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RESEARCH PAPER

Bridging The Gap: Implementing SDG 13 in Pakistan: Theory To Practice

[1]Sumbal Nusrat, [2] Fatima Rasheed Ahmed and [3]Shumaila Saeed

1. BS International Relations, Government College University, Faisalabad, Punjab, Pakistan.
2. PhD Scholar, Department of International Relations, Government College University Faisalabad, Punjab, Pakistan
3. PhD Scholar, Department of International Relations, Government College University Faisalabad, Punjab, Pakistan

Corresponding Author: shumailasaeed75@gmail.com

ABSTRACT

The world is facing the observable and direct impacts of climate change in the shape of extreme weather changing, increase in global warming and global temperature, irregular precipitation, glacial melt, sea-level rise, higher oceanic temperatures, damage to natural ecosystems, and biodiversity. These all impacts led the global community towards the agreements; Paris Agreement 2015 and Sustainable development goals. These agreements provided a policy framework and collective efforts to secure environmental sustainability. Pakistan is at 6th number in most vulnerable states. After Paris agreement and sustainable development goals, Pakistan also took steps towards the climate change mitigation efforts and introduced policies related to climate change. This Qualitative research highlights the problems which Pakistan is facing regarding climate change and its impacts. The main purpose of this article is to bridging the gap in implementing SDG 13 in Pakistan from theory to practice.

KEYWORDS National Climate Change Policy, Paris Agreement, Mitigation, Adaptation, Sustainability, Institutional Setup, Funds Management

Introduction

The word sustainable development means such development in which we fulfill the needs of present people without compromising the needs of future generation. So, the sustainable development goals are set of 17 interconnected goals that were adopted by United Nations in 2015 for a sustainable world. The sustainable development goals aim to transfer the world. They are basically a call to action in dealing with worldwide problems and collective efforts to create a sustainable and healthy world.(Ahmad, Asad, & Irtaza, 2023; Aslam, & Muzaffar, 2025a).)

SDGs evolved from the MDGs which were set of eight goals created to address issues such as extreme poverty, hunger and child mortality. However, they faced criticism for being too narrow and not fulfilled the environmental and economic development. That's why in 2012 UN held a conference on sustainable development in Rio de Janeiro, Brazil where world's leaders gathered for sustainable development agenda. In September 2015, UN adopted the 2030 Agenda, which include SDGs as a universal call to action for all countries. This agenda emphasizes that sustainable development requires a holistic approach addressing social, economic and environmental dimensions simultaneously. The 17 SDGs cover a wide range of global challenge to create a sustainable future for all. This article discusses the core topic on "Bridging the gap: Implementing SDG 13 in Pakistan-From policy to practice".

Climate change is a universal challenge facing by many countries including Pakistan. Pakistan ranks among the top 10 countries, most affected by climate change, as one scholar said "The world is facing the observable and direct impacts of climate change in the shape of extreme weather events, irregular precipitation, glacial melt, sea-level rise, an

asymmetric average temperature trends, higher oceanic temperatures, damage to natural ecosystems, and biodiversity". Those countries which rely on agriculture and water resources, climate change threatens not only environmental stability but also economic growth and social welfare of them. It threatened the livelihoods of millions by spreading poverty and undermining economics stability.(Mahmood, 2023)

Recognizing these risks, " Pakistan has taken steps towards SDG 13 through policies like the national climate change policy (2012) which is based on the UNFCCC and Paris agreement , the climate action change act 2017, Nationally Determined Contributions (NDCs) , ambitious projects like the 10 billion tree tsunami program (2019), Pakistan National REDD+ Strategy (Reducing Emissions from Deforestation and Forest Degradation), Alternative and Renewable Energy Policy (2019), Clean Green Pakistan Initiative by Imran khan in 2018 , National Adaptation Plan (2023), Eco-System Restoration Fund (ERF) at COP25 in 2019 , Glacial Lake Outburst Flood (GLOF) Project, Pakistan's Electric Vehicle Policy (2020), Pakistan Resilient Recovery, Rehabilitation, and Reconstruction Framework (3RF) , Locally-Led Climate Adaptation Projects , Pakistan's Climate Smart Agriculture Strategy and Youth Climate Action Initiatives ." These initiatives and efforts by government of Pakistan, collectively aim to mitigate carbon emission, and promote sustainable development in the country.

However, translating these policies into practical, effective action remains challenging due to following ; "Financial Constraints , Weak Institutional Capacity and Coordination , Limited Technical Capacity and Data Availability , Political Instability and Policy Continuity , Public Awareness and Engagement , Infrastructure and Resilience Issues , Dependence on Agriculture , Energy and Industrial Constraints , International Dependency for Climate Finance and Support, and Population Growth and Urbanization." Despite the existence of policy framework, significant gaps persist between the theoretical goals outlined in the policies and their practical implementation. This research aims to explore the critical disconnect between policy and practice in the context of fast digital, identifying the barriers that hinder implementation and suggesting pathways to bridge these gaps by examining both national policies and their real-world application, this research seeks to contribute to a more effective climate action strategy for Pakistan ultimately fostering resilience and sustainability for its vulnerable communities.

Pakistan has a thorough policy framework for climate action, but it still has a lot of obstacles when it comes to achieving Sustainable Development Goal 13 (SDG 13). The country is acutely vulnerable to the impacts of climate change, which exacerbates existing social and economic issues and threatens the livelihoods of its vulnerable communities. There is a noticeable discrepancy between the creation of policies and their actual implementation since progress is impeded by important obstacles such poor interagency collaboration, low institutional capacity, low financial resources, and low public awareness. Furthermore, while Pakistan's national climate change policies align with international commitments under the UNFCCC and the SDGs, the lack of localized adaptation strategies and stakeholder engagement further complicates implementation efforts. Addressing these gaps is essential for fostering resilience and sustainability in Pakistan, necessitating a focused exploration of the barriers to effective policy execution and the identification of viable adaptation measures to enhance climate action on the ground.

Literature Review

Sustainable Development: Challenges and Strategies in South Asia, Spotlighting. Education is very necessary for achieving sustainable development goals. The author argues that if we promote originality, analytical thinking, dedication to fairness then society will progress. He emphasized that a superior education system is very necessary and should be acknowledged in different fields like University operations, teaching, technical fields etc so that economic ,social and environmental challenges can be mitigated . The core theme of

promoting education is taken under the United Nation convention on the rights of the child. Sustainability in the higher education is a comprehensive and efforts area of interest which includes many social fields. He highlights the difficulties which Pakistan is facing in promoting the higher education for sustainability and focus on developing their skills in individuals for strategic planning, navigating ambiguity, and promoting intercultural compensation and collaboration. Overall this research article focuses on promoting the higher education for sustainable development in South Asia. (Sain, Nortina, & Thelma, 2024)

Policy implementation barriers in climate change adaptation: The case of Pakistan in 2024 , author highlights that the impacts of climate change are evident globally, with developing nations facing more severe consequences due to economic vulnerabilities. Events such as floods in South Asia have caused widespread displacement, economic losses, and long-term threats like water shortages. However, research on climate adaptation strategies in underdeveloped nations remains limited. Effective climate action requires robust policy frameworks and governance practices that address barriers like knowledge gaps, lack of awareness, and weak political commitment. Conventional top-down policymaking often overlooks the broader socio-political context and stakeholder needs, limiting the effectiveness of implementation. Scholars emphasize the importance of interdisciplinary approaches that incorporate socio-economic dynamics and stakeholder perceptions to enhance policy design and execution. Analyzing the effectiveness of climate policies requires a focus on the planning, design, and management stages rather than solely evaluating outcomes. Barriers to implementation can arise at various stages of the policy process, influenced by interactions between governance systems, stakeholders, and natural systems. Adopting a comprehensive approach to policy formulation can address these challenges and support better adaptation strategies for climate resilience (Aslam, & Muzaffar, 2025; Masud & khan, 2024).

Addressing current climate issues in Pakistan: An opportunity for a sustainable future a research article written in 2024 , emphasized that technological advancements since the 16th century have significantly influenced industrial progress, but they have also led to environmental challenges. Climate change, defined as long-term variations in temperature and weather patterns, is largely driven by human activities, particularly the release of greenhouse gases. Although Pakistan contributes minimally to global emissions, it is highly vulnerable to the effects of climate change, experiencing frequent extreme weather events, floods, and glacial melting, which have severely impacted its economy and key sectors like agriculture. Global warming presents numerous challenges, such as food insecurity, displacement, water shortages, and loss of biodiversity. Human activities, including industrialization, deforestation, and rapid urban growth, further intensify these issues. Rising global temperatures have led to an increase in sea levels, unpredictable weather patterns, and more frequent natural disasters. Pakistan's unique geographical features and climatic conditions exacerbate its vulnerability, as seen in the devastating floods of recent decades.(Adnan, Bibi, Xiao, wang, & Zhao, 2024)

Pakistan's Climate Change Act: Evaluating Impacts, Efficacy, and Prospects for Future Progress by Rana Umair Abrar Khan Lecturer, Lincoln’s Inn Law College, Gujranwala, Pakistan. This research article incorporates the Pakistan’s Climate Change Act in his research and says that Pakistan's Climate Change Act stands as a pivotal legislative measure designed to confront the diverse challenges posed by climate change. It provides a structured framework for addressing environmental threats, adapting to shifting climate patterns, and promoting sustainable development across the country. This law plays a vital role in the nation's strategy to mitigate climate impacts, safeguard vulnerable communities, and build long-term climate resilience. The Act outlines a comprehensive approach by creating regulatory authorities, developing climate adaptation and mitigation strategies, and fostering collaboration between government bodies and non-governmental organizations. It aims to integrate climate considerations into broader national

development goals, encouraging sustainable resource use and proactive measures to assess and address climate risks. However, the implementation of the Act faces several challenges, including limited funding, gaps in technical expertise, and inconsistent coordination among stakeholders. These issues have slowed the progress of its objectives, highlighting the need for stronger institutional frameworks, better enforcement mechanisms, and enhanced stakeholder involvement. Despite these obstacles, the Act has successfully raised awareness and laid the groundwork for addressing climate change through policies and initial adaptive actions. To maximize its effectiveness, Pakistan must focus on improving enforcement processes, increasing institutional capacity, and fostering cooperation among various sectors. Strengthening these areas will ensure that the Act achieves its intended impact, enabling the country to advance its sustainability efforts and meet global climate commitments effectively.(Khan, Idrees, & Shahid, 2024).

Analysis of Climate Change Policy of Pakistan; Hurdles & Loopholes by Munir Ahmed in 2023, Pakistan is the most vulnerable country which is facing bad climate change impacts due to its geographic area. Scholar highlights the existing problems of Pakistan and emphasizes on Pakistan climate change policy and discuss three main points.

- A well strategy is necessary for tackling this unique climate change problem.
- Barriers and gaps that prevent the efficient policy implementation should be examined.
- Learning from one another and exchanging methods regarding climate mitigation should be practiced.

He also gave some recommendation regarding the policy implementation such as strengthening the institution, improving the institutions and institutional coordination, managing a certain amount of funds for climate change practices, climate change education, improving cross border cooperation and alliances, and increasing public involvement and awareness. (Ahmad, Asad, & Irtaza, 2023)

Material and Methods

The methodology adopted for this research article is qualitative, incorporating both primary and secondary sources. The researchers have consulted secondary sources including articles, reports, journal publications, government official statements and research articles which provided a deep and comprehensive insight into the topic.

Results and Discussion

SDG 13 in Pakistan

SDG 13, focusing on climate action, as Pakistan is a country which is ranked among top 10 most vulnerable countries to climate change. Therefore Pakistan has taken some steps to combat climate change and introduced some highlighted policies and trying to translate these policies into effective implementation as implementation remains a significant challenge for Pakistan in achieving sustainable development and mitigate climate change.(Mahmood, 2023)

Theoretical framework of SDG 13 in Pakistan

Paris agreement Commitment

Paris agreement is an international treaty on climate change which was adopted under the United Nations framework convention on climate change (UNFCCC). It aims to

limit global warming to well below 2°C, preferably to 1.5°C, compared to pre industrial level. Pakistan signed the Paris agreement on April 22, 2016 and adopted on November 10, 2016 under the Paris agreement. Pakistan submitted its initial national determined contributions (NDC) in 2016 and updated them in 2021. It confirms to reduce 50% of its greenhouse gas emission by 2030. 15% of this 50% reduction is unconditional using domestic resources and 35% is conditional, reduction is dependent on international finance and assistance.

National Climate Change Policy (NCCP) 2012

National Climate change policy 2012 addresses the climate change challenges and provide a comprehensive framework to mitigate the impacts of climate change and discusses adaptation and sustainable development. Pakistan adopted it in September 2012 and developed by ministry of climate change. The national climate change policy is formulated under the UNFCCC and Paris agreement. Its main purpose is to reduce greenhouse gas emissions while maintaining the sustainable economic growth and promote renewable and clean energy. This policy integrates climate change consideration into development planning at national and sub-national level. This policy promotes climate education, awareness and research on climate change and builds institutional and human capacities for implementing the climate policies. Its key areas are water management; to counter water scarcity, agriculture and food security, forest and biodiversity, energy sector, disaster risk reduction, urban planning. Ministry of climate change looks after the implementation process. For funding, it relies on domestic and international support. Pakistan updated its national climate change policy in 2021 to ensure the implementation mechanism of previous one.(Chaudhry, 2021)

Climate Change Act 2017

The climate change act 2017 is the landmark legislation in Pakistan which is introduced to strengthen the country's response towards climate change. It provides a legal framework for implementing the climate related policies, addressing vulnerabilities, and enhancing resilience to climate change impacts. Key objective of the climate change act 2017 is to establish dedicated bodies for policy making, implementation, and oversight of climate actions. Its main purpose is to mainstream the climate action and ensure that Pakistan fulfills its obligations towards International commitments. Pakistan established the climate change council under climate change act Pakistan which is chaired by prime Minister, federal minister, provincial governments, civil society, and climate experts. The main function of this council is to oversee the implementation of climate change policies and actions. National climate change act has funding sources from federal and provincial government allocations and international climate finance mechanism. This act provides a structured approach to address climate challenges and strengthens the institutional framework.(Khan, Idrees, & Shahid, 2024)

Nationally Determined Contributions (NDCs)

Nationally determined contributions are basically commitments which countries submitted under the Paris agreement to highlight their goals for reducing greenhouse gas emissions and adapting to climate change Pakistan submitted its first NDC in 2016 and provided an updated NDC in 2021 to 2010 its climate commitments. Pakistan's contribution to global greenhouse gas emission is around 0.8%, it's a low emitter but highly vulnerable NDC 2016 focus on renewable energy, forestation, and reducing reliance on fossil fuels it's adaptation priorities are water resource management, disaster risk reduction, and protect the vulnerable communities from climate risk. Pakistan updated NDCs (2021) and set over all targets to reduce 50% of greenhouse gas emission by 2030. Its priorities sectors for mitigation are the energy sector, transport sector, forestry, industry and agriculture. Its Recent Progress resulted in successful implementation of the Ten Billion Tree Tsunami Project, Transition towards renewable energy, Strengthened disaster risk management

initiatives, including the GLOF-II project. Pakistan's updated NDC demonstrates a clear commitment to addressing climate challenges despite its resource limitations.

Challenges facing by Pakistan in policy Implementation

Pakistan is facing numerous challenges in implementing its climate action policies, driven by structural inefficiencies, limited financial resources, and socio-political constraints. Although the country has established a comprehensive policy framework, including commitments under the National Climate Change Policy and the Nationally Determined Contributions (NDCs), the translation of these policies into effective on-ground measures remains a significant hurdle.(Masud & Khan, Policy implementation barriers in climate change adaptation: The case of Pakistan, 2023)

Political instability exacerbates these challenges, as frequent changes in government and shifting political agendas disrupt long-term planning and continuity in climate action efforts. Climate-related projects often suffer from inconsistent funding and stalled implementation due to changing priorities, leading to a lack of sustained progress. Low public awareness and engagement further hinder policy implementation. Many communities, particularly in rural areas, are not fully aware of the impact of climate change or the role they can play in mitigating its effects. This lack of awareness limits participation in key initiatives like tree planting campaigns and sustainable agricultural practices.(Sain, Nortina, & Thelma, 2024)

In the energy and industrial sectors, transitioning to renewable energy and reducing emissions is another challenge. Despite the introduction of the Alternative and Renewable Energy Policy, the country's dependence on fossil fuels persists. Limited infrastructure and a lack of incentives for clean energy adoption have slowed the shift toward renewable energy sources. Similarly, industrial processes often lack the regulatory and technical support needed to transition to sustainable practices.

Pakistan's dependency on international financial and technical assistance also adds complexity to its climate action efforts. Many planned projects are conditional on receiving external support, but delays in disbursement and unmet financial commitments hinder their timely execution. Meanwhile, rapid urbanization and population growth add additional pressures. Unplanned urban expansion has led to environmental degradation and increased vulnerability to climate risks, complicating efforts to implement sustainable urban management and emissions reduction strategies.

Conclusion

Sustainable development is very necessary for every nation similarly for Pakistan. As Pakistan is facing several climate change events even is a low contributor to greenhouse gas emissions. So Pakistan has needed to combat it effectively. Therefore after the Paris agreement and sustainable development goal in 2015, Pakistan also introduced its national climate change policy and many other climate action initiatives to combat the climate change. Despite having a comprehensive framework for policy implementation, Pakistan is facing many other difficulties in implementation process such as mismanagement and low funds. To overcome these challenges Pakistan needs a comprehensive strategy that will focus on strengthening institutional framework, securing sustainable funding, fostering community involvement, and investing in climate resilient infrastructure. By establishing a solid monitoring and evaluating system, Pakistan can be on track of progress. Pakistan can make meaningful developments in mitigating climate change and creating a sustainable future for all.

Recommendations

To effectively implement its climate action policies and enhance resilience, especially for its vulnerable communities, Pakistan needs a comprehensive, actionable strategy. One of the first steps is to strengthen institutional capacity and localize implementation. This can be achieved by decentralizing climate policies, empowering local governments, and building the capacity of institutions at the provincial and district levels. By doing so, Pakistan will be able to tailor climate actions to the specific needs and vulnerabilities of local communities. Providing local officials with training and resources will help ensure more effective implementation of climate initiatives.(Xu, Abbasi, Hussain, & Alvarado, 2023)

Another critical area is the mobilization of both domestic and international climate finance. Sustainable funding is vital for the success of climate projects, and Pakistan should improve its ability to access international funding by preparing detailed project proposals that align with global climate finance criteria. Additionally, establishing a dedicated climate fund that combines both public and private sector resources would help ensure long-term financing for climate-related projects, reducing Pakistan's dependence on unpredictable foreign aid.(Umar, Danish, Rehmat, & Khaver, 2023)

Encouraging community-based climate adaptation is also crucial. Engaging local communities in planning and executing adaptation measures such as flood control and water conservation will foster a sense of ownership, improving the effectiveness and sustainability of these projects. Community-driven initiatives like localized reforestation or sustainable agricultural practices empower people to take charge of their environment while directly addressing the challenges posed by climate change.

Since agriculture plays a central role in Pakistan's economy, promoting climate-smart agriculture is of paramount importance. This includes investing in drought-resistant crops, improving irrigation efficiency, and implementing soil conservation measures to strengthen agricultural resilience. Support for smallholder farmers, including financial incentives and training programs, can facilitate the adoption of climate-smart practices and enhance food security in the face of changing climate conditions.

Infrastructure resilience must be prioritized, particularly in areas highly vulnerable to extreme weather. This involves constructing flood defenses, upgrading water management systems, and climate-proofing transportation networks to withstand future climate risks. Policies that set standards for resilient infrastructure would significantly reduce the vulnerability of communities to climate-related disasters.

Public awareness campaigns are also essential for encouraging climate action. To drive sustainable behavior at the grassroots level, Pakistan should launch nationwide campaigns that educate the public on climate change risks and the actions they can take to reduce their environmental impact. Involving schools, universities, and the media in spreading climate knowledge will help foster a culture of environmental responsibility.

Promoting the transition to renewable energy is another key action. By investing in solar, wind, and hydroelectric power, Pakistan can reduce its reliance on fossil fuels, lower carbon emissions, and create green jobs. Providing incentives for small-scale renewable energy projects, particularly in rural areas, will not only improve energy access but also increase resilience to climate impacts.

Lastly, with rapid urbanization, Pakistan's cities are increasingly vulnerable to climate-related risks. Sustainable urban planning is essential to create green spaces, manage waste, and improve public transportation. Developing urban climate adaptation plans will

help cities reduce their carbon footprint and better prepare for extreme weather events, ultimately enhancing their long-term sustainability.

By adopting these strategies, Pakistan can bridge the gap between climate policy and practical implementation. This holistic approach will not only enhance the country's climate resilience but also support its broader socio-economic development in the face of a changing climate.

References

Adnan, M., Bibi, S., Xiao, p., wang, H., & Zhao, P. (2024, april). Addressing current climate issues in Pakistan: An opportunity for a sustainable future. *Environmental Challenges, 15* 1-18

Ahmad, M., Asad, M., & Irtaza, A. (2023). Analysis of Climate Change Policy of Pakistan;Hurdles and Loopholes. *PRSS, 4*.

Ahmed, W., Tan, Q., Sheikh, G. M., Waqas, H., & Solangi, Y. A. (2020, june 28). Assessing and prioritizing the climate change policy objectives for sustainable development in Pakistan, *Symmetry, 12*(8), 1203.

Aslam, H., & Muzaffar, M. (2025a). Barriers to Sustainable Development: Examining Pakistan's Economic Taboos and SDG Challenges. Pakistan Social Sciences Review, 9(2), 351–366

Aslam, H., & Muzaffar, (2025). Interplay Of Socio-Political Development & Sustainable Development Goals (SDGs) Implementation: Evidence From Pakistan. Journal Of Social Sciences Development, 4(1), 113–124.

Chaudhry, D. Q. (2021). *National Climate Change Policy.* Islamabad: Govt of Pakistan Ministry of Climate Change.

Chaudhry, D. Q., & Sohail, M. M. (2013). *Framework for Implimentation of Climate Change Policy (2014-2030).* Islamabad: Govt of Pakistan Climate Change Division.

F.Mbah, M., Shingruf, A., & Hill, P. M. (2022, december 19). Policies and practices of climate change education in South Asia: towards a support framework for an impactful climate change adaptation. *nature portfolio*.

Khan, R. U., Idrees, D. R., & Shahid, A. (2024, jan-june). Pakistan's Climate Change Act: Evaluating Impacts, Efficacy, and Prospects for Future Progress. *International Research Journal of Social sciences and Humanities, 3*(1), 332-348.

Mahmood, A. (2023). Achieving sustainable development goals in Pakistan : focusing on energy sustainability in multi-sectoral approach. *Polyu electronic theses*, 295.

Masud, S., & Khan, A. (2023). Policy implementation barriers in climate change adaptation: The case of Pakistan. *Wiley, 34*(1), 42-52.

Masud, S., & khan, A. (2024). Policy implementation barriers in climate change adaptation:the case of Pakistan. *Environmental Policy and Governance*, *34*(1), 42-52.

Rehma, A., Ahmad, D. S., Danish, S., & umer, A. (2023, dec). Claiming Reperation for loss and Damage due to Floods 2022: The Case of Pakistan. *SDPI*, 1-29.

Sain, Z. H., Nortina, S., & Thelma, C. C. (2024, may 31). Sustainable Development: Challenges and Strategies in South Asia, Spotlighting. *Journal of Information System and Technology Research, 3*(2), 80-85.

Umar, M. A., Danish, S., Rehmat, A., & Khaver, A. (2023). Pakistan's Institutional Capacity for Climate Action:An Analysis. *SPDI*, 1-24.

Xu, D., Abbasi, K. R., Hussain, K., & Alvarado, R. (2023, jan 22). Analysing the factors Contribute to Achieving Sustainable Development Goals in Pakistan : A Noval Policy Framework. *ELSEVIER, 45*.