
Confronting Climate Chaos: Socio-Economic Strategies for Climate Resilience in Pakistan

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Original Article

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Abstract

In recent years, Pakistan has faced devastating floods, droughts, and cyclones, highlighting its vulnerability to climate change impacts. This article examines Pakistan's legal, regulatory, and environmental policies in the context of climate justice, considering socio-economic factors. Despite efforts to protect the environment and ensure fairness, challenges persist in implementation and enforcement. Key legislation, such as the Environmental Protection Act of 1997 and the National Climate Change Policy of 2012, aim to mitigate climate risks. However, gaps remain in addressing issues like water management, forestry, and renewable energy. Enhancing community participation and meeting international climate commitments are crucial steps towards sustainable development in Pakistan.

I. Introduction

In recent years, Pakistan has been profoundly impacted by catastrophic floods, droughts, and cyclones, leading to fatalities, mass displacement, livelihood disruption, and widespread infrastructure devastation. There is a growing concern that climate change will further escalate these natural hazards in both frequency and intensity in the future. This serves as a clear indication that Pakistan stands among the countries most susceptible to the impacts of climate change (Asian Development Bank, 2017). This study aims to examine the laws, regulations, and environmental policies in Pakistan, as well as how social and economic factors influence the pursuit of climate justice in the country. Pakistan has been working hard to protect the environment and ensure fairness in how climate issues are handled. A big example of this is when Pakistan led a group of countries at a big meeting about the Earth in 1992. Also, Pakistan's courts have been very important in making sure climate fairness happens. They've done this by using creative ways to understand the basic rights in Pakistan's laws (Mirza, 2020). This chapter involves analyzing the legal mechanisms in place to address climate issues, such as environmental protection laws and climate change mitigation policies. Additionally, it explores how socio-economic factors, such as income inequality, access to resources, and social disparities, impact the aptitude of people and communities in Pakistan to face the climate change impacts.

II. Examination of Pertinent National Laws and Policies in Pakistan

In Pakistan, several laws and national policies are relevant to climate or environmental justice, aiming to address environmental concerns and promote sustainable development. While Pakistan has laws and policies addressing environmental and climate issues, challenges remain in effective implementation, enforcement, and mainstreaming of environmental justice principles. Strengthening institutional capacity, promoting public awareness, and fostering multi-stakeholder partnerships are essential for achieving equitable and sustainable environmental outcomes in Pakistan. Pakistan's inaugural and comprehensive environmental legislation emerged in 1983 through the enactment of The Pakistan Environmental Protection Ordinance (PEPO). This milestone legislation laid the groundwork for the establishment of pivotal institutions, including the Federal and Provincial Environmental Protection Agencies (EPAs), as well as the formation of the Pakistan Environmental Protection Council (PEPC). Subsequently, the Pakistan Environmental Protection Act (PEPA) supplanted PEPO in 1997, providing a robust framework for the nation's environmental conservation efforts. Under the PEPA, several significant measures were implemented, such as the establishment of Provincial Sustainable Development Funds and the formation of Environmental Tribunals, alongside the appointment of Environmental Magistrates. Additionally, mechanisms such as the Initial Environmental Examination and The Environmental Impact Assessment (EIA) were introduced to ensure comprehensive environmental evaluations.

Both federal and provincial EPAs and councils were established, with the PEPC chaired by the Prime Minister and comprising 35 members, including provincial chief ministers. Despite its importance, the PEPC has historically demonstrated limited activity, convening only once in its initial decade of existence since 1984, without any indication of a more frequent meeting schedule. Following the 18th constitutional amendment, various powers of the federal EPA were decentralized to provincial governments. However, key regulatory powers, including rule-making and regulation-making, remained under the purview of the federal government and EPA. Presently, both the EPA and the PEPC operate as attached departments of the Ministry of Climate Change (Asian Development Bank, 2017). Here's an analysis of some key Legislation in Pakistan:

Environmental Protection Laws: Pakistan has various laws to protect the environment, such as the Pakistan Environmental Protection Act (PEPA), 1997. PEPA establishes the legal framework for the purpose to reduce the pollution and to regulate the environment within the country. It empowers the Environmental Protection Agency (EPA) to enforce environmental standards and regulations.

Climate Change Policy: In 2012, Pakistan devised its National Climate Change Policy to confront the complexities brought forth by environmental change. The policy outlines strategies for adaptation, mitigation, and capacity-building to cope with climate impacts. It emphasizes the need for equitable distribution of climate change burdens and benefits, aiming to promote environmental justice.

Forestry Laws and Policies: Forests play a crucial role in climate regulation and biodiversity conservation. Pakistan has laws and policies governing forest management, such as the Forest Act of 1927 and the National Forest Policy of 2015. These instruments aim to promote sustainable forest management, prevent deforestation, and enhance carbon sequestration.

Water Management Laws: Water scarcity and pollution are significant environmental challenges in Pakistan. The country has laws regulating water resources, such as the PEPA (Punjab) Act, 2012, and the Water Act of 1998. These laws address water quality standards, pollution control measures, and water resource management.

Renewable Energy Policies: Shifting towards renewable energy sources plays a pivotal role in mitigating the effects of climate change. This transition is imperative as it helps reduce greenhouse gas emissions, which are the primary drivers of climate change and promoting environmental justice. Pakistan has policies to encourage renewable energy development, including the Alternative Energy Development Board (AEDB) Act of 2010 and the Renewable Energy Policy of 2006. These policies are geared towards bolstering the presence of renewable energy within the national energy landscape, thereby diminishing the release of greenhouse gases and advancing the cause of sustainable development (Moss, 2015).

Community Participation and Environmental Governance: Promoting environmental justice requires inclusive decision-making processes and community participation. Pakistan has initiatives to enhance environmental governance at the grassroots level, such as the Local Government Acts and Community-Based Organizations. These mechanisms empower local groups of people to contribute in environmental decision-making and advocate for their privileges to a clean and healthy environment.

III. Examination of Pakistan's Commitments Under International Climate Agreements

Examining Pakistan's commitments under international climate agreements provides insights into the country's role in global climate action. While Pakistan has shown commitment to addressing climate change, overcoming implementation challenges and enhancing climate resilience remain priorities for sustainable development. Analyzing Pakistan's commitments under international climate agreements provides valuable insights into the country's efforts to address climate change on a global scale. Here's a comprehensive overview of Pakistan's engagement with key international climate agreements:

United Nations Framework Convention on Climate Change (UNFCCC): Pakistan is signatory to the United Nations Framework Convention on Climate Change (UNFCCC), a landmark treaty adopted in 1992 and enforced in 1994. The core objective of the UNFCCC is to stabilize greenhouse gas concentrations in the atmosphere at levels that thwart detrimental human-induced interference with the climate system. By committing to this international agreement, Pakistan aligns itself with the global effort to combat climate change and safeguard the planet for present and future generations. Through participation in the UNFCCC, Pakistan pledges to undertake measures aimed at curbing emissions, promoting sustainable development practices, and enhancing resilience to the impacts of climate change. This engagement underscores Pakistan's commitment to collective action in addressing one of the most pressing challenges of our time.

Kyoto Protocol: Although Pakistan is not listed as developed country under the Kyoto Protocol, it has ratified the agreement and participates in its mechanisms. The Kyoto Protocol, which came into effect in 2005 after its adoption in 1997, establishes compulsory emission reduction goals for industrialized States. Pakistan's involvement in the Kyoto Protocol reflects its support for global efforts to combat climate change, despite not having mandatory emission reduction obligations.

Paris Agreement: Pakistan is a signatory to The Paris Agreement, which was agreed upon in 2015 and put into action in 2016, aims to keep the Earth's temperature from rising more than 2 degrees Celsius above pre-industrial levels, with efforts to limit the temperature increase to 1.5 degrees Celsius. Pakistan's Nationally Determined Contributions (NDCs) include mitigation and adaptation measures to address climate change.

Nationally Determined Contributions (NDCs): Pakistan submitted its NDCs to the UNFCCC Secretariat in 2016, outlining its commitments to curb greenhouse gas emissions and bolster resilience against climate change are at the forefront. Pakistan's NDCs underscore commitments

like cutting emissions intensity and bolstering the use of renewable energy in the energy mix, and implementing adaptation measures in key sectors such as agriculture, water, and forestry.

Implementation and Challenges: While Pakistan has demonstrated its commitment to international climate agreements through ratification and participation, there are implementation challenges. Factors such as limited financial resources, institutional capacity constraints, and competing development priorities pose obstacles to effectively fulfilling Pakistan's climate commitments. Addressing these challenges requires coordinated efforts across official bodies, non-governmental organizations, and businesses, as well as leveraging international support and partnerships.

IV. Administrative Structures for Tackling Climate Change in Pakistan

Recognizing the vital role of strong institutions in addressing climate change, it's widely understood that integrating this issue into development policies and programs is crucial. Robust institutions help in adapting to environmental change and eventually transforming the structure by making it more resilient. However, numerous developing nations, such as Pakistan, struggle with ineffective and feeble organizational setups, leading to ineffective governance structure. In Pakistan, efforts to institutionalize climate change date back to the mid-1970s when early environmental initiatives began. Pakistan committed to 14 global environmental treaties between 1971 and 2001, including the UNFCCC and the Kyoto Protocol. These commitments acted as catalysts, directing policy initiatives and endeavors concerning climate change within the nation. While noteworthy development has been completed in setting up organizational structures to guide initiatives relating to environment, these efforts remain fragmented even after more than four decades. There's still a lack of sufficient coordination, political support, and ownership, hindering effective climate action (Asian Development Bank, 2017). In the year of 2010 an amendment was made in the constitution of Pakistan, 1973 which was named as 18th amendment, through this amendment the duty of environment ministry was transferred to the provincial government. As a result of this, the Ministry of Climate Change in 2012 was established, elevating the importance of climate change issues to a higher level within the government. However, in 2013, this Ministry was reduced to a division within the Cabinet Secretariat. This arrangement persisted until early 2015 when it was once again upgraded to a full-fledged ministry.

V. Developments in Climate Change Initiatives in Pakistan

In the region of South Asia, Pakistan is at the 2nd number in the list of largest dry or cold countries with limited agricultural productivity. Its landscape varies significantly, resulting in a diverse climate across the nation. From the calm winters and burning, dry summers in the northern regions to the semi-arid and arid zones prevalent in the west and south, the climate spectrum is vast. Geographically, In the north, Pakistan has the huge Himalayas. To the east, there are the rough Sulaiman Mountains. As you move towards the south, the land changes to wide flat areas and fertile lands near the Indus River. These lands cover the south, west, and coast of Pakistan. It's important to know that Pakistan has a big part, about sixty percent (60%), of all the land that gathers water in the Indus basin. This shows how Pakistan is very important for managing water and helping farms in that area (Mustafa, 2011).

Making progress in responding to climate change is crucial because it has long-lasting effects and can greatly impact the economy. Planning ministries need to start turning ideas into action plans and policies to address climate change now. Since most programs related to dealing with climate change are part of regular services, it's important to change how policies are made so that climate change is a bigger part of planning processes. Pakistan has made some progress in including climate change in its growth plans and actions, which has started to align investments and

programs with the National Climate Change Policy. Pakistan began addressing the issue of climate change in 2002 by creating the Global Change Impact Study Centre (GCISC) for the purpose of comprehensive research on climate. Then, in 2003, Pakistan presented its foremost National Communication on Climate Change (NCCC) to the UN. Another significant step was taken in 2005 when the Prime Minister's Committee on Climate Change (PMCCC) was established to lead and coordinate Pakistan's climate policy efforts (Government of Pakistan, 2017). The Planning Commission created the Task Force on Climate Change (TFCC) in 2008. Its job was to help make a climate policy. The TFCC's report and actions taken afterwards were the starting point for the National Climate Change Policy (NCCP), which was made in 2012. Then, when the Ministry of Environment was given to the provinces under the 18th amendment, the Ministry of Climate Change (MCC) was set up at the federal level in 2011. In 2015, the Climate Public Expenditure and Institutional Review (CPEIR) looked at how much money the government spends on climate-related things. It gave suggestions, like making a Climate Change Financing Framework (CCFF) for the purpose to consider the issue of climate change at the time of making of budget. Another significant milestone was reached when the Pakistan Climate Change Bill was turned into a law by the Senate. This bill was presented to the Senate by the Federal Minister for Climate Change and Law. What made this moment remarkable was the unanimous approval from all political parties in the parliament. This widespread support underscores a collective commitment to addressing the challenges of climate change. It also signifies a consensus on the approach to managing and mitigating its impacts as outlined in the new legislation.

VI. Climate Change Impact in Pakistan

Pakistan, just like many other countries that are still in developing process, can be easily affected by climate change. Even though Pakistan doesn't emit a lot of greenhouse gases (GHGs), it's still affected by global climate change. Pakistan's economy relies heavily on farming, especially in areas that don't get much rain, so changes in the climate can hurt it a lot. Right now, Pakistan is dealing with things like glaciers melting faster, longer droughts, warmer winters, and summers starting earlier. These changes are making it harder to find clean water and hurting how much food we can grow. Also, our forests are disappearing quickly because we cut down trees faster than we can grow them back. This is bad because trees help clean the air. In the long run, climate change could make things even worse by harming our wildlife, making it harder to find water, grow food, stay healthy, and overall, making life more difficult (Mustafa,2011).

Environmental Vulnerability: Different zones across Pakistan exhibit remarkable sensitivity and diversity, with several already facing imminent threats of extinction due to climate change. Among the most vulnerable are the people who live in places like the edges of land, near the sea, in mountains, or in dry areas are at most risk. Especially, those living in the mountains during the rainy season face more dangers like land slipping and the ground washing away. Furthermore, these settlements are increasingly at risk of recurrent flooding triggered by the accelerated melting of glaciers and the diminishing capacity of water reservoirs, exacerbating their vulnerability to environmental hazards. Those residing in coastal regions are particularly exposed to risk. As sea levels escalate along the 1,130 km seashore and sea surface temperatures climb, numerous coastal towns and cities face the potential for substantial destruction. Karachi, Pakistan's largest urban hub situated along the coast is especially vulnerable to flooding and storms, resulting in considerable loss of life. For instance, in 2007, the tropical cyclone Yemyin wreaked havoc in the areas of province of Balochistan and Sindh, affecting the residences, agriculture, and livelihoods of more than 10 lac individuals.

Agricultural Ramifications: Agriculture plays many important roles in Pakistan's society and economy. It's not just about making sure there's enough food for everyone in the country. It's also

about giving jobs to a lot of people; almost half of the people who work have jobs in agriculture. And it's a big part of how much money the country makes - it adds a lot to the country's total income. Moreover, agriculture serves as a crucial supplier to various industrial sectors engaged in processing raw materials. However, Climate change makes agricultural areas more at risk from sudden natural disasters like storms, floods, and droughts. This puts the country in danger of social and economic problems. According to recent data given by IPCC, a decline has been witnessed in the production of agriculture in Asia, significantly due to increased frequency of droughts and floods. Recent data indicates a 30% decrease in major crop yields attributed to issues like waterlogging, salinity, and flooding. Furthermore, the rising prevalence of pests, driven by warmer climates and increased precipitation, has been observed to further contribute to crop yield reductions. Changes in temperature and moisture levels also affect the sensitivity of cereal and tree crops. Even a slight increase in temperature, such as a 1°C rise, is estimated to lead to a substantial decline in wheat yields by 6-9% in Pakistan, with cash crops like mangoes and cotton expected to be severely impacted by even smaller temperature increases.

Water Deficiency: According to the WAPDA, there has been a drastic decline in the availability of surface water per person over the years, dropping from 5260m³ per year in 1951 to a mere 1000m³ in 2008. This downward trend is anticipated to persist due to the dual pressures of increasing temperatures and growing demand for water resources. This projection aligns with findings from the Intergovernmental Panel on Climate Change (IPCC), which also predicts a continued reduction in freshwater availability. This reduction is especially concerning in major basins such as the Indus, which serves as Pakistan's primary source of surface water. As a result, the sustainability of water resources in Pakistan faces significant challenges, necessitating urgent measures to mitigate the impacts of water scarcity on both the environment and society. One of the primary factors contributing to the anticipated decrease in freshwater availability is the rapid retreat of the Himalayan glaciers and the diminishing flow of snow-fed rivers. These changes are attributed to the rising temperatures and fluctuations in precipitation patterns. In the short term, the accelerated melting of glaciers is expected to result in higher water flows in river systems, potentially leading to an increase in instances of flooding, particularly from glacial lakes. However, as the glaciers continue to recede over time, the volume of water in rivers is likely to decline significantly, ultimately exacerbating the problem of water scarcity. This phenomenon poses significant challenges for long-term water resource management and sustainability in the region. The reliance on glacial meltwater for maintaining river flow and supporting various human activities, such as agriculture and industry, underscores the critical need for proactive measures to address the impacts of climate change on water availability. Furthermore, the increased frequency and intensity of extreme weather events, including floods and droughts, further compound the complexities of managing water resources in the face of climate variability. Therefore, concerted efforts and strategic planning are imperative to mitigate the adverse effects of glacier retreat and ensure the resilience of water systems to future climate changes. This scenario is poised to markedly heighten the risk to national energy security, as the decline and fluctuations in average river flow significantly impact the potential for hydropower generation, which serves as the primary source of energy in the country. As a result, there is a looming concern over the reliability and sustainability of the energy supply, potentially leading to disruptions in various sectors dependent on consistent energy access.

Furthermore, there is a growing realization that global energy costs will increasingly reflect the true environmental cost of production and consumption. This shift towards more environmentally sustainable practices is expected to drive up energy costs, rendering them prohibitively expensive for populations in developing countries like Pakistan. Such escalating energy expenses could pose substantial challenges for individuals and businesses alike, exacerbating economic pressures and

hindering development efforts. Moreover, historical data reveals a clear correlation between per capita energy consumption and the level of development achieved by nations. Therefore, any reduction in energy consumption levels is likely to further impede the progress of development initiatives in the region. This underscores the urgent need for comprehensive strategies aimed at diversifying the energy mix, enhancing energy efficiency, and promoting renewable energy sources to mitigate the adverse impacts of dwindling river flows on national energy security and sustainable development aspirations.

Health Consequences of Climate Change: Considering the forecasts regarding future food security, water quality, rising heat stress, and the increasing frequency of natural disasters, the direct effects of climate change on human health are indeed daunting. Furthermore, vector-borne diseases such as malaria, dengue, typhoid, and cholera, which already pose significant threats to public health in Pakistan, are highly sensitive to climate variations and tend to thrive in warmer climates. It is anticipated that climate change scenarios will lead to an increase in the epidemic potential of malaria by 12-27 percent and dengue by 31-47 percent. The cost of healthcare in Pakistan, which already surpasses a billion dollars, is expected to continue rising in response to projected climatic changes. This escalation in healthcare costs will further strain efforts aimed at poverty reduction and improving public health in the country. Moreover, the increasing prevalence of diseases in the region has implications for food security as well. There has been an observed uptick in the prevalence of certain diseases among livestock in Pakistan due to rising temperatures, which can further exacerbate food security challenges in the country (Mustafa, 2011).

VII. Role of Judiciary

In Pakistan, the judiciary plays a crucial role in advancing climate justice and addressing environmental issues. Over the years, the judiciary has taken significant steps to uphold environmental laws and ensure accountability for environmental degradation. For example, in 2016, the Lahore High Court issued a landmark judgment directing the Punjab government to take action against factories causing air pollution. Similarly, the Supreme Court of Pakistan has been actively involved in addressing environmental challenges, such as the illegal logging of trees and the pollution of rivers. These judicial interventions have led to tangible improvements in environmental protection and have contributed to the promotion of climate justice in the country. Moreover, Pakistan has made legislative strides to institutionalize climate justice within its legal framework. The Climate Change Act of 2017 established legal mechanisms to mitigate and adapt to climate change, emphasizing the importance of environmental conservation and sustainable development. Additionally, the judiciary has been instrumental in interpreting and enforcing constitutional provisions related to environmental rights. The landmark case of *Leghari v. Federation of Pakistan* recognized environmental protection as a fundamental right guaranteed by the Constitution, further empowering citizens to hold the government accountable for environmental negligence.

Furthermore, Pakistan has actively participated in international climate change negotiations and agreements, demonstrating its commitment to addressing global environmental challenges. The country ratified the Paris Agreement in 2016, pledging to reduce its greenhouse gas emissions and enhance resilience to climate change impacts. Judicial oversight and legal frameworks have been instrumental in ensuring that Pakistan fulfills its international climate obligations while safeguarding the rights of its citizens to a clean and healthy environment. Overall, the role of the judiciary in promoting climate justice in Pakistan is essential for fostering sustainable development and safeguarding the well-being of present and future generations.

Case law Development

In a landmark *Aghar Laghari Case* (2015), farmer, filed a lawsuit against the national government alleging its failure to effectively implement the National Climate Change Policy of 2012 and the Framework for Implementation of Climate Change Policy (2014-2030). Leghari contended that the government was obligated to take decisive action in climate mitigation and adaptation measures. He argued that the government's inability to meet its climate change adaptation targets had resulted in immediate adverse effects on Pakistan's water, food, and energy security, thereby infringing upon his fundamental right to life. On September 4, 2015, an appellate court in Pakistan upheld Leghari's claims, recognizing climate change as one of the paramount challenges of our era. Drawing upon both domestic and international legal principles, the court ruled that "the State's delay and inertia in implementing the Framework violate the fundamental rights of its citizens." The court reasoned that the constitutional rights to life and human dignity, as enshrined in articles 9 and 14 of the constitution, inherently encompassed the right to a healthy and unpolluted environment. This landmark decision underscores the judiciary's pivotal role in safeguarding environmental rights and holding governments accountable for addressing the pressing issue of climate change. It serves as a potent reminder of the imperative to prioritize environmental protection and sustainability in policymaking and governance practices. Moreover, the court's ruling sets a precedent for future litigation aimed at combating climate change and underscores the interconnectedness between environmental preservation and the protection of fundamental human rights.

In another case of *Shehla Zia* (1994), The residents voiced their opposition to the establishment of an electricity grid station in their locality, citing apprehensions regarding potential environmental contamination and health hazards. Recognizing the gravity of the situation, the Supreme Court intervened, framing the matter as a human rights concern pertaining to the constitutional right to life. Although refraining from issuing a conclusive judgment, the Court took decisive action by mandating an impartial assessment of the grid station project and instituting protocols for soliciting public input on forthcoming power initiatives. This judicious approach sought to strike a balance between developmental imperatives and the rights of citizens, thereby establishing a significant precedent for leveraging fundamental rights and public interest litigation to address environmental conservation concerns.

In another case of *Raja Zahoor Ahmad* (2021), On October 5, 1995, the Capital Development Authority, responsible for making decisions about how Pakistan's capital city, Islamabad, should grow and develop, reversed a previous decision. They had initially agreed to let some homes in the area be turned into businesses, but then changed their minds. They said this earlier decision didn't fit in with Islamabad's main plan for how the city should develop. After taking back the permission for businesses to operate in these homes, they sent notices to the owners, telling them they were breaking the rules by using their houses for businesses. The owners disagreed with this and took their case to court. On February 16, 2015, the Islamabad High Court said they didn't agree with the owners and dismissed their complaints. The owners then appealed this decision to the Supreme Court. On May 20, 2022, the Supreme Court of Pakistan made a final decision in this case, agreeing with what the Islamabad High Court had decided earlier. The Supreme Court said the Capital Development Authority was right to say that letting the properties be turned into businesses was against the law because it didn't fit in with Islamabad's main plan. They said any changes to this plan would need to be approved by the Federal Government. The Court also talked about how important it is to plan cities properly, especially considering climate change. They said that when planning cities, it's crucial to think about climate change and how it might affect things in the future. They also pointed out that climate change can affect important rights like the right to life, dignity,

and property, which are protected by Pakistan's Constitution. The Court said that when planning cities in the future, the Capital Development Authority should think about things like how to adapt to climate change and make sure that cities are sustainable. They ordered the authorities in charge of planning cities to consider these things in all their future plans and decisions.

In *DG Khan Cement Company case (2019)*, On April 15, 2021, the Supreme Court of Pakistan upheld a Notification issued by the Provincial government of Punjab, which prohibited the establishment of new cement plants or the expansion of existing ones in environmentally sensitive areas known as "Negative Areas." A cement company owner contested this Notification, arguing that it infringed upon their constitutional right to engage in trade, business, and profession, as guaranteed by Article 18 of the Constitution. They also claimed that the government had rushed to implement the regulation without fully considering its scientific implications. The Supreme Court dismissed these challenges and affirmed the validity of the government's decision. The Court endorsed the government's decision, which was based on a consultant report, stating that allowing new cement plants or expansions could exacerbate groundwater depletion and have other detrimental environmental effects. In its assessment, the Court stressed the importance of the precautionary principle in safeguarding the rights to life, sustainability, and dignity of communities residing near the project areas. Moreover, the Court acknowledged the necessity of protecting the rights of nature itself, emphasizing the need for harmony between human activities and the environment.

Furthermore, the Court highlighted the imperative of addressing climate change in governmental decisions and recognizing its impact on water resources. It underscored the significance of implementing appropriate adaptation measures to ensure water, food, and energy security for the nation. The Court deemed the Notification as a climate-resilient measure aligned with the National Climate Change Policy and the Constitution. Moreover, the Court emphasized the importance of considering intergenerational justice in climate-related cases like this one. It asserted that courts worldwide have a responsibility to mitigate the effects of climate change for both the current and future generations. Through judicial activism and adherence to climate justice principles, the Court underscored its commitment to safeguarding future generations from the adverse impacts of climate change.

In case of *Ali v. Federation of Pakistan (2016)* Rabab Ali, a 7-year-old resident of Karachi, has taken a stand against actions by Pakistan's federal government and the Province of Sindh. In her petition directly submitted to the Supreme Court, she highlights violations of fundamental rights and environmental principles. Ali asserts that coal mining in the Thar desert, endorsed by authorities, will exacerbate climate instability and compromise citizens' well-being. She emphasizes Pakistan's obligations under global climate agreements and advocates for renewable energy solutions instead. Ali's petition underscores the importance of protecting natural resources and ensuring a sustainable future for all.

VIII. Conclusion

Pakistan's recent history illustrates the profound impact of climate change through devastating floods, droughts, and cyclones, highlighting the nation's susceptibility to environmental crises. This article extensively examines Pakistan's legal, regulatory, and environmental frameworks in the context of climate justice, while also considering socio-economic factors. Despite concerted efforts to safeguard the environment and ensure fairness, significant challenges persist in effectively implementing and enforcing these measures. Key legislative milestones, such as the Environmental Protection Act of 1997 and the National Climate Change Policy of 2012, aim to mitigate climate risks. However, critical gaps remain in addressing pressing issues like water

management, forestry conservation, and renewable energy promotion. The need to enhance community engagement and fulfill international climate commitments emerges as a crucial aspect for sustainable development in Pakistan. Moreover, Pakistan's geographical diversity, from its coastal plains to mountainous terrains, underscores varying vulnerabilities to climate change. Agricultural livelihoods face significant risks, with disruptions in crop yields attributed to changing weather patterns. Water scarcity exacerbates these challenges, necessitating proactive measures to ensure sustainable resource management. Institutional structures, though evolving, require further consolidation and capacity-building to effectively tackle climate change. While Pakistan has made strides in policy development and climate resilience, a concerted and multi-stakeholder approach is essential for meaningful progress. Only through collaborative efforts can Pakistan navigate the complexities of climate justice and secure a sustainable future for its citizens amidst the growing threats of climate change.

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