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Economic Implications of Climate Change in Pakistan: A Comprehensive Analysis

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Abstract
In this research article, focus has been placed on an analysis of economic impacts of climate change in Pakistan, a country that is vulnerable to the effects of climate change due to various factors such as geographical position and socio-economic factors. These tendencies of climate change impacts including the rising trends in floods, droughts and extremity of climate related disasters pose a significant threat to Pakistan's economic growth and developmental path. Thus, this study applies the mixed-methods approach to assess the direct and indirect economic consequences of climate change, including the synthesis of a rich variety of existing literature. It also uses examples to explain how these environmental effects lead to major loses in different industries such as agricultural, infrastructure and even public health. The implication identified in the research is that climate change contributes poverties food insecurity, reduces agricultural yield, and weakens health centers. Some of these extend adverse impacts especially to the vulnerable groups, thus deepening economic disparities. This research points to a need to implement policy measures and design more effective approaches and robust strategies for climate risk management in order to reduce the damage that climate change has on the economy. Furthermore, attention is paid to the need for the development of international cooperation and collaboration with stakeholders in the context of the solution of these urgent problems. Thus, this article seeks to bring out multiple dimensions of climate change economic impacts to assist policymakers, development assistants and researchers in the process of formulating and implementing an effective and coordinated policy that ensures sustainable development and long–term economic resilience for the people of Pakistan.

Introduction

Global warming is one of the most severe economic concerns for Pakistan, a nation which is at optimum risk because of geographic, socio-economic, and environmental factors. This is especially so given that climate-related disasters, including floods and droughts, are worsening and the negative effects of these disasters on Pakistan's economy is worse. This paper focuses on the economic consequences of climate change in Pakistan having module on agriculture, health, water, and economy. Pakistan has also seen the increasing trend and increasing severity of climate-related disasters in the current several decades. For example, the recent flood in 2010 is valued to be up to the extent of ten billion US dollars, which is about 6 percent of the GDP of the time (Khan et al., 2020). As glaring from the above, immediate loses of such calamities embrace; collapse of infrastructural base, homes and agricultural land that construe macro-economic activities and; loss of employment opportunities. In addition, most of these disasters call for a lot of money when it comes to recovery hence wasting resources on development and increasing the susceptibility to other adverse economic outcomes.

Agriculture is one of the most important and leading sectors that support the economy in Pakistan; 40% of the labor force and contributes 24% of the country's gross domestic product (FAO, 2021). Weather conditions have been predicted to change with close to 40% likelihood that rainfall patterns are likely to shift unfavorably for agriculture prices while close to 50% probability of increases in temperatures that would worsen crop yields. The FAO also stays for – staple crops including wheat and rice could suffer severe losses, with production likely to plunge by up to a third by the year 2050, should nothing be done about climate change (FAO, 2021). Coastal agricultural yields, examples include cassava, are likely to strive low threatening the food security, poverty increases among farmers destabilizing the economy.

Pakistan's water resources are another sector influenced by climate change Water resources: Another worst affected sector of Pakistan because of climate change. The country depends on its largest water resource that is the Indus River system for irrigation as well as domestic use of water; however, changes in climate are going to have an impact on availability of this resource. According to the Pakistan Council of Research in Water Resources (PCRWR) decrease in snow melt water from the Himalayas and inconsistency in monsoon will affect water availability for agriculture and domestic purposes negatively (PCRWR, 2020). Water scarcity affects agricultural yield and productivity immediately; therefore, climate change adversely affects the economy. Thus, there are significant climate change risks for the agriculture, water resources and public health sectors. Higher temperatures and extreme weather conditions enhance the rates of heat injuries and aggravations of diseases borne through vectors like malaria, dengue fever. WHO states that population groups in the situation of increased risk, including those who live in impoverished districts, are at high risk of climate-related health outcomes (WHO, 2020). These health challenges bring about an economic burden which hampers efforts of post- natural disasters and plays the role of a cycle of poverty.

The effects of climate change are not just about how it may directly affect the economy worldwide but also consequential. According to the trends, failure to tackle climate change can potentially exacerbate poverty across many millions of people. According to the World Bank, which estimates that failed efforts in adapting may plunge more than fifteen million people in Pakistan into poverty in 2030; that would be

a reversal of all development efforts spanning several decades. When economic insecurity increases, structure in the communities may decline causing higher unrest and instability in the area. A quantitative assessment evaluating the economics of climate change also needs to take into account policies against climate change. According to the Pakistan National Climate Change Policy, the socio-economic contexts of the target groups must inform the country's adaptation approaches (Government of Pakistan, 2012). It has implications for the need for proper infrastructure, employment of sustainable plant and water management and investment in a stronger infrastructure base that is resistant to climate change. Raising awareness of and strengthening the capacity of all stakeholders interested in the implementation of adaptation measures is critical for improvement of adaptive capacity and climate change resilience.

Furthermore, two that relate to climate main stream strategies include the mainstreaming of climate related factors into national and local development frameworks. This in light with includes encouraging partnership between government, Nongovernmental organization and the people to ensure enhanced disaster preparedness and response. This way, it is possible to address both the direct effects of economic shocks and build long-term climate resilience essential to mitigate the negative effects of climate change in Pakistan. Other priorities include innovation in research and data gathering to better measure social costs of climate change. Policy makers can thus seek for evidence based for decision making on how climate related effects are likely to impact on certain economic sectors. Moreover, cooperation with IOs and researchers may open new opportunities and useful information for improving respective local capacities in adaptation and mitigation.

Thus, the economic impacts of climate change in Pakistan are many-folded and hence require urgent, long-term intervention. Outlining the linkages between climate change and economic development as challenging, coherent approaches to minimize negative effects could be determined effectively. Strengthening the agricultural production system will help reduce susceptibility, better water management is prerequisite for achieving long-term adaptive goals, and addressing highlighted public health risks are inevitable in order to protect Pakistan's economy in anticipation of more climate challenges.

Theoretical Framework

This study is grounded in the understanding that climate change poses significant economic risks, especially for developing countries like Pakistan. The economic impacts of climate change in Pakistan are analyzed through the lens of environmental economic theory, which provides a framework to examine how environmental factors, such as changing weather patterns and rising temperatures, disrupt key sectors of the economy. Environmental economics considers the external costs associated with climate change, emphasizing the need for economic policies that integrate environmental sustainability. For Pakistan, where climate-sensitive sectors like agriculture, health, and water resources dominate the economy, the economic effects of climate change are far-reaching. This framework highlights the necessity of incorporating economic measures that account for these disruptions, which can lead to widespread economic instability and hinder overall development.

To further understand how Pakistan can cope with the economic impacts of climate change, vulnerability and resilience theory is applied. This theory explores the capacity of a society or system to withstand and recover from external shocks, like climate-related disasters. Pakistan, due to its geographic location and reliance on natural resources, is particularly vulnerable to climate change. By examining the country's

vulnerabilities, particularly in agriculture, health, and water sectors, this theoretical approach helps in understanding the specific challenges Pakistan faces. Resilience-building strategies are essential for mitigating economic losses. Therefore, this study focuses on identifying effective policies and practices that can enhance Pakistan's resilience to climate-induced economic shocks, fostering an adaptive capacity within both the public and private sectors.

Public policy theory further deepens the analysis by considering how government interventions can mitigate the economic effects of climate change. Effective public policies are key in addressing climate change through initiatives like climate-smart infrastructure, sustainable agriculture, and integrated land management systems. The study examines how these policies can shape Pakistan’s economic response to climate change, focusing on the role of government in promoting sustainable practices and fostering resilience in vulnerable sectors. Public policy theory allows the investigation of how decision-makers in Pakistan can develop strategies to build a more climate-resilient economy, balancing short-term economic needs with long-term environmental sustainability.

Thus, the theoretical framework of this study combines environmental economics, vulnerability and resilience theory, and public policy theory to provide a comprehensive view of how climate change impacts Pakistan’s economy. This approach helps to not only identify the economic risks but also proposes strategies for building resilience and formulating policies that address the adverse effects of climate change on key economic sectors.

Prime Objectives of the Research

This research is significant as it addresses the urgent need to understand how climate change is affecting the economy of Pakistan and similar climate-sensitive countries. Given Pakistan’s geographic vulnerability and socio-economic challenges, the country is highly susceptible to climate-induced economic risks. This study focuses on the critical sectors of agriculture, water, and public health, illustrating how climate change exacerbates poverty, food insecurity, and pressures healthcare systems. By analyzing both direct economic impacts, such as crop losses and rising healthcare costs, and indirect effects like inflation and infrastructure damage, the research provides a comprehensive understanding of the economic ramifications of climate change. These insights are vital for policymakers, development agencies, and scholars, as they highlight the real-life consequences of climate change and offer recommendations for climate-resilient development.

In particular, the study underscores the need for increased funding for climate-related projects, especially in agriculture and water management, to mitigate long-term economic damage. The importance of integrating climate considerations into national and local development frameworks is highlighted, ensuring that Pakistan is better prepared to adapt to the evolving climate landscape. Moreover, the research advocates for global partnerships and collaboration with interest groups, emphasizing the necessity of a multifaceted response to the complex challenges posed by climate change. By doing so, the study contributes to enhancing Pakistan’s ability to navigate the economic challenges of climate change while supporting its sustainable development and resilience-building efforts.

From a theoretical standpoint, the study draws on environmental economics, vulnerability and resilience theory, and public policy analysis to explore how climate change affects Pakistan’s economy. Environmental economics, which assesses the external costs and benefits related to climate change, is critical for understanding the economic disruptions caused by floods, droughts, and other extreme

weather events. These events not only damage crops and infrastructure but also trigger inflation, food insecurity, and public health crises. Reports from organizations like the Asian Development Bank estimate substantial economic losses from climate-borne diseases, infrastructure damage, and escalating health costs. In this context, environmental economics provides a framework to quantify the costs of climate change and emphasize the importance of sustainable economic practices.

Vulnerability and resilience theory further enrich the analysis by highlighting the need for Pakistan to build adaptive capacity in response to climate change. Given the country's exposure to climate risks, such as water scarcity and extreme weather events, enhancing resilience through disaster response and vulnerability reduction strategies is essential. The Pakistan National Climate Change Policy outlines crucial water management practices, which are integral to reducing the social and economic risks associated with water insecurity. Effective water management is vital for agriculture and other key sectors, and integrating these strategies into long-term development plans can help Pakistan better cope with future climate challenges. By constructing strong climate adaptation strategies based on regional climate sensitivity, the country can mitigate the consequences of future extreme weather events.

Finally, public policy analysis provides a roadmap for crafting climate-smart policies that protect Pakistan's economic structure while promoting sustainable development. The framework emphasizes the importance of disaster response, vulnerability reduction, and resilience-building as part of the country's National and Local Long-Term Development Strategies. Policymakers are encouraged to adopt these strategies to safeguard Pakistan's economy from the adverse effects of climate change. By fostering climate-smart infrastructure and promoting sustainable agricultural practices, these policies can support Pakistan's efforts to adapt to climate change and secure its economic future. The combination of environmental economics, vulnerability and resilience theory, and public policy analysis thus provides a robust foundation for analyzing the economic impact of climate change and guiding the country toward sustainable and resilient development.

Structure of the Paper

This paper is arranged systematically to enable them dissect the impacts of climate change economically for Pakistan while exploring the problem in its various ramifications. This is done in an attempt to provide top-down as well as bottom-up coverage such that each subsequent section is able to elaborate the earlier sections by importing findings on how climate change impacts Pakistan's economy and various sectors for the socio-economic environment.

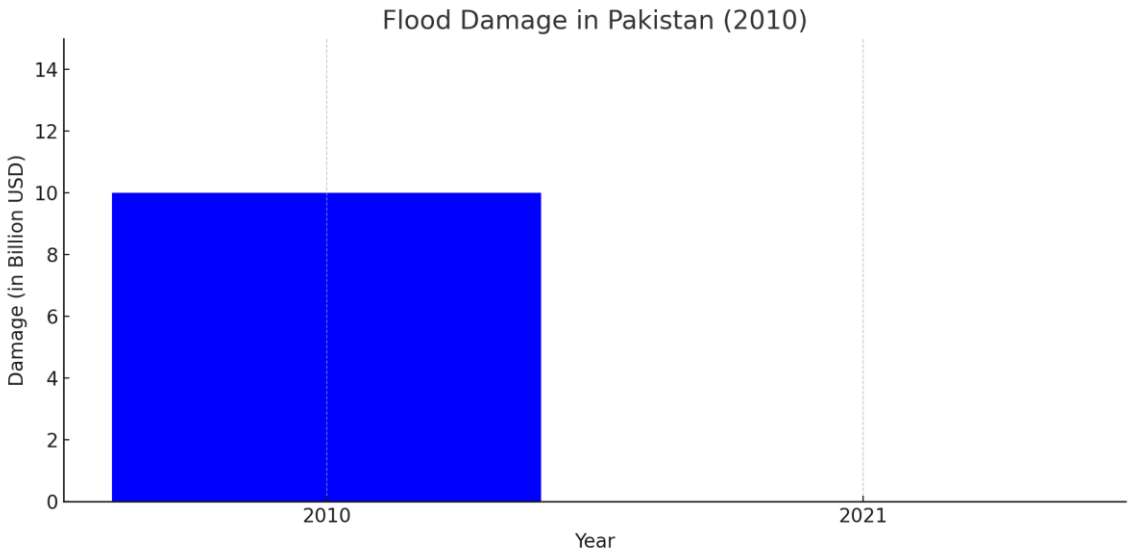
Floods, Droughts, and Economic Impact: Understanding Climate Change in Pakistan

Extreme weather conditions like flood and famine increases the problems of Pakistan's economy stability and growth. Environmental hazards are even more pronounced in Pakistan because of its geographic position, social setting, and strong reliance on agricultural activities that represent the largest fraction of its economy. It is unfortunate that in the past few decades, the frequency of climate related disasters has increased and more of them have become intense; the future seems to be bleak in breathtaking consequences on the economic landscape of the country. Pakistan experience in 2010 flood can be taken as a vivid example of how climate change events affect and severely smite a country's economy. These floods were among the severest natural disasters that had occurred in the country and impacted millions of people and cost the losses around $ 10 billion or about 6% of the country's GDP of in the period (Khan

et al., 2020). The short-term impacts were therefore; Since infrastructure and homes, and agricultural land and production was majorly affected, this disrupted economic activities in the affected areas and the loss of income-generating activities was also felt. The period of recovery was also slow and there were many revealed weaknesses in terms of methods that are applied for disaster management and recovery in the country. In addition, the economic impacts of such disasters do not stop at the basic levels of infrastructure and economy; but they are long-term conditions that trigger more than just disruption of economic developments.

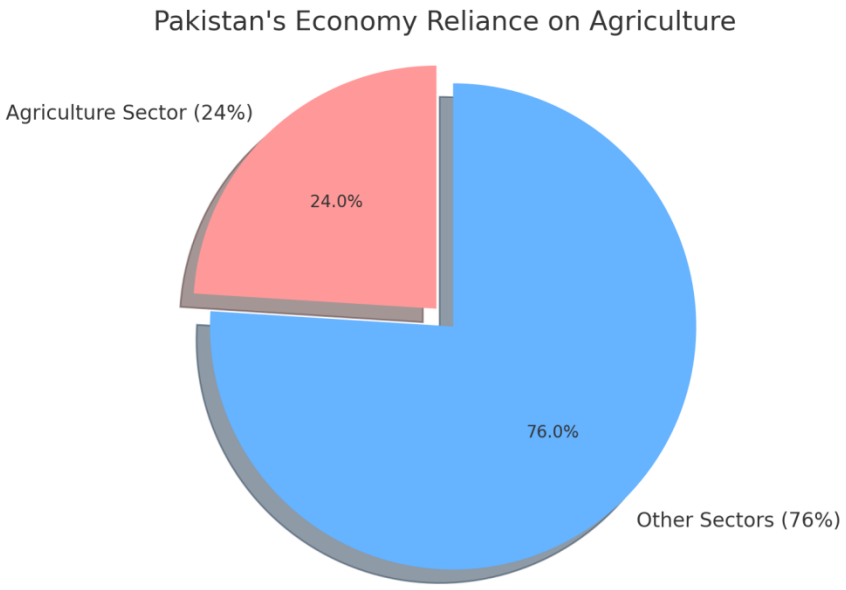
1) **Flood Damage Chart**

This chart shows the breakdown of the losses incurred from floods that occurred in Pakistan in the year 2010 and these losses were estimated to be about $10 billion and of this about 6% of the Pakistani GDP. These include the drastic effect of climate-based natural disasters that leads to the commissioning of such a high economic loss.



2) Agricultural Reliance Pie Chart

The pie chart also shows a percentage composition of Pakistan's economy that agriculture is determining with 24% GDP. This underscores the importance of agriculture to the Pakistan economy and at the same time informs the call for protecting the yield per acre from climate change. They also face severe threat from Droughts which is among the major factors affecting Pakistan's economy. The country has a relatively large agricultural sector the main economic activity that engages about 40% the populace and which contributes approximately 24% to the GDP (FAO, 2021). However, the rains are expected to continue changing and temperatures increasing putting in jeopardy the productivity of the agricultural activity. Research also demonstrated that wheat and rice which are the primary constituents of Pakistan food basket can reduce their yield by 30% by 2050 owing to climate change (Ahmed & Saeed, 2021). When the production of food reduces, the costs of doing business in farming regions rises, making poverty levels and food shortages more rampant.



Another worthy of consideration is the connection between climate change and people's health. Different weather conditions can lead to the emergence of diseases that are difficult for healthcare to deal with and complicate the situation. For instance, changes in temperature regime and its variability have been associated with vector borne diseases such as malaria, dengue fever. This is supported by a WHO report that shows that extreme climate events increase health risks in different ways depending on the population group most affected (WHO , 2020). These health challenges add the economic burden to the recovery from climate disasters making it a vicious cycle of vulnerability.

However, water has become rare in Pakistan, particularly in the agriculture sector in which more than 80% of the population depends on. Climate change impacts on water resources causing issues on water supply and distribution, and threatens the supply of agriculture production. According to Pakistan Council of Research in Water Resources PCRWR, the implication of low snow on Himalayas and unpredictable monsoon season will pose a great threat to water supply, for irrigation as well as drinking water (PCRWR, 2020). These two aspects of climate change lead to socio economic vulnerability whereby the victims are the ones in that part of the population which suffers the most due to even increased vulnerability.

The World Bank also expects climate change to pull millions of people back into poverty, reversing development achievements of the past years (World Bank, 2020). Losing the power of understanding vulnerabilities while disasters caused by climate variation escalate in frequency in terms of intervention with livelihoods and creating more and more economic insecurity, it

becomes a very important importance for policy makers to make efforts in comprehending these vulnerabilities.

Given these challenges, there is need for more effective policy that factor the impacts of climate change in the physical and social economic environments. Governments should focus on sustainable measures that optimize coping mechanisms with the effects of climate change. Measures such as putting in place climate-proof infrastructure, supporting sustainable use of soil and eco-system, Data Manager, comprehensive water control strategies form part of actions towards reducing negative impacts of climate change on economy. The Pakistan National Climate Change Policy notably addresses the question of adaptation measures by including socio-economic profiles of the vulnerable populations (Government of Pakistan, 2012, p. 27). Furthermore, mainstreaming of climate into national and local development frameworks is also important. Of LTPAC, we speak not only of consequences but of the prevention and mitigation of those consequences in the immediate and long term by creating educational programs, raising awareness and engaging with communities on the topic at hand. Disaster mitigation and management are required to reduce the impacts on the economy and especial attention to vulnerable groups.

Therefore, it would be safe to assert that Pakistan greatly understands and feels the consequences of climate change in its economic structures and, therefore requires unfaltering and urgent intervention. Prediction of climatic disasters and focusing onto the various complex issues, it is possible for Pakistan to tailor sound policies for safeguarding its economic security in the backdrop of a changing climate. In other words, learning and practicing resilience and furthering sustainable development is the precondition for reaching more effective development and growth in response to current and future climates.

Real-World Impacts: Case Studies of Climate Change Economics in Pakistan

Environmental Economics is at the center of the framework where implementation of environment policies and changes are analyzed in terms of economy. Recent literature in particular in the field of environmental economics posits that climate change gives rise to external diseconomies or overheads which are costs or gains incurring to the other parties who have no direct commercial transactions with each other. For instance, wider and heavier floods alongside longer or intensified dries entail farmers losses in a manner that translates to food price volatility and fluidity in the national economy (Dasgupta et al., 2019). This paper established the monetary loses relating to climate change by referring to the Asian development Bank (2020) whereby the impacts can be direct through destruction of structures infrastructure or indirect such as cost of lost productivity and increased cost of health care. Some of these measures of water management area we measure which are commendable steps towards managing the effects of climate change on the economy.

The Pakistan National Climate Change Policy highlights the importance of adaptation framework and how future adaptation measures should take into account the socio economic vulnerability of the affected communities (Government of Pakistan, 2012). As well, the consideration of climate within the national and local development strategies is essential. This extends beyond mitigation and treatment of direct effects, prevention and healing to promoting preventive societal and community spirituality and health. Strategies, which should be put in place include developing key frameworks for early warning systems and

for managing the mitigation, response, recovery and relief processes so that the major source of vulnerability and dislocation within the most impacted strata of the population is the economic cost of disasters overlaid by emergent responses to shock.

Altogether, the impact of climate change emits massive economic consequences in Pakistan, which, therefore, requires its resolution without delay. Pakistan must consider these climate-related disaster risks as a complex issue and take appropriate policies to protect the economic future that climate change might bring to the country. Investment into resilience and into the concept of sustainable development is not for the express purpose of combating the present shocks alone, but it is for the purpose of creating long-term, economically secure practices in the face of ongoing climatic impacts. To support the actual economic impact of climate change in Pakistan to be described from actual examples of related events. That is why the economic consequences are deep-seated, especially for an insecure country like Pakistan. Disasters associated with climate change – floods, droughts, and heatwaves, amongst others – destabilize not only climate but also challenge the foundations of economic growth in the area. Therefore, getting a deeper insight into these effects requires comprehension of the theoretical framework responsible for such impacts that guides policy responses and adaptation mechanisms.

The main principle of this analysis is the theory of externalities, which appears in the field of environmental economics. Climate change therefore results in negative externalities whereby costs of degradation of externalities are not captured in the price mechanism. For example, in cases when floods wash away agricultural fields, the immediate effects for farmers and the government are high; however, the long-term consequences for food availability and economic development are rarely included into standard cost-benefit calculations (Khan et al., 2020). Such a division raises concerns about the lack of coherent economic frameworks which would make policy decisions based on the environmental costs; thus, improving the understanding of the costs of climate change set within the scope of economic burden.

However, vulnerability theory offers a basis for explaining the effects of socio-economic factors on a given community's ability to cope with climate effects. Agriculture remains the largest source of livelihood in Pakistan and remains highly vulnerable to climate change shocks. Several pieces of research show that variability in temperatures and rainfall decreases productivity in crops thus deepening poverty and food difficult in rural communities (FAO, 2021). According to the recent estimates of the World Bank, vulnerability to climate change impacts may push millions of people back to poverty and negate progress (World Bank, 2020). This goes to explain the centrality of responding to climate risks together with poverty and wealth inequity concurrently. By using resilience theory this discussion is also supported by the capacity of communities and economies to withstand and bounce back from climate shocks. Therefore, not only are there reactive solutions but also the optimized developmental activities to improve the adaptability and strengthening factors. In Pakistan, resilience can be built through the implementation of climate risks mitigation in infrastructures, agricultural practices and water management (Government of Pakistan, 2012). However, applying measures such as use of new drought tolerant crops and sustainable water management could reduce such effects on the agricultural productivity hence reducing climatic change impact on economy (Ahmed & Saeed, 2021).

In addition, the relationship between public health and economic stability has to be taken into consideration. Climate changes those health hazards making them worse, and therefore effective health reduces economic productivity. Some of the direct health impacts of climate change include the possibility

of whopping vectors, increased cases of flooding, heath illness, increased outbreak of heat-related diseases, and more severe diseases placed an extra burden on health care systems and their corresponding losses to health care costs and labor productivity (WHO, 2020). CC and H apply introduced collaborative health approaches that interlink environmentally sustainable policies for economic recovery. The SDGs also contain relevant information for the analysis of their impact on a wider range of climate change on economic stability. The last goal 13 itself aimed at urgent need to address the climate change and its impact therefore raising the need for mainstreaming climate change consideration into development process (United Nations, 2015). This paper finds that harmonization of Pakistan's policies with the SDGs can lead to mutually reinforcing relationships that improve the country's environmental and economic efficiency. Therefore, employing environmental economics, vulnerability and resilience theory and public health implications of climate change, theorizing economic implications in Pakistan need intricate theorizing. Focusing on these aspects, it is possible to determine the necessary governmental policies that can help to respond to the current economic losses caused by the climate change and at the same time develop effective strategies for reaching sustainable development in the future. The directions for future climate resilience require a collaborative analytical approach in order to strengthen adaptive capacities, decrease risks as well as ensure intrinsic climate equity for Pakistan, preserving its economic progress when exposed to further climate impacts.

Recommendation

Policymakers in Pakistan need a sound understanding of climate change economics; in relation to the above-discussed factors, the following recommendations can be implemented across the board. The working proposals outlined below are intended to boost resilience, advance sustainable development, and reduce the cost of climate change on the global economy.

- Infrastructure protection from the negative impacts of climate change is an objective that requires investment through funding for climate resilient infrastructure. It means main attention should be paid to creation of sound flood protection, water control structures, and flood-resistant structures in Pakistan. The government can use its resources to expand current facilities most of which can be flooded during a natural disaster. Cooperation with such financial institutions can enable governments to source funding and technical assistance for massive infrastructure works designed to improve climate resilience.
- Climatically the future climate volatility poses certain threats to Pakistan, therefore, there is a need to promote a sound agriculture which is a back bone of economy. The government should promote the use of climate smart production techniques in the farming sector including use of drought tolerance crops, water conservation techniques and proper pest control. It is clearly seen that education about poor practices leads to increased yields, reduced pollution in the environment. Further, rewarding Agric-organizations for financing these practices and offering subsidies can extend the effective implementation across the agricultural industries.
- Water resources management thus can only be fundamental in addressing some of the tests that climate change poses. High level of water allocation, conservation and infrastructure investment is essential for Pakistan to frame out water management policies and strategies. Developing capabilities of dams and associated structures, improving status of irrigation and drainage

systems and development of efficient technologies in rainwater harvesting. Poverty reduction policies seek to facilitate an equitable distribution of water both for supply and access especially in the face of climate changes that will reduce supply of fresh water.

- Climate change must inform all levels of national and local policies. The new policies of the government should therefore be influenced by climate change by updating the earlier policies to embrace sustainability and resilience. This involves incorporation of the development framework with the Sustainable Development (SDG) where the 13th one is on; climate action. It is also important to clearly define a legal environment for private sector involvement into climate change adaptation to investments as well.
- Science and technology remain important in analyzing and finding solutions to the impacts of climate change on the economy. There is need for the government to fund research programs on climate mitigation and adaptation, best practices in agriculture as well as soil conservations. Partnerships with universities and global scientific bodies can make learning more effective in climate resilience technologies available in the market. A national research agenda on climate change can help prioritize with regard to funding and work on issues that will have the greatest impact.
- Climate change requires community involvement in the formulation of coping strategies. The government and NGOs should use this approach in sensitization of the citizens on the effects of Climate change and need to be prepared. Involving community participation in decision making on adaptation is noble because it enables climate change adaptation interventions to target the affected communities uniquely. Formation of Local climate action committees can revive top-down adaptation and ensure communities own programs.
- It is true that effective early warning systems for climate disasters are highly effective in preventing economic damage and threats to human life. It is recommended that these systems should encompass weather forecast frequent and precise, disaster management plan, and clients' education on surviving disaster. Using other forms of media and especially over and communication technology the needy information gets to the needy people in time. Education can help people to become more prepared to catastrophes which means that cooperation with global meteorological agencies would improve the potentiality of forecasts.
- International financial institutions should design financial instruments targeted at increasing the climate resilience. Government should consider using information like climate bonds, insurance establishment, and micro-finance for climate change adaptation projects. These financial instruments can avail funds for the communities and business to fund climate resilient measures. Furthermore, it is important to tap international climate financing of programs like the Green Climate Fund to spur adaptation fund.

The adaptation strategies would require cooperation from local governments because they are usually the ones that feel the impact of climate change most directly. Specific capacity building efforts should be targeted at responding to the question how local authorities could be prepared to address challenges posed by climate change impact. Courses in DRM, climate fund and sustainable development, can increase the capacity of Local Government to address climate risks.

One way of building capacity and promoting sustainability is through developing collaboration between local governments and national agencies.

- Climate change issue is a global one and therefore calls for a global response. Pakistan should enhance collaborations with development partners and international organizations, other governments, and international NGOs in terms of knowledge exchange, exchange of innovative experience, skills, and technologies in practicing climate change adaptation and climate resilience. Involvement in climate change dialogue at the regional level will enhance learning and promote regional collaboration in dealing with such cross-cutting issues as water resources management and disaster risk management.

Accordingly, the management of the economic impacts of climate change in Pakistan should involve the area factors of infrastructure development, sustainable development initiatives, water resources management, policy coordination and public mobilization. With these recommendations' aid, Pakistan can become more climatically secure and raise the protection of its economy and sustainable advancement. Multilateral cooperation and partnerships at the domestic and global systems will prove responsive in addressing the emerging intricacies of climate change and promoting the resilience of the country economy.

Conclusion

In conclusion, this paper is of the view that climate change is a core reality of Pakistan which has vast economic repercussions critical to social, economic and physical development in Pakistan. Finally, the analyzed case: the floods of 2010 and continuing droughts concretize the direct and indirect effects on economy with costs in billions of dollars and great loss of agricultural production. Pakistan's agriculture sector is a crucial component of the country's economy and important to producers worldwide due to climate change, which threatens food production practices that are essential to feeding the world's growing population. Further, implementing the health sector faces challenges as diseases resulting from climate change affect the growth of the economy in the nation. To respond to these challenges, more attention should be paid to the financing of climate shame-proof structures and a transition to climate-compatible agriculture. The authorities are to focus on the creation of the policies for adaptation, which has to be closely connected with key socio-economic significance; thus, there is a need to see a well-coordinated approach to the usage of the ideas, potentially boosting the idea of long-term resilience. Thus, Pakistan should move systematically to reduce the potential economic costs of climate change and learn how the climate environment may change to ensure it prepares for the eventualities of the future economy.

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