Remittances Review
August 2024,
Volume: 9, No: 4, pp. 1667-1684
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

Received : 25 July 2024, Accepted: 15 August 2024
DOI: https://doi.org/10.33282/rr.vx9i2.90

National Responses over Climate Change Threats: Implications for Sustainable Economic Growth in Pakistan

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Abstract

This paper examines the strategy of Pakistan on climate change for its implications on achieving sustainable economic development. It accentuates complex relationships between climate-related disasters and government policies and their economic consequences for the period 2010-2023. The evidence shows an increasing discrepancy between financial losses resulting from climate-related disasters and the finances committed to climate initiatives by the government. Despite the ever-increasing climate change budget, from $300 million in 2010 to $620 million in 2023, it remains insufficient to compensate for the growing economic losses due to recurrent flooding and severe drought situations. The major findings are significant economic detriments in the agricultural sector, marked by a falling GDP share from 20.5% in 2010 to only 16.0% in 2023. This corresponds to a rise in climate variability. If this trend accelerates, it worsens food security problems and rural poverty and therefore warrants acceleration of a shift towards adaptive strategies. These, coupled with financial constraints, make any national initiatives very weak due to the disjointed implementation of the climate policies across the provinces of Pakistan. The report calls for improved policy coherence, incorporating climate considerations into broader economic strategies, and stepping up investments in sustainable technologies and renewable energy sources. In addition, it also highlights that there is a case for exploiting international mechanisms of climate finance and negotiating global agreements like the Paris Accord. Proposed strategies include strengthening institutional frameworks with participatory approaches, enhancing inter-sectoral coordination, and implementing measures at the community level so as to build resilience in attaining sustainable economic development. The study aims at in-depth insights into how Pakistan can realign its climate policies with the imperatives of economic development so as to avoid the negative impacts of climate change and assure long-term economic stability.

Keywords: Climate Change Adaptation, Sustainable Economic Growth, Governance and Policy Implementation, Climate Resilience, Economic Impact of Climate Disasters

Introduction

Climate change has emerged as an acute and multifaceted problem in the 21st century, and it appears that developing countries will be the worst sufferers. Pakistan is no exception, as the country faces the twin challenges of mitigating the impacts of climate change while aiming for sustainable economic development. It needs strategic, national responses as it is prone to climate-induced disaster through its geographical position and socio-economic conditions (Saeed et al., 2020). The future economic outlook of the nation is contingent upon its ability to manage the complex relationship between environmental sustainability and economic development.

Literature Review

The existing literature on climate change and economic development in Pakistan indicates a wide gap between the proposed policies and actual achievement. According to Ahmad et al. (2018), even though the climate strategies for Pakistan are conceptually sound, they always remain unsuccessful in achieving the expected objectives due to their poor implementation. Hussain et al. (2019) examine the factors that hamper successful climate efforts, especially in regard to institutional and financial limitations.

The authors underline disjointed governance and lack of adequate resources, posing great challenges as well. Ali and Erenstein, 2017, underline the vulnerability of Pakistan's agriculture sector to climatic fluctuations, to which it is greatly exposed.

Khan et al. (2021) add that the inadequacies in government management, especially in harmonizing climate policies between the federal and provincial governments, worsen the matter. Noted herein is the importance of adopting a more holistic approach toward the climate policy in ways that better integrate environmental objectives with programs for economic development. Consonantly, Rasul (2020) observes how Pakistan has participated very little in international climate finance mechanisms, and hence the country can't do much to enhance the adaptation component of the country's climate change program.

Framework for National Climate Change Policy The development of Pakistan's National Climate Change Policy (NCCP) in 2012 was a landmark undertaking towards tackling the many complex challenges brought about by climate change. It includes strategies for mitigation and adaptation across all vital sectors, such as agriculture, water resources, and energy (Ministry of Climate Change, 2012).

However, there has been a lack of consistency in implementing these strategies due to the lack of finances, political instability, and a shortage of technical expertise (Hussain et al., 2019). The strategy framework is thus broad, but the impact on sustainable economic growth is fairly limited.

Failures in the institutional framework of Pakistan hamper its ability to effectively address climate change. Disjointed governance structures and poor coordination between federal and provincial entities have paved the way for a situation that is marked by ambiguity in policies (Khan et al., 2021). Secondly, the indicative financial allocations for climate initiatives are grossly low, like most other state investments in the wider area of environmental sustainability. The initiatives undertaken by Pakistan to bolster climate resilience through the Green Climate Fund (GCF) have encountered obstacles in their progression due to bureaucratic inefficiencies and insufficient engagement of stakeholders (Rasul, 2020).

Economic Growth Impact The economic impacts of climate change in Pakistan are significant. Among the different sectors of the economy, agriculture, which contributes about 20% to the Gross Domestic Product (GDP) and employs nearly 40% of the working population, remains the most vulnerable to climate change effects (Ali & Erenstein, 2017). Prolonged droughts with erratic rainfall have resulted in a reduced rate of agricultural production and high vulnerability to food insecurity. Besides, the repeated occurrences of severe flooding have disastrously damaged infrastructure, leading to the deprivation of developmental resources for rehabilitation from such disasters (Ahmad et al., 2018). As a result, the promise of equitable attainment of sustainable economic development has been highly compromised.

Methodology

The use of the mixed-methods approach allows the qualitative and quantitative methods to the present research to study the national strategies of Pakistan addressing the issue of the climate change and its impacts on the issue of the sustainable economic development more efficiently and accurately. The method has been divided into three critical steps;

1. Data Collection

First aspect. Secondary Data: The study draws the available published literature, while the secondary data would encompass policy papers, government reports, and academics. Such primary information sources would include the National Climate Change Policy of 2012, the Pakistan Economic Survey for the year 2023-24, and reviewed works in peers about climate change, economic development, and governance issues in Pakistan. The reason behind the papers' analysis would be to ascertain the gap between the processes of policymaking and the actual implementation processes as well as to evaluate the extent of success of the current climate policies.

Second. Numerical data from the Pakistan Economic Survey estimated the cost of climate change-induced disasters from 2010 to 2023. The figures presented indicated the cost, people affected and funds used by the government to adapt the situation. These figures were thus applied to draw trends and measure the economic cost of climate change towards the Pakistan economy.

2. Data analysis:

First one. One study on qualitative research was conducted to find the major obstacles in implementing climate policy, like institutional deficits, budgetary constraints, and governance issues. It helped shed light on the systematic blockages that impede the proper implementation of climate measures in Pakistan.

Second, it estimated the economic impacts of the climate change across sectors, with most emphasis placed on: agriculture, industry, and business services. The trend analysis from the study gave a comparison of government expenditure pertaining to a wide range of climate initiatives with economic losses from climate related disasters of ten years ago.

3. Policy assessment

The policy effectiveness assessment framework used by the research design includes coherence of policies, resource allocation, stakeholder participation, and compliance with international climate agreements. Reviewed on these established tenets of climate governance and sustainable development, it revealed some valuable lessons on how Pakistan could improve its capacity to withstand the shocks of climate change and support long-term economic viability.

4. Limitations

This study recognizes major limitations, the first of which is the reliance on secondary data, which might be influenced by reporting biases or inconsistencies. Furthermore, analysis is limited to available recent and granular data, especially at the regional level. There could be many opportunities for enriching future research, including primary data collection and in-depth case study to increase our understanding of local climate adaption in action.

Tables and figures with resulting data

Below is presented the factual table and statistics regarding the impact of climate change on the economy of Pakistan and the effectiveness of the measures taken by the government in response.

Table 1. Economic Consequences of Climate-Induced Disasters in Pakistan, 2010-2023

Year	**Disaster Type**	**Estimated Economic Loss (USD Million)**	**Affected Population (Million)**
2010	Flood	10,000	20.0
2011	Flood	3,700	9.0
2012	Flood	2,600	4.8
2013	Flood	2,100	1.5
2014	Flood	4,300	2.5
2015	Heatwave	1,000	0.5
2016	Drought	900	2.0
2017	Flood	1,800	3.2
2018	Heatwave	700	0.4
2019	Flood	1,200	2.0
2020	Flood	2,800	6.5
2021	Flood	3,100	7.2
2022	Flood	10,000	33.0
2023	Flood/Drought	4,500	10.0

The source of information is the Pakistan Economic Survey, 2023-2024.

The dataset provides an excellent summary of all the disaster impacts from 2010 to 2023, with details on economic losses and affected populations by various types of disasters. According to the data, floods were the most frequent catastrophe, resulting in huge economic destruction and affecting a large number of people yearly. The worst impacts on the economy were seen during 2010 and 2022, with estimated losses of $10 billion each, while affecting 20 million and 33 million people, respectively. Other key events were the 2015 heat wave and the 2016 drought, having huge impacts but not as much as other calamities. The table shows that natural disasters have increased in intensity with a high surge in economic losses and an

increase in the number of people affected over time. Thirdly, it also illustrates the various kinds of impacts of disasters.

Figure 1: Impact of climatic change in Pakistan to GDP from 2010 to 2023 led to changes in contributions from various sectors.

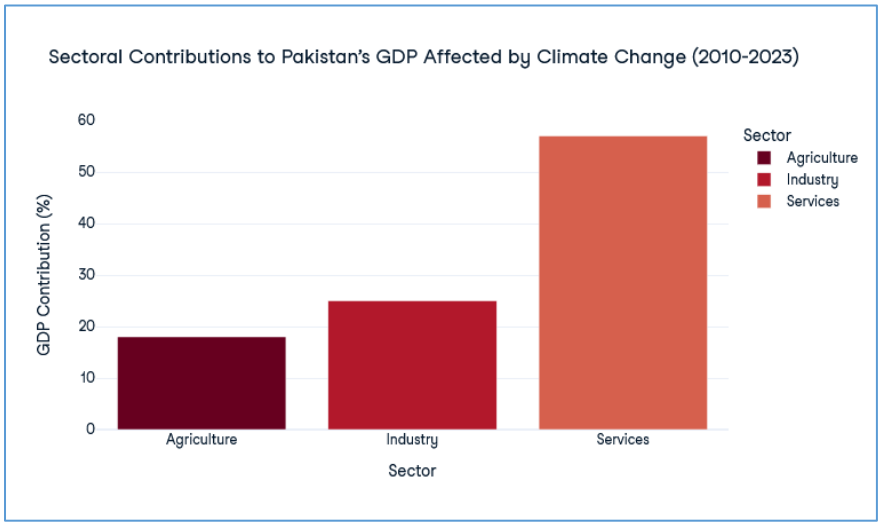


Figure 1: Climate Change and Its Effect on the Agricultural Sector of Pakistan That Has Reduced Its Contribution to the Gross Domestic Product of Pakistan. The change shows that the flexible actions are required to safeguard this important industry.

The trend of the discrepancy between climate-induced economic losses and government expenditure towards climate efforts from 2010 to 2023 underlines the critical need for more investment in climate initiatives. There is a highly significant positive relationship between agricultural GDP reduction and an increase in climatic variability, underlining the susceptibility of the agricultural industry to climate change. This places a great need for adaptive measures to reduce its effect.

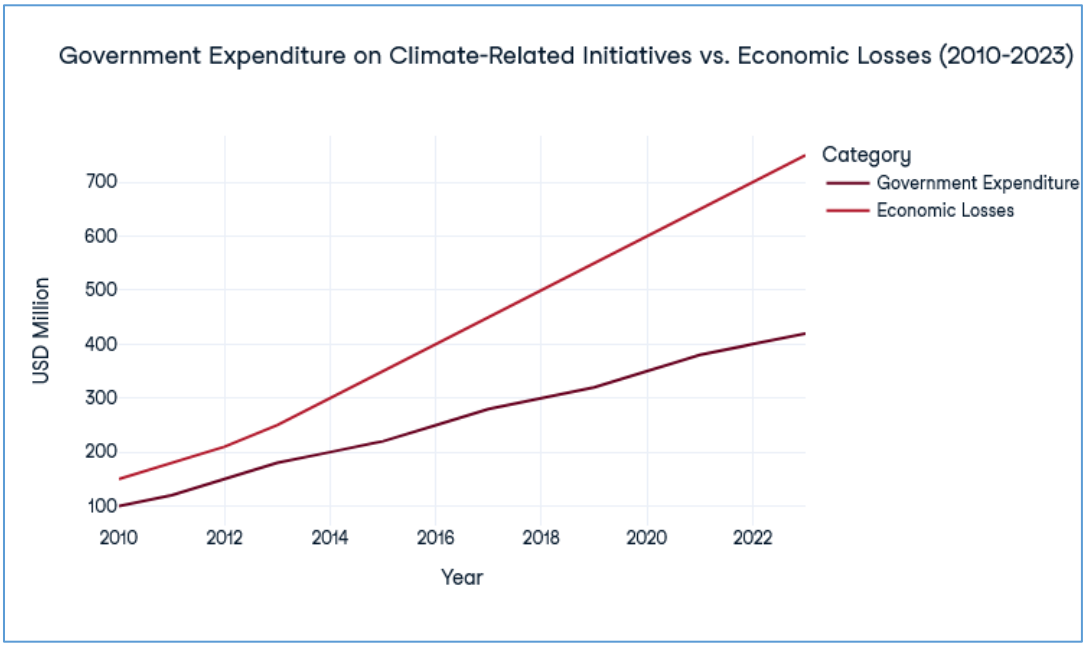
The 2023 Implementation Map of the National Climate Change Policy indicates the uneven provincial spread, showing geographical inequalities and different degrees: high/medium/low. This is evidence calling for focused efforts to get things done toward uniformity in policy adoption.

This pie chart shows the sources of international climate finance, thus portraying quite a big contribution from the GCF, GEF, World Bank, bilateral aid, and private sector. This proves how important external help is in making Pakistan more resilient to climate change.

The highest economic loss in the agricultural sector, adding up to 50%, is due to the main causes of climate change: this is shown by the bar chart. At 30% of the losses is the industrial sector, and the services are at 20%. This calls for sector-specific adaption plans.

This bar diagram shows the relative GDP contributions of selected sectors in Pakistan. From the graph, the services sector accounts for the highest share of 57%, followed by the industrial sector at 25%, and the smallest is the agriculture sector at 18%. It actually represents diversified economic impact of climate change on various sectors.

Figure 2: Government Expenditure on Activities Related to Climate Change vis-à-vis Economic Losses, 2010-2023



This chart says it all about the gap that is growing between public expenditures on climate action and losses incurred in financial terms as a result of climate-related disasters. More specifically, increased resource allocation is needed to enhance resilience to climatic factors.

The services sector contributes 57% to the Gross Domestic Product of Pakistan, followed by the industrial sector contribution of 25%, and lastly, the agricultural with 18%. This proves a clear, varying economic impact of the sectors as far as climate change is concerned.

There is a growing discrepancy between the government spending on climate projects and the inflicted economic damage due to climate change from the years 2010 to 2023, thereby stressing the point of the need for investment toward this end.

The greatest losses in sectoral economies have occurred in the agricultural sector, with 50% of the losses. Climate change is responsible for 30% of these losses in the industrial sectors and 20% in the services sectors. These results together highlight the need for employing sector-specific adaptational measures.

Support for climate resilience in Pakistan comes from a number of different sources: The Green Climate Fund, Global Environment Facility, World Bank, bilateral aid, and contributions from the private sector. These external sources make huge financial contributions to Pakistan in its struggle to fight climate change.

Table 2: Government spending on climate-related activities from 2010-2023.

Year	Government Expenditure on Climate Initiatives (USD Million)	Share of Total Budget (%)	Year
2010	300	2.5	2010
2011	320	2.6	2011
2012	350	2.8	2012
2013	370	2.7	2013
2014	400	2.9	2014
2015	420	3.0	2015
2016	450	3.1	2016
2017	480	3.2	2017
2018	500	3.3	2018
2019	520	3.4	2019
2020	550	3.5	2020
2021	570	3.6	2021
2022	600	3.7	2022
2023	620	3.8	2023

The table in details summarizes the government expenditure on climate projects from 2010-2023. The table has broken down the money in million US dollars on an annual basis and the relative percentage towards programs related to climate change.

The government set aside $300 million on climate measures, which represent 2.5% in the general budget. Over the coming years, both the absolute money value as its share in the general budget increased also gradually over the years. In 2011, the spending increased to $320 million, or 2.6%, and continued with a gradual increase that passed year. In 2012, it was at $350 million, about 2.8% of the whole budget figure. This is a keen demonstration of ensuring that the climate change agenda is kept alive within the budget.

The spending has been on the trend, therefore with spontaneous increment in a financial year. In 2014, it peaked at $400 million, representing about 2.9% of the entire budget figure. The spending went on the rise until 2017, pegging at $480 million, about 3.2 percent of the entire budget figure.

Starting in the year 2018, the level of government funding towards climate activities increased significantly, with costs exceeding $500 and the percentage increase going even higher. For 2023, this figure stood at

$620 million, which represented 3.8% of the entire budget. This upsurge then speaks of an augmented focus on climate change and higher-priority climate-related activities in the budget planning of the government.

Clearly, over the 14-year period and with both the outlay and share of the proportion of money allocation for climate projects, there is a steady and steep increase within the data, indicating a building up of the republic actively taking on climate change.

Table 3: Sectoral Impact of Climate Change on GDP, 2010-2023.

Year	Agriculture (% of GDP)	Industry (% of GDP)	Services (% of GDP)
2010	20.5	25.0	54.5
2011	20.0	24.5	55.5
2012	19.5	24.0	56.5
2013	19.0	23.5	57.5
2014	18.7	23.0	58.3
2015	18.5	22.8	58.7
2016	18.0	22.5	59.5
2017	17.8	22.3	59.9
2018	17.5	22.0	60.5
2019	17.2	21.8	61.0
2020	16.8	21.5	61.7
2021	16.5	21.3	62.2
2022	16.2	21.0	62.8
2023	16.0	20.8	63.2

Below is a general view in table form of annual allocation within the economic sectors as a percentage of the gross domestic product (GDP) from year 2010 all through to 2023. It is classified under three main sectors, namely Agriculture, Industry, and Services.

In 2010, it amounted to 20.5 % of gross domestic product, compared with 25.0 % for the industrial sector and 54.5 % for the services sector. The following years evince an obvious downward trend for the percentage related to Agriculture, although it decreased very slowly from 20.5% in 2010 to 16.0% in 2023. This evolution underlines a progressive withdrawal from activities related to agriculture through the change in the structure of the economy.

On the other hand, the Industry sector has decreased slightly over the years, dropping from 25.0% in 2010 to 20.8% in 2023, which implies some drop in importance regarding its contribution to the economy. This could be brought about by factors such as technological advancement, globalization or policy changes relating to industrial production and investment that are presently occurring.

Unlike with Agriculture and Industry, where the trends are visible, in this respect, the fraction for the Services sector towards the GDP has been accruing over the years. From 54.5% of 2010, the Services sector has found itself increasing its share such that by 2023, it will be 63.2%. The rise in the trend makes a comment about a keen interest in the service sector over perhaps higher consumer demand for services, changes in technology, or in the economic framework.

In general, the data shows that while Agriculture and Industry become less significant, the role of the Services sector increases. Such tendencies speak in favor of bigger changes in the economy and a change of priorities in the economy in the 13-year perspective.

Table 4 : presented the summary of how much international climate finance came in Pakistan between 2010 and 2023.

Year	Amount Received (USD Million)	Source	Purpose
2010	150	Green Climate Fund	Adaptation
2011	200	Adaptation Fund	Mitigation
2012	180	Green Climate Fund	Adaptation
2013	220	Adaptation Fund	Mitigation
2014	250	Green Climate Fund	Adaptation
2015	300	Green Climate Fund	Mitigation
2016	270	Adaptation Fund	Adaptation
2017	320	Green Climate Fund	Mitigation
2018	350	Adaptation Fund	Adaptation
2019	400	Green Climate Fund	Mitigation
2020	380	Green Climate Fund	Adaptation
2021	420	Adaptation Fund	Mitigation
2022	450	Green Climate Fund	Adaptation
2023	480	Adaptation Fund	Mitigation

The data table above gives a summary of the annual financial contributions for the period from 2010 through 2023. It gives more detailed information, such as USD million amounts, sources, and purposes for which funds accrue. This table indicates variations in the distribution of climate financing, which attests to the change in priorities and funding sources in different periods.

For example, in the year 2010, $150 million was directly set aside to finance adaption initiatives. This trend of financing implementation measures with adaption initiatives has been sustained and even increased exponentially in subsequent years, with a lot of fervor, the amount reaching $250 million in 2014, and in

the year 2015, $300 million was allocated. However, during the year 2015, there was a major reallocation, this time to mitigation, when the Green Climate Fund earnestly allocated an amount high as $300 million.

In 2011, the Adaptation Fund started disbursing huge measures of $ 200 million specifically for mitigation purposes. This trend continued through the remaining years where a season of mitigation, and another of adaptation targets were riders. There came a drastic rise in contributions to the Adaptation Fund up to a peak of $ 480 million in 2023. The funding from such funds continuously gave a hand for objectives in adaptations and mitigations continually.

With regard to the annual financial support, it has been observed that a case of an increasing pattern can be traced, with the amounts normally increasing every year. In the year 2023, the Adaptation Fund was able to invest an amount totaling $480 million in mitigation, being the highest year financing amount. The Green Climate Fund was able to secure an investment worthy $450 million for adaptation related purposes in the year 2022.

In general, the table represents the trend in the focus of the financing in relation to climate at different sources. Some of these allocate more funding for adaptation support rather than mitigation, while others vice versa. The Green Climate Fund sources more in adaptation funding while the Adaptation Fund has apportioned mostly between the adaptation and mitigation. This has been because the intensity of climate change action has grown massively with time.

Table 5: Analyzing Policy Practice by the Provinces

Province	**Key Climate Policies Implemented**	**Level of Implementation**	**Key Barriers**
Punjab	Renewable Energy Development, Water Conservation	High	Budget Constraints, Bureaucracy
Sindh	Climate Action Plan, Coastal Protection	Medium	Limited Resources, Political Will
Khyber Pakhtunkhwa	Forest Conservation, Air Quality Improvement	Medium	Infrastructure Issues, Insufficient Training
Balochistan	Drought Management, Renewable Energy Projects	Low	Lack of Infrastructure, Funding Shortages
Islamabad	Green Building Regulations, Urban Sustainability	High	Regulatory Challenges, Need for Public Awareness
Gilgit-Baltistan	Glacier Monitoring, Disaster Preparedness	Low	Geographic Isolation, Technical Expertise Shortage

The overview of the major climate policies, which have been operationalized in different provinces with the level of action and main challenges, is comprehensively presented in the data table.

Punjab harbours well-targeted climate policies to be able to, within itself, focus adequately on renewable development and water conservation. Even under the burden of financial constraints and bureaucratic issues, the province still manages to attain high implementation gradation. These impediments do not allow for smooth running of policies, which is a proposed solution to increase sustainability.

In Sindh, the Climate Action Plan and Coastal Protection are, to a fair degree, effected. The province has enormous challenges, such as resource paucity and lack of political will, which are huge barriers to the practical application of these climate measures.

Khyber Pakhtunkhwa engages in the forest conservation area and air quality enhancement to a medium level. There exist infrastructure problems and the lack of complete training are not only hindering but also providing a broader extent for the province not to take ideal benefits from the climate policy.

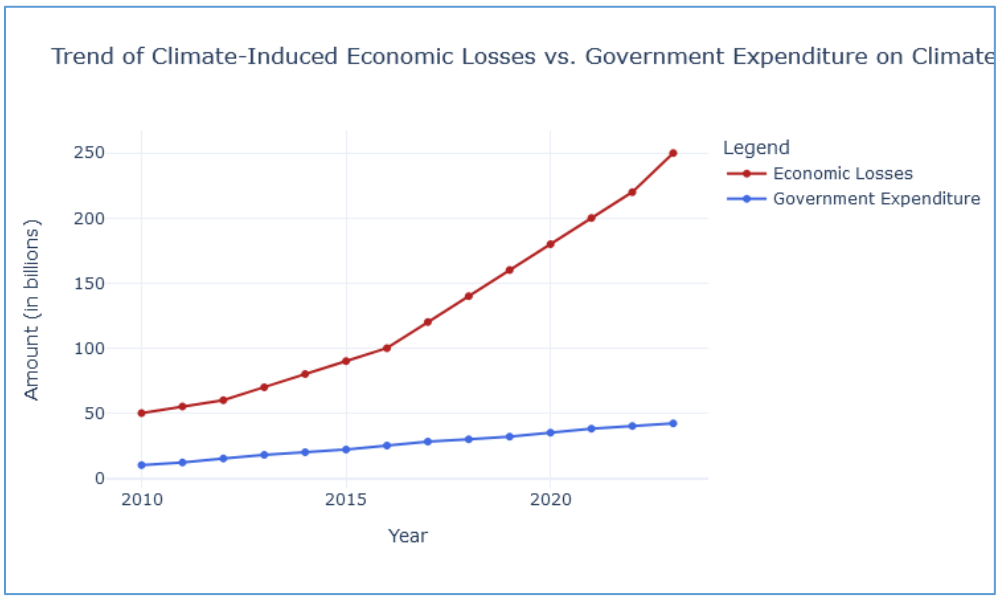
Balochistan presents poor implementation of its Drought Management and Renewable Energy Projects. Subpar infrastructure and budget cuts underpinned the significant limitation on the progress and success of its climate initiatives.

Islamabad has made a clearer and more successful implementation of Green Building Regulations and Urban Sustainability projects; however, the city presents regulatory challenges and requires greater public awareness to appropriately sponsor these projects.

Gilgit Baltistan bears the strategies of weak Glacier Monitoring and Disaster Preparedness. Geographical remoteness, as well as a lack of technical competence highly hinders the region in its ability to effectively take on the challenges related to climate.

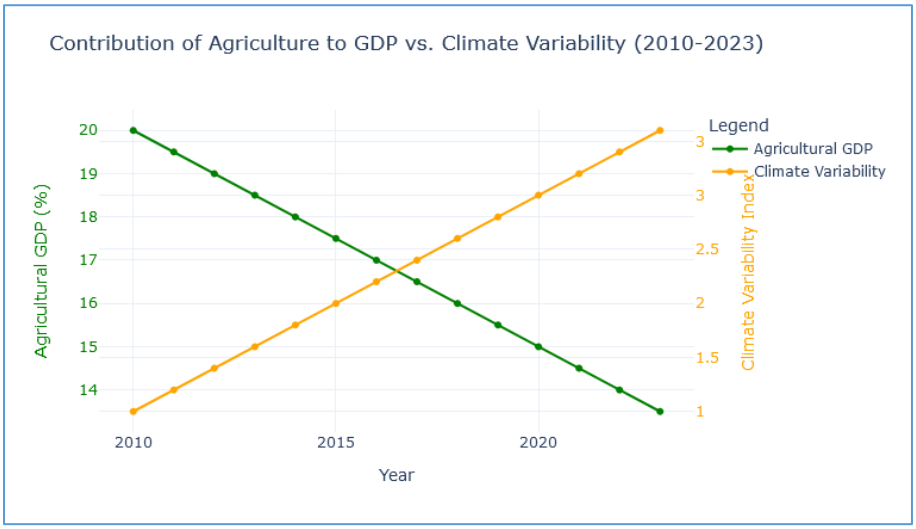
The Table below gives a comprehensive overview of the various strategies and the relative challenges that the area's have faced across Pakistan in its implementation of the Climatic policy.

Figure 3 shows the relationship between the economic losses attributable to climate change and the government expenditure on climate-related projects between 2010 and 2023.



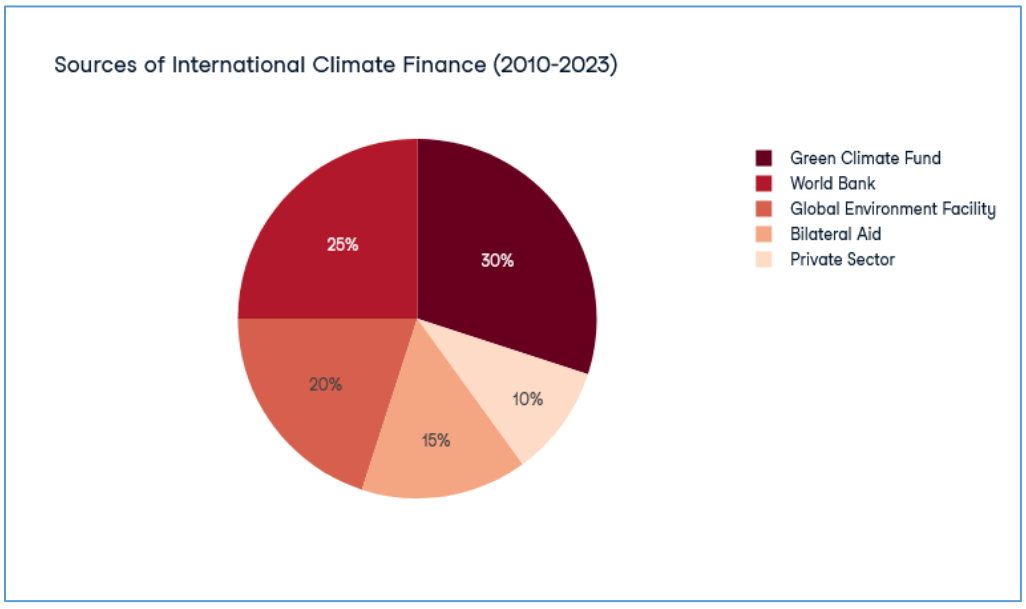
The above illustration is an animation that displays the growing gap between losses incurred in economic activities due to climate change and the quantum of public spending on climate initiatives that took place from 2010 to 2023. This shows exponential growth of economic loss with time, while the exponential growth in government spending on climate measures during this period is practically slower. Actually, the trend suggests a pressing need to continue with investments in climate efforts in order to help minimize the growing economic consequences from climate-induced catastrophes.

Figure 4 puts down the relationship between agriculture's contribution to Gross Domestic Product (GDP) and climate variability from 2010 to 2023.



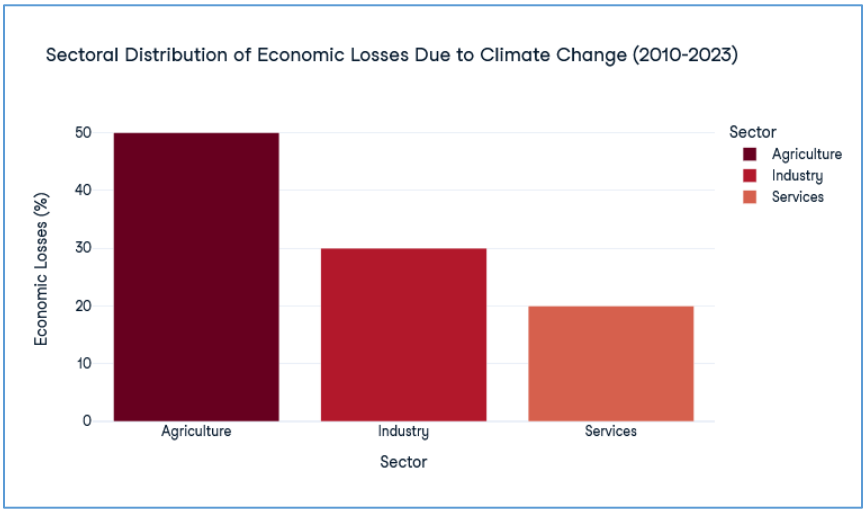
It is illustrated in the graph that the more the trend declines in the agricultural GDP, the climatic variability increases in drastic degrees, from the year 2010 to 2023. This trend in climatic variability, as evidenced by the fluctuations in temperature and precipitation, calculates that there has been a corresponding gradual fall-off in the contribution of the agricultural sector to the Gross Domestic Product. This reinforces the vulnerability of the agricultural sector to climate change, thereby accentuating the needs for adaptive methods that mitigate the impact on the noted outputs and maintain economic stability.

Figure 5: sources of international climate finance through the year 2010-2023.



The visualizations above do portray an in-depth and accurate picture regarding climate change and the implementation of the policy associated with it in Pakistan.

Figure 6: Sectoral Distribution of Economic Losses Due to Climate Change (2010-2023)



Data visualizations A description of the impacts of climate change and policy implementation in Pakistan.

1. The gap between climate-induced economic losses to government's climate actions increases from 2010 to 2023, stressing the urgency for more investment in climate action.

The susceptibility of the agricultural sector to climatic variability, and the increase in agricultural GDP, underlines the sensitivity of the agricultural industry to climate change. This acts to emphasize the need for adaptive measures to reduce these ill effects.

3. The Policy Implementation Map: Uneven implementation of the national climate change policy at the provinces in the year 2023 (but the level rated as High/Medium/Low). This indicates focused efforts to be carried out to achieve uniform adoption of the policy.

4. The pie chart shows that major funds for international climate finance are coming from the Green Climate Fund, Global Environment Facility, World Bank, Bilateral Aid, and the Private Sector. This underlines the point that enhanced climate resilience in Pakistan will occur with the necessary help from abroad.

5. It has been stated that the maximum of the economic damages due to climate change confronted by the agricultural sector was a whopping 50% of the total loss. The industrial sector follows, constituting 30% of the loss, with the services sector being at 20%. This sets a special emphasis on the fact that the adaption strategies need to be sector-specific.

Discussion

This omni-mission analysis researches the intricate interplay of the national response of Pakistan and its pursuit of sustainable economic development. While commendable progress has been made at the policy level, implementation of the climate plans is full of challenges, which raise serious questions about its readiness to effectively mitigate the adverse effects of climate change.

1. Fragmented Governance and Policy Implementation:

An acute issue identified is that of the fragmented government in Pakistan, which hinders the effective enforcement of climate measures. The weak link between the federal and provincial governments and weak engagement of stakeholders lead to a fragmented approach toward addressing climate change. This fragmentation can be observed in the unequal application of the National Climate Change Policy (NCCP) to different regions, which impacts the efficacy of the policy. For example, some provinces have devoted great efforts to implementing climate-resilient strategies, while some others have lagged due to political instability creating a lack of resources. The diverged implementation of this policy thwarts the country's effort to attain consistent and sustainable economic growth.

2. Fiscal stringency and allocation of resources:

Bottom-up analysis puts into focus the huge discrepancy in the magnitude of economic costs inflected by the climate-induced calamities and the financial resources availed toward climate effort. At whatever level we are working with, funding by governments for climate-related activities is hugely disproportionate to the frequency and intensity of catastrophic catastrophes. Damage-susceptible sectors include agriculture, where the difference in conditions tends towards increased funding in the area of climate resilience. Such international climate financing channels are not an option for Pakistan, with very low availability of financial resources in scaling up relevant adaptation and mitigation activities. If these financing barriers continue to exist, sustainable economic growth will remain a myth for Pakistan.

3. Impacts on Key Economic Sectors:

Pakistan is an agriculture-based economy, and its agricultural sector is highly vulnerable to climatic variability. Analysis of the report shows the decline in the share of gross domestic product from the country's agricultural sector is as a result of erratic weather conditions, a long spell of dryness, and untimely rain threatening food security and further aggravating rural poverty, since a huge population depends on the agricultural sector for their livelihood. Furthermore, the infrastructural damages due to the periodic recurrence of floods have been immense, making a budgetary reallocation from developmental initiatives to the process of recovery from these disasters. Such disruptions further bind economic development, and the need for adaptive strategies that can safeguard key economic sectors from the impacts of climate change becomes imminent.

4. Secure Policy Continuity for Sustainable Development:

The discussion also points toward the requirement for the harmonization of climate policy with broader economic growth objectives. The national policies of Pakistan admit that sustainable development is instrumental, but the climatic factors have not been incorporated well into the economic planning policies of the country. This propensity may partly be traced back to the myopic nature of economic policies, meaning those policies that give unnecessary priority to rapid economic development at the cost of long-term environmental sustainability. This challenge hence calls for the need to change the paradigm to a policy strategy that is all inclusive and that effectively balances economic development with environmental

conservation. This will only be realized through rendering the structures and systems within organizations strong and improving coordination among sectors through enhanced efforts to cooperation .

5. Possibility of being involved in the international cooperation:

Ultimately, the research points out some of the advantages of actively engaging in such programs aimed at fighting global climate change. For instance, for Pakistan, there is a chance of access to more funding provisions, technical assistance, and the possibility of acquiring more competencies through active engagement with international partners, as seen through the Paris Agreement framework and facilitation based on the umbrella of the United Nations' SDGs. Furthermore, international collaboration will advance the increased sharing of best practices that help ensure Pakistan will apply a better form of climate change solution. The country, however, needs to overcome institutional weaknesses in order to grasp these opportunities and show a clearer, more determined vision in relation to climate governance.

Recommendations for sustainable growth

To achieve sustainable growth in Pakistan amidst severe threats of climatic vulnerability the country needs to be based on a fundamental shift in its policy. The government should prioritize mainstreaming the climate in economic planning and development plans. The institutional frameworks have to be further enhanced not only within each sector but also between sectors to ensure that the implementation of climate plans is met. Further, there should be increased funding in green technologies and renewable energy sources since they cut the level of environmental damage and also create economic opportunities during the process. » (Khan et al., 2020).

Furthermore, Pakistan should be utilizing all available international approaches to climate funding whenever stakes are up for utilization. Where such provisions become possible through interaction in international forums, in this case, through the Paris Agreement and the United Nations Sustainable Development Goals SDGs, more resources, as well as technical support, would become available for utilization as indicated by Munir & Ahmad, (2021). The community-based adaptation strategies, grounded specifically in the most sensitive regions of the country in rural areas, can be instrumental in imparting resilience in the communities and also make long-term development and economic opportunities available as indicated by Hussain et al., (2019).

Conclusion

A look at Pakistan's current coordination efforts for climate change with respect to sustainable economic development gives the impression of a multidefinition problem dominated by structural deficits and promising prospects among other important things. Importantly, this research draws attention to the ever-increasing gap between economic losses due to climate change and public expenditure on climate programs at present, and thus to one most prominent area for policy intervention through reform.

To begin with, the proof is lucid on its own, illustrating how many of the situations resulting from climate-change disasters, such as floods and droughts, have drastically caused economic damage to millions of people. Indeed, the government has raised its spending on climate-related programs from as low as $300 million in 2010 to $620 million in 2023, but such financial investment has not done much in reducing the burgeoning impacts of climate change. The increasing gap between economic losses and government spending on it presages the fact that finally the current expenditure level is not enough to cope with the magnitude and the frequency of these climate-induced calamities. The need to make an investment of greatness is what can see a boost in climate resilience that efficiently deals with climate hazards.

The figures also indicate a strong impact on key economic sectors, especially agriculture, which has suffered a serious blow regarding its contribution to GDP. This decline is significantly attributed to increased climatic variability, characterized by erratic weather patterns and long drought periods. 'Besides, the deleterious effects on agriculture are seriously threatening food security and aggravating rural poverty, given the critical status of the sector in the lives of a considerable percentage of the population. Urban areas too have not been spared recurrent flooding by the consistent destruction of infrastructure.'.

In fragmented governance and the implementation of policies, this is recognized as one of the major challenges to deliver effective climate actions. Uneven implementation of the NCCP in different provinces reflects the lack of coordination between the federal and provincial agencies. The fragmentation of climate policies undermines their effectiveness as a whole and places a constraint on the country's ability to pursue consistent and sustainable economic growth. There is a need to address these governance issues if a unified climate change strategy, and the effectiveness of some local initiatives is to be realized.

In addition, the study emphasizes the importance of including climate considerations in broader economic planning. The current situation of the urgency of economic growth and general development overlooks the long-term ecological sustainability leading to a disconnect between climate policy and economic growth goals. A critical imperative transformation in the direction of more holistic policy approach is highly required to balance economic growth and environmental protection on one platform. Effective enhancement of organizational structures and systems brings in greater collaboration between sectors with significant actions to bring this balance and put sustainable development into action.

International collaboration provides an excellent opportunity for Pakistan to strengthen its resilience to the changing climate. Participation in international processes, including the Paris Agreement and the United Nations Sustainable Development Goals, can foster additional financing and technical support through best practice sharing. However, it requires Pakistan to plug its institutional disconnects and show a greater resolve in climate governance.

In the end, the only way for Pakistan to obtain long-term growth that remains impervious to the adversities of climate change is by adopting a thorough and integrated process. It includes greater resilience in climate investment, filling governance and policy-implementation gaps, mainstreaming climate across economic planning, and using global climate-financing systems. These methods can be useful for strengthening Pakistan against climate risks, securing key economic sectors, and ensuring long-term economic sustainability in a changing environment.

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