



Federalism and Climate Governance in Pakistan: Accessing Strategies, Responses and Implementation Challenges to Environmental Devolution after 18th Amendment

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ABSTRACT

In modern federal state system, environmental governance is one of the most important tools of sustainable development. Pakistan, as a federal state, is still far from reaching its goal of sustainable development, despite its significant steps by making laws and regulations to address environmental challenges. Pakistan scored 24.6 on the Environmental Performance Index (EPI), placing it 176th out of 180 nations in 2022. However, 18th constitutional amendment is a landmark achievement that devolves powers to sub-national units for environmental governance. This research, therefore, examines the implementation strategies, challenges and responses after 18th constitutional amendment to promote a sustainable environment governance in Pakistan. By applying the qualitative explorative research design, the study conducts in-depth interviews of environmental governance officials. It draws themes and analyses data by using NVivo software. The research finds the implementation challenges to environmental devolution and recommends an increase in the financial budget of the provinces, capacity building of provincial EPA officials and inter-provincial cooperation to make 18th constitutional amendment operationalized.



Introduction

Climate change is increasingly recognized as a profound global challenge that requires comprehensive governance and strategic policy frameworks, particularly in developing countries like Pakistan. Following the 18th Amendment to Pakistan's Constitution in 2010, significant shifts occurred in the federal structure, granting increased autonomy to provinces. This devolution has profound implications for environmental governance and climate action at multiple levels. While

the theoretical premise of federalism supports decentralization as a means of enhancing local governance and responsiveness, the practical realities in Pakistan reveal a complex landscape of challenges and inefficiencies. Studies indicate that while the amendment aimed to empower provincial governments to address socio-economic issues within their jurisdictions, its implementation has exacerbated existing governance disparities, particularly concerning environmental management (Akbar, 2023; Khayam & Ahmad, 2020).

The transformational potential of the 18th Amendment remains unfulfilled, as evidenced by constrained inter-provincial coordination and unclear delineation of responsibilities across various levels of governance. Pakistan's inherent institutional weaknesses, combined with deep-seated mistrust between federal and provincial entities, have resulted in policy implementation barriers that undermine climate governance efforts (Masud & Khan, 2023; Afzal & Akhtar, 2021). Governance issues further manifest in the administration of climate change policies, where the lack of a cohesive approach complicates adaptation strategies necessary in a country where climate vulnerability is pronounced (Yasin et al., 2020; Abbas et al., 2023). The independent actions of provincial governments, while necessary in a decentralized framework, have often lacked the strategic coherence necessary for navigating Pakistan's numerous environmental challenges (Khayam & Ahmad, 2020; Khan & Syed, 2021).

At the core of this article is an analysis of the intersection between federalism and climate governance in Pakistan, focusing specifically on the implementation strategies employed post-18th Amendment. While the framework established by the amendment promised enhanced participatory governance, it has also led to the emergence of challenges that complicate effective climate action (Waheed et al., 2021). One notable area where these challenges materialize is in the water sector, where climate change impacts necessitate coordinated governance across a network of stakeholders (Khan, 2018; Iqbal et al., 2023). The potential for intertwined governance in managing both climate adaptations and environmental conservation is high, yet current frameworks remain insufficiently developed (Shawoo & McDermott, 2020).

Pakistan, identified as one of the country's most vulnerable to the effects of climate change, faces compounded risks associated with water scarcity, agricultural disruption, and natural disasters, all exacerbated by climate variability (Batool et al., 2023; Hussain & Chaudhry, 2021). The interrelation between climate change and sustainable development underscores the need for adaptive governance mechanisms that can effectively address both immediate and long-term environmental policies. However, governance in Pakistan is hampered by coordination deficits, insufficient institutional capacity, and a disconnect between national frameworks and local realities (Nawab & Nyborg, 2017; Arif et al., 2022). The resultant fragmentation poses significant hurdles to the comprehensive adaptation strategies that are urgently needed in the face of climate threats (Yasin et al., 2020; Abbas et al., 2023).

This research aims to elucidate the challenges and prospects of environmental devolution and climate governance in the post-amendment context, exploring existing frameworks and proposing robust strategies that facilitate effective implementation. By examining the coordination between federal and provincial agencies, as well as the role of various climate policies established in recent years, it seeks to highlight the complexity of climate governance in a multi-layered political arena. The examination aims to assess how federalism, as it manifests in Pakistan, can be leveraged or restructured to bridge existing gaps in environmental governance, ensuring that climate change adaptation measures are not only theoretically sound but also practically applicable and sustainable (Raja & Khan, 2025).

The synthesis of federalism and climate governance in Pakistan post-18th Amendment reflects a critical juncture in the nation's environmental policy landscape. This article delves into the intricacies of this relationship, striving for a comprehensive understanding that recognizes the multifaceted nature of climate governance and the pressing need for effective, collaborative strategies that can navigate the complex realities of Pakistan's political and environmental landscape. Addressing the myriad challenges that dominate the current climate policy domain requires a holistic approach that embraces the principles of federalism, enhancing both accountability and efficacy in environmental governance processes. The discussion presented in this study aims to contribute to the growing body of literature on climate governance, providing insights into the unique challenges faced by Pakistan and suggesting paths forward for fostering resilience against the backdrop of an evolving federal landscape.

Rationale of the Research

There were major changes brought about by the 18th constitutional Amendment, especially in the area of the climate governance, where the provinces were given the authority to create their environmental policies and the central government abandoned its authority in the environmental domain. This change was made to better address local environmental problems, to better engage the public, to promote sustainable development, and to offer solutions that are more suited to local situations. But this decentralization resulted in frail execution and raised concerns about the ability of provincial governments to effectively manage environmental issues.

Since the 18th Amendment prohibits the implementation of a uniform national framework, various provinces may adopt separate and distinct environmental policies. These shortcomings originate in the absence of a cohesive and comprehensive national environmental plan.

This study, therefore, seeks to identify the implementation barriers of environmental devolution framework after 18th constitutional amendment. It makes recommendations for improving the responses for sustainable climate governance. In doing so, it addresses three research questions: what strategies provinces adopted after devolution, what implementation issues they faced after devolution, and what could be the possible policy roadmaps to improve it.

Additionally, it fills a vacuum in the literature by focusing on climate governance under broader framework of federalism in Pakistan. Though profuse research on the 18th constitutional amendment has been penned conducted, there are very few studies that explicitly address how to execute the amendment effectively vis-à-vis environmental devolution.

Research Methodology

The study evaluates Pakistan's environmental governance concerns in the wake of 18th Constitutional Amendment using a qualitative research technique. The methodology is based on primary data gathered through interviews from the officials of environmental governance across four provinces. The study adopts purposive sampling because the goal of the study is to identify implementation obstacles, which a layman cannot answer, that are why the researcher conducted expert interviews. These interviews focus on their perspectives on the strategies they adopted following devolution, why there are gaps in implementation, and what should be the policy roadmaps to improve it?

Additional information is added from secondary analyzed data sets, including scientific publications in peer-reviewed journals and scientific databases, books, newspaper articles,

magazine reports, papers from national and international conferences, surveys, and documents from international organizations like the World Bank, UNEP, UNDP, and NEPA, among others. The data is examined using comparative and thematic analysis techniques. Following interviewing and secondary data evaluation, NVivo software is utilized for thematic analysis, which extracts and classifies the main themes, patterns, and trends. After that, a comparative study examined the distinct and similar challenges that the provinces face in implementing the 18th constitutional amendment.

Literature Review

Devolution is a form of decentralization where elected subnational governments are given authority to make policies and deliver services (Mukonza & Chakauya, 2012). A further description of it is the delegation of administrative and political authority from the the federal government to local tiers of government (Average, 2010). Decentralization frequently leads to devolution, and vice versa, however decentralization does not always result in complete devolution of responsibilities to the lower tiers of government (Pereira 2006). Environmental governance refers to the strategies and policies that societies adopt to make environmental decisions (Oakerson, 1992). Environmental governance is defined as a regulatory structure that includes organizations, processes, methods, and procedures that state actors use to create and execute strategies to address environmental issues (Lemos and Agrawal, 2006). Environmental governance is an important tool for sustainable development because it promotes knowledge acquisition, sound decision-making procedures, and applying regulations that conform to national and international environmental standards (Zaheer, 2019).

Between the 1960s and 1980s, national and federal governments dominated environmental regulation, using a central 'command and control' method to resolve environmental challenges. National ministries and federal authorities were created for this reason, and they created laws, rules, and policies at the national level to lessen ecological issues. At first, this kind of government produced positive outcomes in terms of temporary fixes for pressing environmental problems. However, the centralized governance approach proved inadequate in handling complicated challenges as environmental issues became more complex. As a result, many industrialized and developing nations adopted the decentralized environmental governance strategy quickly during and after the 1980s. It involved giving the province, state, or local governments more financial and legislative capacity as well as responsibility to address environmental issues (Akbar, 2023).

In Pakistan, the legislative movement on the environment began with the formation of the Ministry of Environment in 1975, in response to the 1972 Stockholm Declaration. The Ministry approved the proposal for the first streamlined environmental law, the Pakistan Environmental Protection Ordinance (PEPO) 1983. Following this, the Environmental Protection Agency was established at the federal level, and the Pakistan Environmental Protection Council was established as the highest authority for formulating environmental policies. The National Environmental Quality Standards, or NEQS, were created in 1993. PEPO was eventually superseded by the Pakistan Environmental Protection Act (PEPA) in 1997, and numerous other environmental regulations and guidelines were created (Malik, 2023).

Decentralizing environmental governance promotes people's participation in environmental management, increases knowledge of regional environmental issues, and enhances the efficient and equitable use of regional natural assets (Cistulli, 2002). However, the main causes of Pakistan's poor environmental governance are inadequate administration, a lack of dedication, judicial, budgetary, and capacity shortcomings, as well as problems with cooperation and

coordination (Khayam and Ahmad, 2020). Some factors that contribute to a culture where environmental concerns are not prioritized include a lack of modern technology, a lack of competent human resources, a lack of awareness among the general public of their rights and obligations with regard to the environment, and reluctance to use judicial forums because of their extended and complicated procedures (Akbar, 2023).

Pakistan has never placed much emphasis on environmental issues because the nation has always faced strategic, economic, and security difficulties (Khayam & Ahmad, 2020). Its effects are seen in the deaths and destruction caused by the 2005 earthquake and the 2022 flood. The Pakistan Floods 2022 Post Disaster Needs Assessment Report from the Ministry of Planning, Development, and Special Initiatives estimated that the overall damage will be PKR 3.2 trillion (US \$14.9 billion).

Furthermore, according to the Environmental Performance Index 2020 and 2022 ((EPI), 2022), Pakistan is placed 176th out of 180 countries, and worst of all, it is ranked 180th in terms of air quality. Additionally, Pakistan ranks as the eighth most susceptible country on the Climate Risk Index 2021 (Muzaffar, Fern, & Yaseen, 2024). Waste accumulation, pollution concentration, and the exploitation of natural resources for economic development continue to degrade the nation's natural environment. In practice, a variety of factors influence how economic growth and the environment interact. These include (1) the economy's scale, (2) sectoral structure, (3) technology, (4) environmental quality demand, and (5) the amount of money spent on environmental protection. The nation's economy is seriously threatened by problems including finite land resources, energy shortages, and diminishing water supplies. Furthermore, the deterioration of these resources places enormous strain on the pursuit of economic activity, putting Pakistan at risk in the long run. The nation's already dire environmental issues have gotten worse due to the fast industrial growth (Salik, 2016).

Even after devolution, the federal government still maintains its control over several essential environmental affairs. International agreements as well as foreign funds and loans are still under the federal control. Also, the central government still retains a final say in finalizing international environmental treaties and agreements, including climate change agreements (Khayam & Ahmad 2020).

18th Constitutional Amendment Re-defines Environmental Governance

The 18th constitutional amendment, passed in April 2010, is seen as the most significant move that changed Pakistan's constitution (Cugelman, 2012). It devolved various ministries, including health, schools, environmental issues, social security, the population welfare, the zakat as well as usher, the tourism sector, women's empowerment, athletic endeavors, regional government and development in rural areas, agricultural and food production, employment and manpower, minorities' issues, specialized education, youth affairs, farms and dairy improvement, and others. To encourage a bottom-up approach to development, the amendment also required the provinces to consider the district level entities when planning and designing projects (Chandio, 2014).

Before 2010 (the era before the 18th Amendment), the environment was one of the topics covered by the constitution's concurrent list, and both branches of government had the power to enact laws about environmental issues. Nonetheless, the federal government developed the majority of the laws and policies about the environment during that time.

Notable examples include the establishment of two national-level organizations, the Ministry of Environment (MoE) in 1975 and the Pakistan Environmental Protection Council (PEPC), as well as the country's first major environmental law, the Pakistan Environmental Protection Ordinance (PEPO), which was enacted in 1983 (Nadeem, 2013). The National Environmental Policy (NEP) was created in 2005, the Environmental Protection Agency (PEPA) replaced the PEPO in 1997 as a comprehensive environmental law to strengthen government legal authority to control environmental degradation, the National Environmental Quality Standard (NEQS) was created in 1993 to control industrial pollution, and the PEPA replaced PEPO in 1997 as a thorough environmental law to give the general public the ability to file a complaint in court of any environmental law violations (Akbar, 2023).

Following the 18th Amendment, each province passed its environmental protection legislation. Environmental protection legislation was passed in 2012 by the provinces of Punjab and Balochistan, and in 2014 by Khyber Pakhtunkhwa and Sindh. The administrative region of Gilgit Baltistan (GB), four provinces, and the federal capital Islamabad's environmental protection agencies were given the authority to create and carry out their own environmental impact assessment rules and regulations (Khan et al., 2022).

Figure 01: Pre and Post 18th Constitutional Amendment Environmental Governance: Structural Comparison

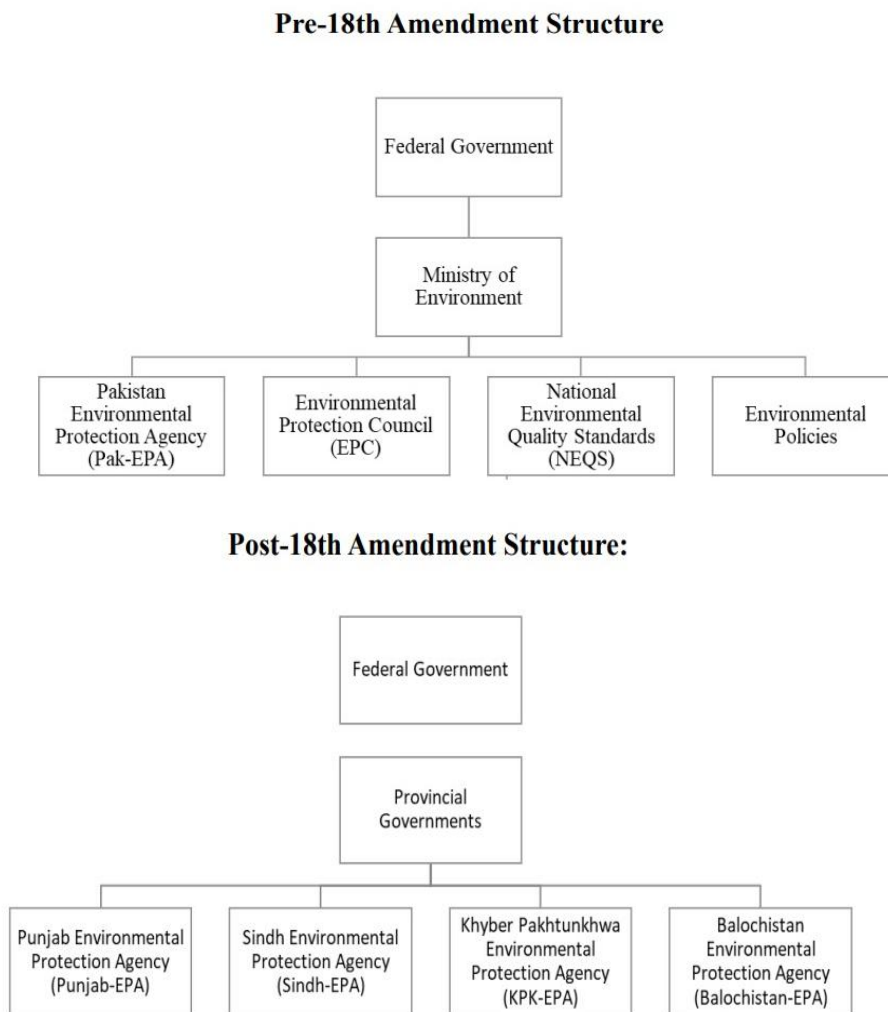


Table 01: Environmental Governance in Pre and Post 18th Constitutional Amendment

Aspects	Pre-18th Amendment	Post-18th Amendment
Legislative Framework	The majority of environmental regulation was covered by the Concurrent Legislative List (CLL), which allowed the federal and provincial governments to pass laws simultaneously. But almost all of the laws before the 18 th amendment were passed by the federal government. The main piece of legislation that was passed during this time was the Pakistan Environmental Protection Act of 1997, which focused on environmental sustainability and pollution.	The CLL was abolished, and provincial governments were given more authority for environmental regulation. It included eliminating the federal Ministry of Environment, that contributed to the decentralization of environmental governance.
Institutional Structure	The Ministry of Environment supervised environmental policy, and the Pakistan Environmental Protection Agency (EPA) implemented PEPA, addressed concerns including toxic waste and airborne pollutants, and numerous others.	Provincial EPAs were constituted and majority of the duties of the national PEPA were delegated to the provinces. Each province become primarily accountable for the environment, creating the environmental governance capabilities different in different provinces.
Public Participation	The public was marginalized in the environmental decision-making process, although few laws allowed community engagement, notably the NWFP Environmental Act 1996.	At the provincial level, public input is currently prioritized in decision-making procedures pertaining to environmental issues.
Implementation Challenges	Despite the existence of laws like the PEPA, they were not properly enforced, and many of their prohibitions were even blatantly broken. The effective execution of policy across provinces presented challenges for the federal government.	Problems with execution and enforcement of laws persist at the provincial level, owing to provinces' varying capacities to manage environmental issues.
Judicial Oversight	The Supreme Court upheld Article 9 of the 1973 Constitution's Right to a Healthy Environment.	Although judicial authoritarianism still exists, new decentralized governance systems have directed focus to provincial courts with jurisdiction over environmental issues. Nonetheless, the Supreme Court continues to play a role in elucidating constitutional rights in relation to environmental matters.

International Obligations	The federal government was constitutionally mandated to deal with the adoption of international treaties addressing environmental protection and the promotion of international standards.	These days, provinces have additional duties when it comes to international commitments, thus, the federal government and provincial governments must work together to fulfill their obligations under treaties.
Environmental Impact Assessments (EIA)	EIAs had to be performed for projects with significant environmental impacts under the PEPA 1997, but compliance as well as enforcement were lacking.	Projects must still undergo provincial EIAs, but they are now carried out at the provincial level, which has resulted in inconsistent execution and efficiency across all provinces.

Findings and Discussion

The primary data was qualitative, acquired through one-on-one interviews using a set of three standardized open-ended questions. The researcher conducted one-on-one interviews with the deputy directors of Environmental Protection Agencies of four provinces and with an environmental activist. The researcher coded and finished the transcribing procedure by uploading each of these transcripts into the NVIVO 14 software individually. The researcher manually examined and coded each province separately using NVivo 14 in order to produce the main themes and subthemes. The three questions which were addressed are:

- **RQ-1:** What strategies did your agency opt following the passage of the 18th Amendment?
- **RQ-2:** What challenges does the province face during the implementation stage following devolution?
- **RQ-3:** What policy roadmaps would you suggest for better environmental governance in Pakistan after the devolution?

Environmental Devolution and Balochistan

According to Respondent 1, Balochistan has enacted a number of important environmental laws, such as the Environmental Protection Act of 2012, that aimed at promoting sustainable development in the province. He mentioned that Balochistan Environmental Protection Agency (BEPA) is in charge of overseeing Environmental Impact Assessments (EIA) and Initial Environmental Examinations (IEE). Medical waste disposal is governed by the 2005 Hospital Waste Management Rules, which is based on appropriate infection control practices, hygienic standards, and employee education. Recently, the Balochistan Use of Plastic Shopping and Flat Bags Act, 2023 was approved, which not only restricts the use of single-use plastic bags but also encourages the use of other products and recycling, and includes penalties for violations. Furthermore, respondent 1 mentioned about the Balochistan’s Climate Change Policy 2024. It addresses topics including drought risk and water stress, safeguarding water supplies, and reducing the effects of floods. The plan promoted initiatives aimed at managing sea level rise and protecting coastal regions. It entails that the target to reduce emissions can be achieved by promoting sustainable energy, improving waste management, and implementing deforestation control measures. It emphasizes the importance of helping women, youth, and individuals with disabilities, as they are among the most vulnerable groups. It also establishes a climate fund for the purpose of funding initiatives, particularly for those activities that involve adaptation, sustainable resource management and involve collaboration with both domestic and foreign entities

Table 02: Environmental Devolution and Balochistan

Themes	Sub Themes
Regulatory Framework	Balochistan Environmental Protection Act, 2012 Review of EIA/IEE Regulations, 2000 Hospital Waste Management Rules, 2005 Balochistan Use of Plastic Shopping and Flat Bags Act, 2023. Balochistan Climate Change Policy 2024
Implementation Challenges	Insufficient financial capacity Limited technical assistance Under Staff Issues and stagnant promotions Mobility and Transportation Issues
Policy Roadmaps	Strengthening of legal framework Improving financial capacity Encouraging career promotion Improving the mobility and transportation capacity Special financial incentives and allowances Establishment of Balochistan Climate Change Coordination Center at BEPA. Development of Balochistan Carbon policy for attracting carbon credits investment projects

Respondent 1 mentioned that although EPA Balochistan has established a robust institutional framework to carry out environmental protection initiatives, yet it faces some difficulties. These difficulties include problems with logistical support, lack of funding, lack of technical resources, unclear career progression, few or no promotions, and transportation difficulties. The ability to support, facilitate, and carry out environmental protection policies and activities is impacted by these difficulties.

To address the challenges and improve the environmental status in Balochistan, respondent 1 offered the following recommendations i.e enhancing the transportation networks, promoting career advancement and promotions, boosting the institutional setting and financial resources, providing targeted financial incentives, and establishing the Balochistan Carbon policy—a systematic approach to reducing greenhouse gas emissions, increasing the earth's carbon stock, and engaging in sustainable practices—are some of the measures. It is anticipated that these initiatives will improve the province's overall environmental governance and standards.

Environmental Devolution and KPK

According to Respondent 2, the Khyber Pakhtunkhwa Environmental Protection Agency (KPK EPA) has developed several important environmental policies, one of which is (The Khyber Pakhtunkhwa Environmental Policy, 2018), a fundamental framework that outlines the provincial goals, plans, and actions for environmental preservation.

This policy addresses a number of topics, such as waste management, lowering greenhouse gas emissions, raising environmental awareness, and improving the quality of the air and water. Furthermore, the respondent 2 talked about the newly established Khyber Pakhtunkhwa Climate Change Policy (2020) covers disaster prevention, the development of renewable energy, the sustainable use of agricultural land, and the building of climate-resilient infrastructure. He mentioned that the Khyber Pakhtunkhwa Green Growth Strategy (2022) encourages sustainable

development and adopts the principles of a green economy. Encouraging an effective utilization of natural resources, reduced pollution levels, and speeding the shift to a low-carbon economy are all benefits of the green economy. This includes creating environmentally friendly structures and producing electricity from renewable resources, which promote low-carbon development. Ecotourism, sustainable agriculture, green building, and renewable energy are important sectors that support employment generation and economic expansion.

Furthermore, to promote a healthy environment, the KPK EPA Noise Pollution Control Guidelines also set uniform practices for noise monitoring, enforcement, and regulation strategies, including public awareness programs. The majority of these regulations are in line with KPK EPA's function as an autonomous agency tasked with enhancing public health and creating environmental regulations that tackle a range of environmental issues.

Table 03: Environmental Devolution and KPK

Themes	Sub Themes
Regulatory Framework	Khyber Pakhtunkhwa Environmental Policy (2018) Khyber Pakhtunkhwa Climate Change Policy (2020) Khyber Pakhtunkhwa Green Growth Strategy (2022) KPK EPA Noise Pollution Control Guidelines (2018)
Implementation Challenges	Financial dependency on the federal government. Restrictions on provinces' direct access to international donors and technology transfer (e.g., UNDP). The Climate Change Act 2017 is seen as undermining the spirit of the 18th Amendment. Concerns about diminishing provincial powers under this act.
Policy Roadmaps	Need for better representation of provinces (e.g., Chief Secretaries in Financial Steering Committees). Suggestions for biannual climate finance meetings between federal and provincial governments.

Even with the decentralized capabilities, the respondent 2 noted several implementation issues. The Climate Change Act of 2017 is a significant obstacle that threatens provincial autonomy. Furthermore, because they lack direct access to international funders like the UNDP, so the province faces financial limits and rely on the federal government for budgetary distribution. The effectiveness of policies and programs is hampered by these limitations.

To address the issues at hand, the respondent 2 made a few suggestions. First, provinces must be better represented, such as by nominating the Chief Secretary's presence in the federal Financial Steering Committees. Second, at least twice a year, the federal and provincial governments must organize and host sessions of the climate financing forum. KPK's environmental governance can be enhanced if these suggestions are implemented.

Environmental Devolution and Sindh

According to Respondent 3, to safeguard the environment and promote sustainable development in Sindh, the Sindh Environmental Protection Agency (SEPA) has established particular regulatory frameworks. These frameworks contain laws, rules, and guidelines aimed at improving environmental management.

With an emphasis on stewardship, the SEPA definition clause was broadened to encompass industrial wastes, hazardous materials, environmental contamination, and degradation. The Sindh Sustainable Development Rules promote sustainable development and environmental protection through Environmental Impact Assessment (EIA), resource management and utilization, pollution control, waste disposal, and public participation.

SEPA also established district and regional offices to ensure prompt decision-making and to monitor and enforce the application of environmental legislation. These offices are in charge of monitoring industrial regions, handling complaints from the public, and making suggestions for the best environmental practices.

Even after the establishment of SEPA, the respondent 3 mentioned that certain issues continue to impede efficient environmental governance in Sindh. The Province's climate vulnerabilities, including flooding, and a lack of funding prevent the SEPA from carrying out its activities. The agency also lacks personnel, as evidenced by the more than 1,000 vacant positions. Additionally, the agency's various departments do not coordinate or cooperate well with one another. The issue is further exacerbated by a lack of public understanding on environmental issues.

Table 04: Environmental Devolution and Sindh

Themes	Sub Themes
Regulatory Framework	Expanded the definition clause to include environmental pollution Sindh Sustainable Development Rules Established regional and district offices to oversee law implementation.
Implementation Challenges	Financial Constraints Manpower Shortage Equipment Shortage Interdepartmental Cooperation Public Awareness
Policy Roadmaps	Increase Budget Allocation Fill Vacant Positions Strengthen Interagency Coordination Enhance Public Awareness and Training

To address these issues, the respondent 3 offers the following recommendations: The issue of scarce resources would be resolved with additional funding, it will also enable SEPA to hire staff, upgrade infrastructure, and carry out projects. Filling vacant positions would enhance SEPA's capacity to enforce environmental regulations. The respondent 3 emphasized that there should be more cooperation and communication between different departments. The public and all industries would be better informed about environmental issues if public awareness and training will be raised.

Environmental Devolution and the Punjab

According to Respondent 4, the Punjab Environmental Protection Agency (EPA) established necessary legislative measures to support environmental protection and sustainable development. While the Punjab Environmental Quality Standards (2016) govern the quality of the air, water, noise, and soil, the Climate Resilient Punjab Vision and Action Plan (2024) concentrates on reducing greenhouse gas emissions and improving resilience. The agency prioritizes staff capacity

building through orientation, training, and international alliances in order to bolster its institutional capabilities.

The respondent 4 mentioned that the strategic initiatives are focused on the following areas: promoting corporate social responsibility (CSR), which is a strategy by which corporations go beyond improving profits and take steps to minimize their negative impacts on society and the environment while also contributing positively to both, and developing public-private partnerships as a means of increasing investment in environmental processes. Additionally, it employs technical tactics like online monitoring and e-industrial mapping to gain insight into high-pollution locations.

Respondent 4 mentioned that the goal of the Punjab Climate Change Policy (2024) is to prepare the province to handle climate hazards like droughts, floods, and heat waves. Preventing climate change-related health hazards and threats from extreme weather in Punjab are part of the plan. Targets for reducing greenhouse gas emissions include expanding the use of renewable energy, improving transportation systems, and avoiding pollution from industry and trash is a part of the goal.

The respondent 4 mentioned that the province also intends to adopt more electric vehicles and increase the use of renewable energy sources. The project seeks to establish environmental stewardship in the province by embracing climate education, climate literacy, climate justice, integrating climate policy into schools, and involving the local population, particularly women and the vulnerable. It suggests that strategies pertaining to the management of flood-prone areas should have annual goals.

Table 05: Environmental Devolution and the Punjab

Themes	Sub Themes
Regulatory Framework	Punjab Environmental Quality Standards 2016 Climate Resilient Punjab Vision and Action Plan 2024 Strengthening EPA Punjab, Capacity Building of staff Collaboration between EPA and Local Governments Prioritizing public-private partnerships Technological strategies like e-industrial mapping Punjab Climate Change Policy (2024)
Implementation Challenges	Limited Resources Lack of Awareness Weak Enforcement Industrial Pressure Rapid Urbanization
Policy Roadmaps	Institutional Strengthening Public Participation and Awareness Research and Innovation

However, respondent 4 mentioned that despite EPA Punjab's efforts, a number of problems still make it difficult to implement effective environmental governance. The challenges include a lack of resources, a lack of staff, and a lack of equipment to carry out its duties. People's and businesses' lack of knowledge about environmental regulations and standards is another issue. Environmental management is made even more challenging by poor enforcement driven by political meddling and a lack of cooperation, which hinders the achievement of these aims. Rapid

urbanization, which leads to overcrowding and environmental degradation, and industrial pressure further creates challenges for effective implementation.

The respondent 4 recommended that institutions must sort out the internal obstacles, create sufficient training, and make resources available. It enables them to make wise decisions and accomplish required environmental goals like pollution reduction and green development. Stronger autonomy, more organizational growth, and improved finance can all help in achieving this.

Promoting active public participation and increasing community knowledge through public sensitization and community involvement are two more equally significant goals. In order to improve decision-making, a suitable investment in research and innovation will encourage the development of suitable solutions to environmental issues at the local level. These tactics will contribute to the establishment of a greener future and aid in appreciating Punjab's environmental governance.

Comparative Analysis

Studying how environmental governance differs and overlaps in the provinces of Pakistan uncovers specific challenges. The large and sparsely inhabited fields of Balochistan hinder the ability to send environmental teams for training. Limited roads and poor internet connectivity in these areas prevent effective enforcement of environmental rules. In addition, a lack of adequate financial resources makes it difficult for policies to be properly implemented.

Khyber Pakhtunkhwa (KPK) depends on federal routes to access global climate funding. Such reliance often results in delays during the project process. In addition, many people do not pay much attention to environmental problems which leads to less community involvement in protecting the environment. For example, less awareness among people has blocked the success of reforestation projects in Swat Valley.

While administrative challenges are particularly intense in Sindh. The struggles to check if businesses follow regulations are hampered by the high number of vacant positions in its environmental offices. Instances where floods occurred because of monsoon weather like those in Dadu make it more difficult for the SEPA to function in rural areas. Alongwith, lack of cooperation among government agencies makes it difficult to respond and handle disasters on time.

In Punjab, many urban development projects particularly in Lahore face challenges because regulators are pressured by political interests. Furthermore, continued urban expansion makes the air and water even more polluted. Besides, a lack of research, skilled workers and technological solutions often prevents environmental officials from acting proactively.

Table 07: Comparative Analysis of Four Provinces

Province	Unique Challenges	Common Challenges
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Balochistan	Remote locations make it difficult to mobilize and train the personnels. Logistical difficulties and inadequate infrastructure make it difficult to adhere to environmental regulations.	Limited resources. Lack of funding.
KPK	Requires federal government mediation due to restricted access to international funds and climate finance.	Lack of public awareness of environmental issues.
Sindh	Severe shortage of employees (more than 1,000 vacancies). Frequent flooding as well as other climate-related risks. Inadequate coordination between departments.	Coordination and collaboration issues.
Punjab	Enforcement is affected by political interference. Degradation of the environment due to rapid urbanization.	Capacity constraints.

Policy Recommendations

Given Pakistan's environmental future, it is assumed that it would confront more major environmental issues, compromising the long-term viability of its already fragile socioeconomic condition. An integrated and cooperative effort from all parties involved is required to resolve this situation. To successfully address environmental management concerns, Pakistan's current environmental governance status needs to be reviewed.

Strengthening the Institutions and Administrative Reform

Pakistan's environment departments are often understaffed and use outdated equipment. In Sindh, the Environmental Protection Agency has more than 1,000 positions that remain unfilled. A national-level effort should be arranged for uniform recruitment, regular career growth and up-to-date monitoring. South Korea has made its environmental administration more effective by providing targeted training and digital monitoring. The DFFE (The Department of forestries, fisheries and environment) equips its Environmental Management Inspectors (Green Scorpions) with the knowledge and skills needed to supervise and enforce environmental laws. In addition, South Africa makes use of systems like the NECER to watch for environmental violations, provide real-time monitoring and manage appropriate actions (DFFE, 2023). Following this approach, Pakistan could help agencies operate more efficiently and provide effective, fast reactions to environmental problems.

Improved and Enhanced Funding for the Environment

Long-term environmental management depends on having stable financial resources. At present, a lack of budget prevents provincial agencies from properly implementing major projects. If environmental vulnerability will be given priority while distributing the funds through the National Finance Commission Award, then this issue can be lessened. Like the European Union's Cohesion Fund (that helps less-developed EU countries to take steps towards environmental sustainability. It supports projects designed to improve access to clean water, better handle and remove waste, increase energy efficiency and use more sources of renewable energy. Funds are used to help meet the directives of the EU on protecting the environment and transitioning to a greener economy, as

well as to support climate change adaptation and protect biodiversity (European Commission, 2023). Similarly Pakistan can create a Green National Fund to help all provinces in managing climate change related disasters, new forests and pollution control. By using this mechanism, projects like creating infrastructure that withstands flooding in Pakistan can be financed.

Strengthen Collaboration for Multilateral Environmental Agreements

Pakistan has joined many Multilateral Environmental Agreements (MEAs), including the Paris Agreement and the Convention on Biological Diversity. Even so, each province tends to design and implement environmental policies in their own ways, due to problems of coordination and variations among their institutions. Pakistan could streamline its environmental efforts and promote responsibility by creating a National Environmental Council following the structure of the Environmental Affairs Council and the Environmental Cooperation Commission in South Korea. These bodies have made it possible for local and national governments to cooperate, allowing for better enforcement of environmental treaties with locally suitable strategies (Federal Register, 2024).

The council in Pakistan should consist of members from every province, the federal government, as well as civil society and academic experts. As an example, the council could ensure that Pakistan's Paris Agreement is translated into actions at the provincial level. Working together in this way would ensure that provincial and national goals are the same and that the response to international environmental matters is consistent.

Address Problems with Law Enforcement

People often point out that the current laws for environmental protection in Pakistan are too lenient and the judicial process moves slowly. Changes are needed so that violations result in real penalties rather than just warnings. For example, a "polluter pays" approach similar to one in Colombia could be followed (where those causing pollution pay for the damage they do to the environment. Governments use environmental taxes, fees for water and payments for emissions). Colombia took action by introducing a carbon tax in 2016 which targets fossil fuels according to their amount of carbon, promoting the use of clean energy and supporting environmental projects. Some of the revenue goes into the Sustainable Colombia Fund, where it is used for conservation and climate adaptation plans. It provides a helpful example of how developing countries can include environmental expenses and encourage proper resource management (Herrera, 2023).

We could use digital dashboards to monitor progress, just like the United States uses emissions reporting systems, where the Environmental Protection Agency (EPA) runs the Greenhouse Gas Reporting Program (GHGRP), requiring major greenhouse gas emitters to provide annual reports on their emissions. Anyone can check this information online through the EPA's GHGRP Data Portal to observe emissions trends in different areas, facilities and industries. These digital dashboards make it possible to see clearly how the country is meeting its climate goals, as set by the Paris Agreement. Using these tools, people can see the latest data and hold officials and policymakers accountable for actions on emissions reduction (U.S. Environmental Protection Agency, n.d.).

Increase citizen awareness and involvement

Community awareness and involvement play a big role in promoting environmental accountability. Adopting a campaign like “Swachh Bharat Abhiyan” could help people understand how to handle waste, improve air and preserve water. The Swachh Bharat Abhiyan (Clean India Mission) is a successful case in which the Indian government led to improved environmental behavior by educating the population, providing new infrastructure and cooperating with different government organizations. The mission focused on preventing open defecation and bettering waste management in both rural and urban India. With the conclusion of the first phase in 2019, the SBM declared that over 100 million toilets had been built, meaning all villages in India were Open Defecation Free. The success was made possible by developing infrastructure and by engaging the community in educational activities through Information, Education and Communication (IEC) campaigns. The improvements in sanitation have helped decrease waterborne diseases and boosted the quality of life for many people. The campaign shows that policies supported by people and technology can positively impact the environment over time (Press Information Bureau, 2025). This model teaches important lessons for Pakistan, regarding how to manage waste responsibly, reduce air pollution and save water. If Pakistan adopts this approach, blending public campaigns, improved infrastructure projects and daily monitoring, it will be better equipped to support its environment and bring people together in green projects. Furthermore, Clean-ups in Bangladesh, mainly organized by local groups, prove that community efforts can be used alongside government projects to inspire similar clean-up actions in Pakistan’s river areas and cities.

Support initiatives involving research, innovation and solutions tailored for local communities

To deal with Pakistan’s specific environmental problems, initiatives in research, innovation and local solutions must be supported. Institutions should focus on creating solutions that fit the local environment—for instance, helping Balochistan use less water through technology and studying how to control pollution in heavily urbanized cities such as Lahore. Nurturing inventions through incubators and supporting innovative projects focused on cutting greenhouse gases, using resources more efficiently and practicing sustainability can greatly support the country’s long-term environmental resilience and proactive development.

Introduce a National Carbon Policy and a Green Development Plan

Reducing emissions and promoting sustainability depends on having a strong carbon policy. By following the respondent 1 recommendation of adopting a Carbon Policy, Pakistan should establish a National Carbon Market for industries to exchange carbon credits. Supporting farmers financially through bonus payments for afforestation and sustainable farming, as in Costa Rica’s PES scheme. The government in Costa Rica provides financial support to landowners who work to conserve forests, increase biodiversity and protect the watersheds. A similar approach in Pakistan could motivate rural areas to practice sustainable farming, replant trees and care for their soils. Such schemes not only protect the environment but also reward the local residents, who may now view environmental stewardship as an approach to make a living (Pagiola, 2008).

Conclusion

With the 18th Constitutional Amendment, Pakistan sought to shift away from a centralized government and increase the role of the provinces, specifically in managing the environment. The transfer of responsibilities to local levels led to more tailored environmental action, yet its application has been rough due to issues with institutions, funds and administration. Insufficient resources, conflicting roles, limited finances and poor teamwork in provinces have negatively

affected the entire system of protecting the environment. At the same time, the amendment opened opportunities for innovation, stakeholder engagement and better grassroots participation in managing environmental issues.

To make sure devolution achieves its intended outcomes, institutions should be strengthened, there should be better coordination among governments, resources should be distributed fairly and environmental concerns should be included in political plans. A new governance system that emphasizes shared responsibility, honesty and all-inclusiveness can allow Pakistan to meet its environmental responsibilities and ensure its citizens' environmental health for many generations.

This experience indicates a wider global challenge being experienced by a number of nations on how to reconcile central power with local control over environmental management. The same fundamental dilemma is facing countries across the Global South and beyond: how can effective environmental protection be guaranteed when the tasks are decentralized to subnational governments without adequate institutional and financial capacity? Fourthly, the case of Pakistan has demonstrated the extreme importance of establishing effective intergovernmental coordination, open governance structures, and fair distribution patterns in any decentralized regime.

Finally, Pakistan's experience of devolution can provide lessons to the global discussion on multi-level environmental governance, particularly in post-devolution societies. Through collective responsibility, institutional integrity, and participatory policy formulation, decentralization may emerge as a potent instrument in the fight against climate change, biodiversity degradation, and sustainable development, which are issues that do not respect national boundaries and need both neighborhood and global solutions.

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