environment
- Creation of Environmental Protection Agencies (EPAs)
- Introduction of environmental planning mechanisms
- Greater collaboration with international environmental organizations such as the International Union for Conservation of Nature (IUCN)

The National Conservation Strategy (NCS), launched in 1992 with assistance from IUCN, represented one of Pakistan's earliest comprehensive environmental policy frameworks. The NCS focused on:

- Conservation of natural resources
- Sustainable economic development
- Pollution prevention
- Public awareness
- Institutional strengthening

4.3 Pakistan Environmental Protection Ordinance 1983

The Pakistan Environmental Protection Ordinance (PEPO) 1983 was Pakistan's first comprehensive environmental legislation. The ordinance established environmental institutions and introduced pollution control mechanisms.

However, PEPO 1983 suffered from several limitations like weak enforcement mechanisms, limited institutional capacity, inadequate penalties, poor public participation, and weak regulatory authority. Despite its shortcomings, PEPO 1983 laid the foundation for modern environmental legislation in Pakistan.

5. Pakistan Environmental Protection Act 1997: A Legal Milestone

The Pakistan Environmental Protection Act (PEPA) 1997 replaced the earlier 1983 ordinance and remains one of the most significant developments in Pakistan's environmental legal history. PEPA 1997 established a comprehensive legal framework for environmental protection, pollution control, and sustainable development.

5.1 Objectives of PEPA 1997

The primary objectives of PEPA 1997 included:

- Protection and improvement of the environment
- Prevention and control of pollution
- Promotion of sustainable development
- Regulation of hazardous substances
- Environmental assessment of development projects

5.2 Institutional Framework under PEPA

Pakistan Environmental Protection Council (PEPC)

Section 3 of PEPA established the Pakistan Environmental Protection Council under the chairmanship of the Prime Minister. The Council was responsible for formulating environmental policies, coordinating the national environmental program, approving environmental quality standards, and providing strategic guidance.

Pakistan Environmental Protection Agency

The Pakistan EPA became the principal federal regulatory body responsible for the enforcement of environmental laws, monitoring pollution levels, conducting environmental inspections, and implementing environmental standards.

5.3 Environmental Impact Assessment (EIA)

One of the most important contributions of PEPA 1997 was the introduction of mandatory Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) procedures under Section 12.

The EIA process aimed to evaluate the environmental consequences of development projects, ensure mitigation measures, promote environmentally responsible planning, and encourage public participation.

5.4 Environmental Tribunals and Magistrates

PEPA established Environmental Tribunals and Environmental Magistrates to adjudicate environmental offences. These institutions were empowered to hear environmental cases, impose fines and penalties, issue compliance orders, and enforce environmental standards.

5.5 National Environmental Quality Standards (NEQS)

PEPA facilitated the implementation of National Environmental Quality Standards regulating: industrial emissions; vehicular emissions; waste disposal; water quality; and air pollution.

Although PEPA represented a major legal advancement, implementation challenges remained significant due to institutional weakness, corruption, political instability, and lack of technical expertise.

6. Environmental Jurisprudence and Judicial Activism

6.1 Constitutional Basis of Environmental Rights

Pakistan's Constitution does not explicitly recognize environmental rights. However, judicial interpretation has expanded constitutional protections to include environmental dimensions.

Article 9 of the Constitution guarantees the right to life and liberty. Pakistani courts have interpreted the right to life broadly to include:

- Right to a clean environment
- Right to clean drinking water
- Right to pollution-free air
- Right to ecological balance

6.2 Shela Zia v. WAPDA (1994)

The landmark case of Shela Zia v. WAPDA is widely regarded as the foundation of environmental jurisprudence in Pakistan.

In this case, residents challenged the construction of a high-voltage grid station in a residential area due to potential health risks.

The Supreme Court held that the constitutional right to life includes the right to a healthy environment. The Court emphasized:

- Precautionary principle

- Sustainable development
- Public health protection
- Environmental rights as constitutional rights

This judgment significantly expanded judicial involvement in environmental governance.

6.3 Public Interest Litigation (PIL)

Environmental public interest litigation became increasingly common after the Shela Zia case. Courts began addressing issues such as illegal deforestation, industrial pollution, water contamination, illegal construction, solid waste management, coastal degradation.

Judicial activism emerged as a response to weak regulatory enforcement.

6.4 Leghari v. Federation of Pakistan (2015)

The case of Leghari v. Federation of Pakistan marked a historic development in climate change jurisprudence.

A farmer filed a petition arguing that the government had failed to implement the National Climate Change Policy, thereby violating constitutional rights.

The Lahore High Court recognized climate change as a serious threat to fundamental rights and established a Climate Change Commission to monitor implementation. The judgment highlighted: Climate justice, Intergenerational equity, State responsibility, and Climate adaptation obligations.

This case received international recognition as a pioneering climate litigation judgment.

7. The 18th Constitutional Amendment and Provincial Environmental Governance

7.1 Decentralization of Environmental Powers

The 18th Constitutional Amendment enacted in 2010 fundamentally transformed environmental governance in Pakistan.

The amendment abolished the Concurrent Legislative List and devolved environmental responsibilities to provinces.

As a result:

- Provinces gained legislative authority over environmental matters.
- Provincial EPAs became primary regulators.
- Environmental governance became decentralized.

7.2 Provincial Environmental Legislation

Following devolution, provinces enacted their own environmental laws given in table 1.

Table 1. Provincial Environmental Laws, Policies, and Sustainability Initiatives in Pakistan

Province	Key Environmental Laws, Policies, and Initiatives
Punjab	Punjab Environmental Protection Act; Punjab Climate Change Policy; smog mitigation regulations and air quality management initiatives.
Sindh	Sindh Environmental Protection Act; coastal zone management initiatives; urban waste management and municipal environmental reforms.
Khyber Pakhtunkhwa	Forest conservation initiatives; Billion Tree Tsunami Project; expansion of protected areas and biodiversity conservation measures.
Balochistan	Environmental protection regulations addressing mining impacts and water scarcity; coastal environmental management initiatives; natural resource governance and sustainability programs.

7.3 Advantages and Challenges of Devolution

Advantages

- Greater provincial autonomy
- Context-specific environmental regulation

- Improved local governance
- Better responsiveness to regional ecological issues

Challenges

- Weak institutional capacity
- Inconsistent regulatory standards
- Coordination gaps between federal and provincial authorities
- Political interference
- Resource constraints

The devolution process created opportunities for localized governance but also generated regulatory fragmentation.

8. Climate Change and the Rise of Climate Justice

8.1 Pakistan's Climate Vulnerability

Pakistan is among the countries most vulnerable to climate change despite contributing minimally to global emissions.

Major climate-related threats include floods, heatwaves, droughts, glacier melting, desertification, water scarcity, sea-level rise, and agricultural instability.

The catastrophic floods of 2010 and 2022 highlighted the country's extreme climate vulnerability.

8.2 National Climate Policies

Pakistan has introduced several climate-related policies and frameworks:

National Climate Change Policy 2012

The policy focused on climate adaptation, disaster risk reduction, water conservation, renewable energy, and forestry management.

Climate Change Act 2017

The Climate Change Act established: Pakistan Climate Change Council; Climate Change Authority; Climate adaptation mechanisms.

Updated Climate Policies

Recent policy initiatives emphasize green growth, nature-based solutions, climate-resilient infrastructure, carbon reduction strategies, and renewable energy transition.

8.3 Climate Justice Framework

Climate justice refers to the fair distribution of environmental benefits and burdens while protecting vulnerable populations from climate impacts.

In Pakistan, climate justice concerns are closely connected to poverty, gender inequality, rural vulnerability, food insecurity, water access, indigenous rights

The judiciary increasingly recognizes climate justice as a constitutional and human rights issue.

9. International Environmental Commitments

Pakistan is a signatory to numerous international environmental agreements and conventions.

9.1 Major Environmental Conventions

Pakistan has ratified:

- United Nations Framework Convention on Climate Change (UNFCCC)
- Paris Agreement
- Convention on Biological Diversity (CBD)
- Montreal Protocol
- Ramsar Convention on Wetlands
- Convention on International Trade in Endangered Species (CITES)
- Basel Convention
- Kyoto Protocol

9.2 Sustainable Development Goals (SDGs)

Pakistan has incorporated environmental sustainability into its commitment to the Sustainable Development Goals, particularly:

- SDG 6: Clean Water and Sanitation
- SDG 7: Affordable and Clean Energy
- SDG 11: Sustainable Cities
- SDG 13: Climate Action
- SDG 14: Life Below Water
- SDG 15: Life on Land

9.3 Challenges in International Compliance

Despite international commitments, implementation challenges remain significant due to financial constraints, institutional limitations, weak enforcement, political instability, and limited technological capacity.

10. Urbanization, Pollution, and Environmental Challenges

10.1 Urban Environmental Crisis

Rapid urbanization has intensified environmental degradation in Pakistan.

Major urban environmental challenges include air pollution, traffic congestion, solid waste accumulation, water contamination, noise pollution, and housing pressure.

Cities such as Lahore, Karachi, and Faisalabad regularly experience hazardous air quality levels.

10.2 Plastic Pollution and Waste Management

Plastic pollution has become a major environmental issue. Although plastic bag bans were introduced, weak enforcement limited effectiveness.

Recent judicial interventions and provincial policies have revived efforts to regulate single-use plastics, industrial waste, hospital waste, and municipal solid waste.

10.3 Water Scarcity and Pollution

Pakistan faces severe water-related challenges like declining freshwater availability, industrial effluents, sewage contamination, groundwater depletion, and river pollution

Water governance remains fragmented and poorly regulated.

10.4 Biodiversity Loss and Deforestation

Deforestation, habitat destruction, and illegal hunting threaten biodiversity.

Conservation efforts include national parks, protected areas, deforestation projects, and wildlife conservation programs. However, enforcement remains inconsistent.

11. Emerging Trends in Environmental Jurisprudence

11.1 Rights-Based Environmental Governance

Environmental governance in Pakistan is increasingly rights-oriented. Courts now emphasize human dignity, ecological rights, intergenerational equity, public participation, and environmental accountability.

11.2 Green Judicial Activism

The judiciary continues to play an active role in climate governance, pollution control, environmental accountability, enforcement of environmental laws. Judicial activism compensates for administrative weaknesses but also raises questions regarding separation of powers.

11.3 Environmental Constitutionalism

Environmental constitutionalism refers to the integration of environmental rights into constitutional interpretation.

Pakistan's evolving jurisprudence increasingly aligns with global trends recognizing:

- Environmental human rights
- Sustainable development principles
- Ecological citizenship

11.4 Green Economy and Sustainable Development

Pakistan is gradually adopting green economy initiatives including: Renewable energy projects; Solar and wind energy expansion; Green financing; Sustainable agriculture; and Ecosystem restoration.

Programs such as the Billion Tree Tsunami Project and Ten Billion Tree Tsunami Program represent major ecological restoration efforts.

12. Challenges to Effective Environmental Governance

Despite substantial legal and institutional progress, several challenges hinder effective environmental governance.

12.1 Weak Enforcement

Environmental laws are often poorly enforced due to corruption, political interference, resource limitations, weak monitoring systems, and lack of trained personnel.

12.2 Institutional Fragmentation

Overlapping institutional mandates create confusion and inefficiency.

Coordination problems exist between Federal and provincial governments, EPAs and local governments, Regulatory agencies and courts.

12.3 Lack of Public Awareness

Environmental literacy remains limited among the public.

Greater public participation is needed through environmental education, community engagement, civil society involvement, and media awareness campaigns.

12.4 Economic Pressures

Economic development priorities often conflict with environmental sustainability.

Industrial expansion, mining, and infrastructure projects frequently proceed without adequate environmental safeguards.

12.5 Climate Finance and Adaptation Capacity

Pakistan requires substantial climate finance for adaptation projects, disaster resilience, renewable energy, water management, and climate-resilient agriculture.

Limited financial and technological capacity remains a major obstacle.

13. Future Directions and Recommendations

To strengthen environmental governance and climate justice in Pakistan, comprehensive reforms are required that addresses institutional, legal, social, and technological dimensions of environmental management (Table 2).

Table 2: Proposed Reforms for Strengthening Environmental Governance and Climate Justice in Pakistan

Reform Area	Key Recommendations
Strengthening Institutional Capacity	Enhance the technical and administrative capacity of EPAs; increase environmental funding; improve environmental monitoring systems; establish specialized environmental courts for effective adjudication.
Enhancing Climate Governance	Mainstream climate adaptation into development planning; strengthen disaster risk management systems; promote renewable energy transition; expand climate-resilient infrastructure.
Strengthening Environmental Rule of Law	Improve enforcement mechanisms; increase penalties for environmental violations; ensure institutional transparency and accountability; promote access to environmental justice.
Public Participation and Education	Integrate environmental education into curricula; encourage civil society participation; promote community-based

	conservation initiatives; strengthen environmental journalism and awareness.
Sustainable Urban Planning	Develop sustainable transport systems; improve waste management infrastructure; expand urban green spaces; promote energy-efficient and environmentally sustainable construction practices.
International Cooperation	Enhance climate diplomacy; improve access to international climate finance; strengthen regional environmental cooperation; encourage transfer of environmentally sound technologies.

14. Conclusion

The evolution of environmental jurisprudence in Pakistan reflects a gradual but significant transformation from resource-centered governance toward rights-based environmental and climate justice frameworks. Beginning with colonial forest management policies and fragmented post-independence regulations, Pakistan's environmental legal system has expanded into a comprehensive framework encompassing pollution control, environmental assessments, climate governance, and constitutional environmental rights.

The Pakistan Environmental Protection Act 1997 represented a foundational legal milestone by institutionalizing environmental regulation and introducing environmental impact assessment procedures. The 18th Constitutional Amendment further reshaped governance by devolving environmental responsibilities to provinces, creating opportunities for localized environmental regulation while also generating coordination and capacity challenges.

Judicial activism has emerged as one of the defining characteristics of Pakistan's environmental jurisprudence. Landmark judgments such as *Shela Zia v. WAPDA* and *Leghari v. Federation of Pakistan* transformed environmental protection into a constitutional and human rights issue. Courts increasingly recognize that environmental degradation and climate change directly threaten the right to life, dignity, health, and sustainable development.

The growing climate crisis has accelerated the shift from conventional environmental protection toward broader climate justice discourse. Pakistan's vulnerability to floods, droughts, glacial melting, heatwaves, and water scarcity underscores the urgent need for climate-resilient governance. Although Pakistan has introduced climate policies, international commitments, and ecological restoration programs, implementation remains inconsistent.

Persistent challenges including weak institutional capacity, inadequate enforcement, political instability, urban pollution, and limited climate finance continue to hinder effective environmental governance. Addressing these challenges requires strengthening provincial Environmental Protection Agencies, enhancing environmental accountability, promoting public participation, and integrating sustainability into economic planning.

Ultimately, the future of environmental jurisprudence in Pakistan depends upon balancing ecological sustainability with socio-economic development while ensuring that environmental rights and climate justice remain central to governance and policy-making.

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