



Climate Change Litigation and Environmental Justice in Pakistan: Lesson from Singapore

Dr. Muhammad Saqlain Haider¹, Muhammad Hannan Ali² & Umar Usman³

¹Ph.D (Law), Universiti Utara, Malaysia, Assistant Professor-Law, The University of Faisalabad, Pakistan, Email: saqlainhaider.law@tuf.edu.pk

²LLM (Scholar), Department of Law, The University of Faisalabad, Pakistan, Email: hannanadvocate277@gmail.com

³LLM (Scholar), Department of Law, The University of Faisalabad, Pakistan, Email: umer.usman6315@gmail.com

ARTICLE INFO

Article History:

Received: January 02, 2026
Revised: January 26, 2026
Accepted: February 20, 2026
Available Online: March 02, 2026

Keywords:

Climate Change Litigation, Pakistan Environmental Law, Singapore Climate Governance, Judicial Activism, Sustainable Development

Corresponding Author:

Dr. Muhammad Saqlain Haider

Email:

saqlainhaider.law@tuf.edu.pk

ABSTRACT

Climate change has emerged as one of the greatest threats to humanity in the twenty first century, disproportionately affecting developing countries such as Pakistan. Despite contributing less than 1% to global greenhouse gas emissions, Pakistan remains among the countries most vulnerable to climate disasters, including floods, droughts, heatwaves, glacier melting, and water scarcity. The devastating 2022 floods in Pakistan, which affected more than 33 million people, highlighted the urgent need for effective climate governance and environmental justice mechanisms. Climate change litigation has therefore become an important legal instrument through which citizens, activists, and courts seek accountability from governments and corporations for environmental harm and failure to fulfill constitutional and international obligations. This research examines the role of climate change litigation in promoting environmental justice in Pakistan and comparatively analyzes the governance model of Singapore. Singapore primarily relies on strong administrative governance, effective implementation mechanisms, sustainable urban planning, and strict environmental regulation instead of judicial intervention. The study aims to identify the weaknesses in Pakistan climate governance system and explore how lessons from Singapore can improve institutional efficiency, environmental protection, and climate accountability in Pakistan. This research explores the intersection of climate change litigation and environmental justice within Pakistan's legal framework, using Singapore advanced environmental governance as a comparative benchmark. Pakistan, being one of the most climate-vulnerable nations, faces unique challenges such as glacier melting and floods, which excessively affect marginalized communities. While Pakistan has seen landmark judicial activism (*Asghar Leghari v. Federation of Pakistan*), it lacks the rigorous legislative implementation seen in Singapore. This study utilizes a comparative qualitative methodology to analyze how Singapore "Green Plan 2030" and "Carbon Pricing Act" can provide a roadmap for Pakistan to move from judicial orders to institutionalized climate justice.



Introduction

Climate change has emerged as one of the most critical challenges of the twenty-first century, affecting ecosystems, economies, and human populations worldwide. The changing climate, driven by human activities such as deforestation, fossil fuel combustion, and industrial agriculture has led to an increase in extreme weather events, sea-level rise, droughts, floods, and shifts in biodiversity (IPCC, 2021). As global temperatures continue to increase, the need for effective international legal frameworks to mitigate and adapt to these changes has become more urgent. Climate change is not only an environmental issue but also a social, economic and political one, affecting the most vulnerable populations, particularly in developing countries such as Pakistan.

Courts have interpreted these guarantees to include the right to a clean and safe environment as part of the right to life and the inherent dignity that accompanies it (Hassan & Khan, 2020). This marked a significant shift in climate litigation in Pakistan from a developing advocacy technique to a channel for achieving climate justice. The unique ecology of Pakistan an emerging democracy in a newly urbanizing country with poor regulatory and enforcement capacity for well established environmental laws, rapid climate change, has paved the way for the development of a judicial response to ecological degradation.

Although responsible for less than 1% of global greenhouse gas emissions, Pakistan is still ranked among the world's top 10 climate-vulnerable countries,(Climate Change Litigation and Pakistan's Perspective, 2025). Because climate policies often face implementation challenges due to political instability, the courts have served as an alternative to ensure accountability and preserve future environmental clean air, water, and habitat.

The symbolic nature of the Supreme Court decision in *Shehla Zia v. WAPDA* (1994) pushed the limits of environmental constitutionalism, first by connecting the rights of Article 9 (right to life) and Article 14 (dignity of man) to environmental harm. In this instance, it provided meaningful recognition for public interest litigation (PIL) for environmental matters, it empowered a responsible populace and civil society to challenge destructive activities endangering human habitat, and it demanded the state take action (Hassan & Azfar, 2023).

Since then, courts in Pakistan have taken this development in jurisprudence and used it in a number of different environmental matters, including, but not limited to deforestation, industrial pollution, changes in groundwater and water management policy, and lack of action in implementing measures for climate change adaptation. One especially interesting decision was that of the Lahore High Court in (*Asghar Leghari v. Federation of Pakistan*, 2015) in which the Lahore High Court found that climate change proposed a direct threat against constitutional rights and held the state accountable for not executing its own National Climate Change Policy. The outcome of this case established a Climate Change Commission, thereby asserting the judiciary's enforce implementation mechanisms in cases where the executive was inert (Peel & Osofsky, 2018).

Inversely, Singapore presents a compelling case study in environmental governance and air pollution control. As a highly developed city-state with a smaller geographic footprint and population, Singapore has implemented a strong and integrated legal and regulatory framework that emphasizes prevention, and accountability (Tan & Lim, 2022, Environmental Protection Agency Singapore, 2024). Its stringent emissions standards, proactive governmental policies, and advanced monitoring technologies, have resulted in relatively better air quality and a model for effective pollution management in the region (Sharma & Tan, 2023; Lee et al., 2021). Singapore's approach underscores the importance of strong institutional mandates, coordinated policy efforts, and strict enforcement mechanisms in mitigating environmental risks (Tan, 2023).

This article explores the legal framework of climate change litigation in Pakistan and compares, it with Singapore's environmental governance model. Singapore, despite being a small and highly urbanized country, has developed effective environmental management systems through rigorous regulation, sustainable urban planning, technological innovation, and institutional efficiency. Pakistan can learn valuable lessons from Singapore integrated, environmental governance approach.

The study emphasizes that Pakistan face climate change issues due to weakness of governance, whereas Singapore offers a successful model of proactive environmental management. It calls for regional cooperation, legal reforms, public engagement, and institutional strengthening to control the environmental issues in Pakistan.

Problem Statement

Pakistan faces severe climate vulnerabilities, however, environmental governance and policy implementation remain weak. Despite constitutional protections and environmental legislation, ineffective institutions, lack of coordination, political instability, and administrative inefficiency obstruct, climate adaptation and environmental protection.

As a result, the judiciary has become the primary institution, for climate accountability through climate change litigation. Although judicial activism has advanced environmental justice, reliance on courts alone cannot ensure sustainable climate governance. There remains a significant gap, between climate policies, and their implementation.

In contrast, Singapore has developed a proactive environmental governance system based on effective administration, urban sustainability, technological innovation, and regulatory enforcement. Pakistan lacks similar institutional effectiveness, and long-term climate planning.

This study addresses the problem of weak environmental governance in Pakistan and evaluates how lessons from Singapore can strengthen climate litigation, institutional accountability, and environmental justice mechanisms.

Research Objective

- i. To examine the concept and development of climate change litigation in Pakistan.
- ii. To analyze the role of Pakistani judiciary in promoting environmental justice.
- iii. To study the landmark climate litigation cases in Pakistan, particularly *Asghar Leghari v Federation of Pakistan*.
- iv. To evaluate the weaknesses in Pakistan's environmental governance system.
- v. To examine the Singapore's environmental governance and sustainability model.
- vi. To identify lessons and reforms, that Pakistan can adopt from Singapore.
- vii. To propose the recommendations for improving climate governance and environmental justice in Pakistan.

Significance of the study

This study is significant for legal practitioners, policymakers, and environmental activists in Pakistan. It provides a pragmatic roadmap for transitioning from Judicial Activism to Administrative Compliance, which is essential, for the long-term survival of Pakistan's agricultural and urban sectors.

The research contributes to the growing field of climate change law, environmental constitutionalism, and comparative environmental governance. It also adds literature on climate justice in Singapore.

The study examines the evolving role of judiciary in climate governance and highlights how constitutional rights can be used to address environmental harm.

The research provides policy recommendations for improving environmental institutions, climate adaptation, and implementation mechanisms in Pakistan.

Throughout studying the Singapore's governance model, the research identifies practical administrative and regulatory reforms that Pakistan, can adopt for sustainable environmental governance and development.

Research Methodology

This research adopts a qualitative research design and comparative legal research methodology to analyze the climate change legal frameworks of Singapore and Pakistan. The comparative method examines environmental governance frameworks in Pakistan and Singapore to identify similarities, differences, and best practices.

Sources of Data

Primary Sources

- i. Constitution of Pakistan 1973
- ii. Pakistan Environmental Protection Act 1997
- iii. National Climate Change Policy 2012
- iv. Climate Change Act 2017
- v. Judicial precedents
- vi. Singapore Environmental Protection laws

Secondary Sources

- i. Books
- ii. Research articles
- iii. Law journals
- iv. Government reports

Literature Review

Pakistan's Climate Vulnerability

Pakistan is ranked among the most vulnerable countries to the impacts of climate change, as it faces a wide range of climate-related challenges, including extreme weather events, water scarcity, agricultural stress, and flooding. Despite contributing less than 1% of global greenhouse gas emissions, Pakistan is highly susceptible to the consequences of climate change, largely due to its geographical location, social, economic, conditions, and dependence on agriculture (Khan et al., 2019).

One of the most critical climate challenges faced by Pakistan is water scarcity. The country relies heavily on the Indus River System, which provides approximately 90% of its water for irrigation. However, the river's flow is increasingly affected by climate change, particularly through altered rainfall patterns and the accelerated melting of glaciers in the Himalayas and the Hindu Kush, mountain ranges, which are the primary sources of water for the Indus River (Rasul, 2014). As temperatures rise, Pakistan's water resources are expected to become more unpredictable, which could exacerbate already existing water stress. The Indus Water Treaty, signed between India and Pakistan in 1960 to allocate water from the river system, may become more difficult to manage as

climate change, affects the seasonal distribution of water, particularly in the context of transboundary water management and geopolitical tensions between the two countries.

In addition to water scarcity, Pakistan also experiences frequent flooding and droughts. The 2010 floods in Pakistan were one of the most devastating climate-related events in the country's history, displacing over 20 million people and causing extensive damage to infrastructure, agriculture, and livelihoods. Floods are expected to become more frequent and severe due to the combination of rising temperatures, erratic rainfall, and glacial melt. (Mumtaz, 2011).

The Legal Framework for Climate Change in Pakistan

Pakistan Environmental Protection Act (1997), The National Climate Change Policy (2012), and The Climate Change Act (2017) are the backbone of Pakistan's climate legislative framework. This section discusses these major legal endeavors one by one.

Pakistan Environmental Protection Act of 1997

The Pakistan Environmental Protection Act (PEPA) of 1997 is considered as the basis of the legal framework for climate change governance in Pakistan. The act aimed at providing a comprehensive framework for pollution control and environmental management. It institutionalized environmental protection at the national level. For the purpose of formulating national environmental policies and promoting coordination with the provincial efforts, this act establishes the Pakistan Environmental Protection Council (PEPC). Similarly, the Pakistan Environmental Protection Agency (Pak-EPA) has been empowered to enforce environmental standards, oversee industrial emissions, and perform inspections. Furthermore, forbidding the release or emission of contaminants that exceed the established National Environmental Quality Standards (NEQS) is strictly forbidden, thereby guaranteeing regulation of industrial and vehicular pollution. These provisions laid the foundation for environmental accountability and administrative coordination in Pakistan

National Climate Change Policy of 2012

The National Climate Change Policy (NCCP) of 2012 is a reflection of Pakistan's first comprehensive framework for addressing climate change adaptation as well as mitigation in accordance with its UNFCCC commitments. The policy intends to incorporate climate considerations into national planning and development processes across different sectors, including water, agriculture, forestry, and energy. On the one hand, the policy stresses water resource management, disaster preparedness, and food security as a strategy for adaptation, while on the other, it emphasizes mitigation measures by encouraging renewable energy resources, energy efficiency, and reduction of dependence on fossil fuels. Moreover, it highlights the importance of strengthening environmental institutions through effective coordination among federal, provincial, and local entities in order to ensure an effective implementation of policies. It also emphasizes on the inevitable importance of public awareness, capacity-building, and financial mechanisms to enhance climate resilience.

Framework for Implementation of Climate Change Policy (2014–2030)

The Framework for Implementation of Climate Change Policy (2014–2030) has been introduced in order to operationalize the National Climate Change Policy 2012. This policy is primarily aimed at translating the NCCP 2012 into concrete actions, timelines, and institutional responsibilities, for effective climate adaptation and mitigation. It offers adaptation and mitigation actions tailored to specific sectors. The framework sets out institutional arrangements for the purpose of coordination

between government institutions. It clearly designates responsibilities to federal, provincial, and local authorities. It addresses the management of water resources, with recommendations for the construction of small to medium-sized dams, enhancing irrigation methods, and monitoring glaciers as means to combat droughts and floods. It also underscores the importance of mitigating climate change in the energy sector, which includes promoting renewable energy and enhancing energy efficiency as means of cutting greenhouse gas emissions.

Constitutional Provisional

Article 9A of the Constitution of Pakistan 1973 is a recently introduced in 26th amendment in constitution, provision that formally establishes; Clean and healthy environment. "Every person shall be entitled to a clean, healthy and sustainable environment."

Singapore's Environmental Governance

Singapore is internationally recognized for sustainable urban planning, green infrastructure, waste management, water conservation, and pollution control. Scholars attribute Singapore's success to strong institutions, strict law enforcement, public awareness, and technological innovation. Singapore is considered one of the leading countries in Asia regarding environmental governance, climate adaptation, and sustainable urban development. Singapore contributes only a small percentage of global greenhouse gas emissions, it has adopted strong legal, institutional, and policy measures to address climate changes. As a highly urbanized island nation, Singapore is particularly vulnerable to rising sea levels, extreme heat, flooding, and other climate related risks. Therefore, the government has developed comprehensive climate laws, green policies, and long term sustainability strategies.

Singapore's air-quality framework is built on multiple pillars that together supporting cushion the city-state's recoiling system for keeping pollution low for most of the year. Domestically, local emission sources such as vehicles and industry are tightly regulated under the Clean Air Act and a suite of subordinate regulations, including the Environmental Protection and Management (Vehicular Emissions) Regulations and emissions control standards for industries. At the same time, the Singapore government has addressed the challenge of transboundary haze driven by forest and peat-land fires in neighbours countries—through the Transboundary Haze Pollution Act 2014 (THPA), which empowers domestic authorities to hold foreign entities accountable for haze pollution entering Singapore.

On the monitoring and enforcement front, real-time tools such as the Pollutant Standards Index (PSI) and the Air Quality Index (AQI) provide timely public advisories particularly when transboundary smoke intrudes, while the National Environment Agency (NEA) conducts enforcement actions—in one example, requiring vehicles with excessive smoke to be turned back at checkpoints and fining owners for breaches under the Vehicular Emissions Regulations. Meanwhile, institutional coordination across ministries ensures that regulation, monitoring and planning are integrated into transport, urban-planning and industrial policy. Finally, the public health dimension is robust: Singapore generally meets its ambient-air targets (such as for PM_{2.5}, PM₁₀, SO₂ and NO₂) for most of the year, reflecting alignment with frameworks such as those set out in the World Health Organization guidelines. But despite strong domestic controls, the recurring threat of transboundary haze remains a systemic risk episodic yet serious and underscores that even with good local air-quality governance, regional pollution dynamics continue to demand attention. (Saqlain et al, 2025)

Climate Change Legal Framework and Development in Singapore:

1. Carbon Pricing Act 2018

This is one of Singapore's most important climate laws. Introduced a carbon tax system. Applies to facilities emitting large amounts of greenhouse gases.

Encourages industries to reduce emissions and adopt cleaner technologies.

Makes Singapore the first Southeast Asian country to implement a nationwide carbon tax.

The law promotes:

Low-carbon development

Energy efficiency

Green industrial transformation

The carbon tax encourages companies shift toward renewable energy

Improve environmental compliance

Invest in sustainable technology

2. The Singapore Green Plan 2030

While not a single "Act" this is a multi-ministerial policy framework backed by subsidiary legislation. This is Singapore's major sustainability and climate policy framework.

Key Areas:

Green Economy: promotion of clean energy, sustainable industries and green jobs

Sustainable Living: Eco-friendly transport, waste reduction and recycling initiatives

Energy Reset: Solar energy expansion and cleaner electricity systems

City in Nature: Urban greenery, biodiversity protection and green infrastructure

Resilient Future: Flood management, coastal protection and climate adaptation planning

Environmental Justice Link: It focuses on "Energy Reset" and "Resilient Futures." It mandates that every household be within a 10-minute walk of a park—a legal commitment to Spatial Justice (equal access to nature).

Legal Force: It drives changes in building codes and transport laws, making "Green" a mandatory legal requirement rather than an option.

3. Resource Sustainability Act (RSA), 2019

This Act addresses the "Circular Economy," focusing on waste—a major issue for environmental justice in Pakistan's urban slums.

Extended Producer Responsibility (EPR): This legal framework mandates that producers of electronics, batteries, and packaging are responsible for the collection and recycling of their products at the end of their life.

Development: It created a mandatory reporting framework for packaging waste, forcing corporations to be legally accountable, for their environmental footprint.

4. Environmental Protection and Management Act (EPMA), 1999 (Revised 2020)

This law regulates environmental pollution and protects environmental quality in Singapore.

The Framework: It regulates air and water pollution, land contamination, and noise. Prevent air pollution, control industrial emissions, manage hazardous substances and protect public health and the environment

- **Specific Regulation:** The Environmental Protection and Management (Vehicular Emissions) Regulations are updated constantly to match "Euro VI" standards, ensuring urban air quality a core component of environmental justice for city dwellers.

5. Energy Conservation Act (ECA), 2013

This Act targets the industrial sector, which is the largest consumer of energy in Singapore. This Act improves industrial energy efficiency and reduces energy waste. Promote efficient energy use, reduce carbon emissions and encourage sustainable industrial practices.

- **The Mandate:** Large energy users (consuming >15GWh/year) must appoint an energy manager, monitor energy use, and submit energy efficiency improvement plans.

6. Prevention of Pollution of the Sea Act, 1999

As a port city, this is vital for Singapore.

- **The Framework:** It implements the MARPOL (International Convention for the Prevention of Pollution from Ships) into domestic law.
- **Environmental Justice:** It protects the marine ecosystem, which is essential for biodiversity and coastal protection—lessons Pakistan can apply to its Karachi and Gwadar port developments.

7. Planning Act 1998

This act controls the land uses and urban development in Singapore. It's objective to promote sustainable urban planning, protect green spaces, ensure environmentally friendly development, land development approvals, urban sustainability requirements and environmental planning integration.

Analysis and Discussion

Challenges in Implementing Climate Law in Pakistan

The implementation of climate law in Pakistan faces significant hurdles, primarily due to institutional capacity constraints, financial limitations, and political instability. Pakistan's climate policies are often fragmented across different ministries, with limited coordination between national, provincial, and local levels of government (Iqbal, 2020). For example, while the Climate Change Act, (2017) created institutions such as the Climate Change Authority to oversee the implementation of climate policies, these institutions often lack the resources, political backing, and expertise to carry out their mandates effectively. Financial limitations are another significant challenge for Pakistan. Although Pakistan has made progress in securing climate financing from international funds, such as the Green Climate Fund (GCF), the country has struggled to access

these funds due to bureaucratic delays and technical barriers. Additionally, the complexity of international climate finance mechanisms has meant that Pakistan has not fully benefited from global financial support for climate change adaptation and mitigation projects (Siddiqui, 2015). The gap between the availability of funds and the ability of Pakistan to utilize them highlights the need for more accessible, transparent, and efficient climate finance mechanisms. Political instability and lack of political will also play a significant role in hindering the effective implementation of international climate law. Climate change policies often compete with short-term political and economic priorities, such as energy production, industrial growth, and economic stability. This lack of long-term vision impedes the formulation of comprehensive climate action plans that align with international climate commitments.

Public Awareness and Participation

Public awareness and participation in environmental governance vary considerably across the country. In Singapore, environmental education is deeply integrated into the school curriculum, ensuring that citizens are well-informed about sustainability from an early age. The government encourages public engagement, through structured consultations, awareness campaigns, and real-time access to air quality information via user-friendly platforms. Public Interest Litigations (PILs), advocacy campaigns, and protests have been instrumental in holding authorities accountable and promoting policy reform. In contrast, Pakistan struggles with low levels of environmental education, limited access to information, and weak mechanisms for citizen participation.

Singapore Model: Proactive, Preventive, and Technologically Advanced

Singapore follows a markedly different trajectory in managing air quality, maintaining relatively low pollution levels through a comprehensive legal and regulatory framework. The country employs advanced technological tools for real-time air monitoring, enforces strict emissions standards, and implements early intervention policies to prevent pollution spikes. Public education and awareness campaigns are prioritized, fostering a culture of environmental responsibility and compliance among citizens. Additionally, strong coordination among regulatory bodies and strong institutional accountability ensure that environmental laws are not only established but also effectively enforced, creating a proactive and sustainable approach for environmental justice.

Lesson from Singapore:

Strong Institutional Governance

Singapore maintains highly efficient environmental institutions with clear responsibilities and accountability mechanisms. Pakistan can strengthen coordination among federal and provincial environmental agencies.

Strict Enforcement of Environmental Laws

Singapore imposes heavy penalties for pollution, illegal waste disposal, and environmental violations. Pakistan should strengthen enforcement and impose stricter penalties.

Sustainable Urban Planning

Singapore integrates green spaces, eco-friendly transport, and climate resilience into urban planning. Pakistan's cities require sustainable urban development strategies.

Water Management

Singapore transformed itself from a water-scarce nation into a global model of water sustainability through recycling, desalination, and rainwater harvesting. Pakistan can adopt similar technologies.

Green Technology and Innovation

Singapore heavily invests in renewable energy, smart infrastructure, and environmental technology. Pakistan should encourage green investment and climate innovation.

Public Awareness and Education

Singapore promotes environmental awareness through education and public participation. Pakistan should introduce climate education programs in schools and universities.

Climate Adaptation Policies

Singapore focuses on long-term climate resilience planning, including flood prevention and coastal protection measures. Pakistan requires stronger adaptation mechanisms for flood-prone regions.

Recommendations

To make environmental protection more effective in Pakistan, several steps can be taken.

First; enforcement of environmental laws needs to be stronger. Penalties for violations should be meaningful, including fines or other measures that encourage industries and individuals to follow the rules. Persistent non-compliance should have clear consequences to create a culture of accountability.

Second; the institutions responsible for environmental protection should be better equipped. Agencies need more trained staff, technical resources, and support to monitor compliance, conduct environmental assessments, and promote sustainable practices. Establishing specialized environmental courts could also help resolve cases more efficiently and ensure that justice is delivered without unnecessary delays.

Third; policies across different sectors need to work together. Environmental goals should not be isolated; they must be integrated into energy, agriculture, industry, and infrastructure planning. Setting up coordination bodies across sectors can ensure that development projects consider sustainability from the start, avoiding conflicts and gaps that weaken environmental protection.

Fourth; people need to be more engaged. Public awareness campaigns, education programs, and community initiatives can encourage eco-friendly behavior and make citizens active participants in protecting the environment.

1. Strengthen Forest Laws and Their Enforcement

Pakistan already has forest and climate policies, but implementation is weak. Illegal logging, land grabbing, and weak monitoring continue in many provinces.

The government should

Strictly enforce Forest laws

Increase penalties for illegal tree cutting

Create special environmental enforcement units

Improve coordination between provincial forest departments and environmental agencies.

2. Expand Afforestation and Reforestation Programs

Pakistan should continue and expand:

Billion Tree Tsunami

Ten Billion Tree Tsunami Program

Urban forest projects

Mangrove restoration projects

The focus should not only be on planting trees but also:

Protecting existing forests, monitoring survival rates and planting indigenous species instead of commercial species.

Increase Forest Cover to International Standards

Pakistan's forest cover is less than 5%, which is extremely low compared to global environmental standards. The government should, increase forest cover to at least 10–15% in the short term. Government should restore the degraded lands, protect riverine forests and prevent conversion of forests into agricultural or housing land.

3. Establish Specialized Climate Courts

Pakistan should establish specialized climate courts for speedy environmental justice. Pakistan's judiciary should continue playing an active role in climate governance. Special environmental courts or climate benches should be established to hear environmental cases quickly and ensure enforcement of environmental rights.

Promote Green Technology: Government should support renewable energy, sustainable agriculture, and eco-friendly industries.

Regional Cooperation

Pakistan should cooperate with neighboring countries on climate adaptation and disaster management.

Learn from Singapore

Pakistan should adopt Singapore's integrated urban planning, water management systems model, and strict environmental governance practices.

Conclusion

Climate change bearing an existential threat to Pakistan's economy, environment, and human security. Environmental degradation unduly affects vulnerable communities, making environmental justice an urgent constitutional and human rights issue. Although Pakistan has developed environmental laws and progressive judicial precedents, weak implementation and institutional inefficiency continue to undermine climate governance.

Climate litigation has emerged as a crucial tool for enforcing environmental rights and compelling state accountability. Pakistani courts, particularly through cases such as *Leghari v Federation of Pakistan*, have played a transformative role in recognizing climate change as a constitutional and

human rights issue. The comparative analysis with Singapore prove that effective environmental governance requires strong institutions, strict law enforcement, technological innovation, public awareness, and long-term policy planning. Pakistan can significantly improve its climate governance system by adopting lessons from Singapore's successful environmental management model.

Ultimately, climate justice in Pakistan requires coordinated efforts among the judiciary, legislature, executive institutions, civil society, and international organizations to ensure sustainable development and protection of future generations.

References

1. IPCC. (2021). Climate change 2021: The physical science basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press. <https://doi.org/10.1017/9781009157896>
2. Asghar Leghari v. Federation of Pakistan, Lahore High Court, 2015. Retrieved from https://en.wikipedia.org/wiki/Asghar_Leghari_vs._Federation_of_Pakistan
3. Hassan, P., & Azfar, A. (2023). Securing environmental rights through public interest litigation in South Asia. *Virginia Environmental Law Journal*, 41(2), 113-146.
4. Hassan, S. T., & Khan, S. U. D. (2020). Role of institutions in correcting environmental pollution: An empirical investigation. *Sustainable Cities and Society*, 53, 101901. <https://doi.org/10.1016/j.scs.2019.101901>
5. Peel, J., & Osofsky, H. M. (2018). A rights turn in climate change litigation? *Transnational Environmental Law*, 7(1), 37–67. <https://doi.org/10.1017/S2047102517000292>
6. Pakistan Climate Change Act, 2017. Retrieved from <https://policyjournalofms.com/index.php/6/article/view/805>
7. Khan, A. (2025). Comparative legal frameworks for air pollution control: A study of Pakistan, India, and Singapore, University of Lahore.
8. Sharma, R., & Tan, K. L. (2023). Comparative legal approaches to air pollution control in South and Southeast Asia. *Environmental Law Review*, 25(3), 201–223.
9. Tan, C. and Lim, J. (2022) *Environmental Regulation and Sustainable Development in Singapore*. Singapore: Springer Nature.
10. Tan, W.H., 2023. Enforcement Mechanisms in Singapore's Environmental Policy. *Singapore Journal of Environmental Law*, 10(1), pp. 75-89.
11. Tan, W.H., and Lim, S., 2022. Integrated Policy Frameworks for Air Pollution Control in Singapore. *Journal of Southeast Asian Environmental Governance*, 8(2) pp. 45-63.
12. Saqlain, Bilal, Musab, U. & Zaid, R. (2025). Analysis of Air Pollution: A Comparative Study of Pakistan, India and Singapore <https://www.rcresearcharchive.com/index.php/Journal/article/view/474>
13. Khan, S., Ahmed, M., & Nazir, M. (2019). Climate change vulnerability and adaptation strategies in Pakistan. *Environmental Science and Policy*, 101, 60-70.
14. Rasul, G. (2014). Water, agriculture, and food security in Pakistan: Vulnerabilities and strategies. *Pakistan Water and Climate Journal*, 20(3), 34-47.
15. Mumtaz, S. (2011). Impact of the 2010 floods on Pakistan's agricultural sector: A case study. *Pakistan Agriculture Journal*, 32(2), 123-137.
16. Iqbal, M. (2020). Climate change adaptation and mitigation strategies for Pakistan: Challenges and opportunities. *Pakistan Journal of Environmental Science*, 31(2), 55-68.
17. Siddiqui, R. (2015). Climate justice: The Pakistani perspective. *South Asian Review*, 32(1), 47-61