

Climate change and Economic Implications in India and Pakistan



Dr Tahira Parveen	Assistant Professor Department of IR and Political Science Lahore Garrison University, Lahore. Tahiraparveen@lgu.edu.pk
Ismail Khan	Ph.D. Scholar Department of Management Sunway business School Sunway University Malaysia. Ismailwazir048@gmail.com
Muhammad Siddique	M.Phil. Scholar International Relations, University of Sindh, Jamshoro. Siddiquemuhammad4485@gmail.com

Abstract: *This study investigates the diverse ramifications of climate change on the economies of India and Pakistan, two adjacent countries in South Asia that encounter comparable environmental obstacles. The primary objective of this study is to examine the interrelated dynamics between climate change and economic indicators in various nations by conducting an extensive review of current literature, statistical data, and economic models. This study examines the various impacts of climate change on important sectors including agriculture, water resources, energy, and infrastructure. It critically evaluates the susceptibility and ability to adapt of different economies. Considerable emphasis is placed on extreme weather phenomena, alterations in precipitation trends, and escalating temperatures, all of which play a role in the disruption of conventional livelihoods and economic endeavors. Moreover, the study delves into an examination of the policy responses and adaption methods that have been implemented by India and Pakistan in order to alleviate the detrimental impacts of climate change on their respective economies. A comprehensive examination of these initiatives provides insight into the efficacy of existing measures and underscores prospective avenues for enhancement and cooperation between the two nations. Furthermore, the study examines the macroeconomic ramifications of climate change, encompassing its impact on gross domestic product (GDP) growth, employment dynamics, and the distribution of income. The*

Keywords: Climate change, Economic implications, India, Pakistan, Adaptation strategies, Sustainable development

Introduction

Climate change, which has harmed human civilization's survival, is a severe challenge to the human race in this century. The phenomenon of climate change is, in its most basic form, the result of atmospheric changes that, via gradual natural processes, cause alternations in the world's ecosystems and biospheres. Both natural and man-made processes contribute to climate change. Methane, CO₂, nitrous oxides, and other harmful gases are released into the air by

people as a result of a variety of home, commercial, and industrial activities (IPCC 2014). The debates regarding climate change have picked up more steam in recent years. The dangerous effects of these variations in climate change have also stoked political debates. The representation, resemblance, and interpretations along South Asia, particularly India, will be severely impacted by climate change in the near future due to its varied topography. Climate change is expected to have a significant impact in this region because the country is rapidly

depleting its natural resources and destroying its environment, primarily as a result of urbanization, industrialization, and economic growth. In its attempt to conserve its rapidly decreasing natural resources, India faces a grave environmental and socioeconomic problem. As a result of the growth of numerous contaminants in the atmosphere, the quality of the water and air is getting worse every day.

In addition, the nation's coastal eco-systems, biodiversity, and agricultural output will be the area's most vulnerable to the effects of climate change. Additionally, the area is already vulnerable to natural disasters like the 2013 landslides and floods in Uttarakhand, the 2015 Chennai floods, and the 2016 drought. Additionally, there is evidence that many extreme weather occurrences, such as heat waves, prolonged dry spells, and intense rains, are becoming more frequent and/or powerful. Hunger, illness susceptibility, loss of income, and loss of a way of life are only a few of the negative effects of such catastrophes. 15. The World Bank predicts that a 2 °C rise in global average temperature over the next few decades will only enhance the erratic nature of India's monsoon season. The change in weather patterns across India is expected to leave some places under water and others without even enough water for drinking. More than 60% of the cropland in India is rain-fed, making it extremely susceptible to variations in precipitation patterns brought on by the climate. By the 2050s, water for agricultural production in the Indus, Ganges, and Brahmaputra major rivers is predicted to decrease even more, potentially affecting the sufficiency of food for 63 million people with a rising temperature of 2 °C to 2.5 °C over pre-industrial levels.

Effects of climate change on Pakistan

Climate change is occurring quickly and has an adverse effect on Pakistan. Pakistan's geographic location puts it in a region where the effects of climate change are being severely felt. The main indicators of climate change in Pakistan are "disasters including floods, droughts, and other natural calamities" This climate catastrophe has a significant influence on the economy, society, and environment. The

devastating effects of the 2010 floods on the 20 million individuals who lost their homes, were injured, or went missing are shown through statistics. Similar to how another flood in 2012 devastated Pakistan. Climate change in Pakistan puts things like security, income, and shelter in danger (Aftab & Hickey, 2010).

The Pakistani government must act decisively to combat the harmful effects of climate change in light of the stark facts. Undoubtedly, this topic has caught the attention of the appropriate authorities, who also view it as a delicate and important matter (Rasul et al. 2011). Pakistan has taken a number of actions, including developing a climate strategy and action plans. The country of Pakistan implemented its first climate change strategy in 2012. In fact, the National Climate Change Policy's (NCCP) implementation was a significant development. More than 120 policy initiatives from the NCCP are suggested for various domains. Despite producing very little greenhouse gas emissions, Pakistan is one of the nations most impacted by climate change in the ways listed below. It is anticipated that as the Himalayan glaciers continue to melt, Pakistan may see more frequent flooding. According to predictions, there would be less fresh water available for life's necessities, putting people's lives in danger and leading to dire conditions for the population. Communities along Pakistan's southern Arabian Sea border are most at risk due to the increased likelihood of flooding brought on by climate change. Agriculture has a significant role in Pakistan's economy (Banoori, 2012).

The yield of the crops is at risk due to the challenges posed by climate change, which has a direct impact on the population's way of life and leads to many other social issues, including poverty and urbanization. According to projections, diseases like cholera are on the rise in Pakistan's coastal regions as a result of climatic issues. Due to resource depletion and economic harm, climate change is also worsening social inequality in Pakistan. Economic disparities, population migration, and tense situations will worsen. (LEAD, undated)

As was previously mentioned, devastating flooding in Pakistan has caused a significant loss

of life and economic output. People had to flee their homes to protect their lives. This natural disaster caused their homes to be devastated. We have now moved into a new phase. Global temperatures have increased dramatically in almost all nations. As Pakistan experienced extreme cold, the prime minister instructed the relevant agencies to give homeless people temporary shelter. The first shelter houses in Pakistani history were built. A new year has begun since then. It is hoped that the international community, particularly Pakistan, will act seriously and urgently to address this issue. With the way the world's climate is changing, there is a significant potential that Pakistan may experience catastrophic effects such as floods, famine, hurricanes, erosion of the coastlines, and decreased agricultural growth. Pakistan is ranked seventh globally in the Global Climate Risk Index of 2017, with recorded damages from climate change totaling US \$3.8 billion (PPP) between 1996 and 2015. (UNDP, 2018).

Outcomes on Pakistan Economy

Agriculture is the foundation of Pakistan's economy, these unexpected changes in the global environment represent a significant threat to Pakistan's agricultural sector. Global reports place the country as the 12th most seriously threatened country as a result of these erratic weather variations. The country's water resources, forests, and agriculture, which are primarily what the country depends on for its livelihood and economy, are very vulnerable to the different degrees of temperature rise and alterations in precipitation. In particular, it is anticipated that the rapid rise in temperature will affect the bio-physical relationships among fisheries, cattle, crops, and forests by shortening their development seasons, changing species patterns, altering water requirements, and amplifying pests and diseases. The consequences of climate change on the agriculture industry and natural resources would vary due to different agro-ecological regions. The western mountainous region is dry by nature, and the sudden rise in temperature could hasten this process, which would have a huge influence on the water resources that are

extensively used in the production of energy and agriculture. These western hilly regions are currently under severe threat from many natural and human activities, which is why ecological damage in these places is ongoing (Ullah, 2017).

For a nation to improve food protection, living standards, and rapid economic advancement, its agriculture sector must be functioning correctly. According to statistics from developing nations, agriculture production accounts for a significant portion of their GDP (GDP). Therefore, without increasing agricultural output, economic advancement is inevitable. Arable land serves as Pakistan's primary natural resource, and the agriculture sector contributes 21% of the country's GDP, according to the Economic Survey of Pakistan (2011–12). In addition to that, the country's agriculture industry employs 45 percent of the labour force, and its overall profit margin is 18 percent from exports. Examining the impact of environmental change is now essential. It is now necessary to investigate the effects of environmental change on major crops in Pakistan, given the importance of agriculture to the country's economy and how temperature and precipitation are affecting them. (Siddiqui et al, 2012).

Growing agriculture poses a direct danger to Pakistan's industrial sector, which in turn will have a detrimental impact on the economy of the nation. Climate change will undoubtedly have an impact on our ability to produce food and energy sustainably. It has direct and indirect effects on energy and food security by posing a serious threat to food manufacturing and final product quality. Then, as a result of natural disasters brought on by these abrupt environmental changes, the world's natural food and energy supplies are continuously running out. Unfortunately, floods have caused significant economic damage to Pakistan's infrastructure and agricultural industry over the years (Zafar, 2015).

In particular, the 2010 flooding cost US\$ 9.6 billion in damage, and five further floods since 2010 have cost the economy more than US\$25 billion. Public infrastructure, health, irrigation, agriculture, and education infrastructure were the sectors that suffered direct losses. The

production of cotton, which is crucial to Pakistan's economy because the majority of the nation's businesses are connected to it, has suffered greatly as a result of the current scenario. Extreme environmental challenges, urbanization, and population growth are all contributing to security concerns. The United Nations has already forecast that the world's population would likely expand from its present level of 7.2 billion people to 8.1 billion people by the year 2025. Like other countries, Pakistan is experiencing massive population growth as well as adverse effects from the country's climatic circumstances on its economy. Furthermore, it has been noted that persistent heat wave patterns and a sharp increase in temperature are having a significant negative impact on food production and the sustainability of energy, which has caused an extraordinary increase in electricity consumption relative to production capacity due to warm weather, ultimately leading to an increase in prices due to excess utilisation relative to production. Thus, it is abundantly obvious that the worldwide change in climate patterns is closely related to socioeconomic issues, and both regional and national plans that are sustainable and long-term are needed for rapid economic growth (Zahra & Batool, 2016).

Guidelines for National Level Policies

To Pakistan's credit, they have demonstrated support for all international climate change initiatives; an appropriate illustration of this is their adoption of all SAARC (South Asian Association for Regional Cooperation) climate change statements, including the 2010 Rural Municipal Declaration. The national climate change policy is widely believed to have been influenced by Pakistan's 2010 floods, which were the worst floods the nation has ever experienced.. Pakistan is actively pursuing funding from international sources, primarily the United Nations, for this purpose (UN). This viewpoint is illustrated by the statement made by Pakistan's Foreign Minister at the UN General Assembly in September 2010: "Climate change, with all its severity and unpredictability, has become a reality for 170 million Pakistanis." "The present situation in Pakistan reconfirms

our extreme vulnerability to the adverse impacts of climate change." Most importantly, Pakistan is lobbying to emphasize this expression "particularly vulnerable developing countries" in UN agreements that are to be signed in the future (Khan, 2010).

With support from UNDP, the Pakistani government launched a US\$37 million project in 2018 for the people who were most negatively impacted by climate change. The Green Climate Fund (GCF) is a five-year project for Gilgit-Baltistan and KPK's most vulnerable communities. This project's mission is to support Pakistan in meeting its 2030 targets for eradicating hunger and poverty and other sustainable development goals. Pakistani women make up more than half of the project's beneficiaries, which will help the nation's attempts to address gender inequity. (UNDP, 2018).

Climate Change after the Corona Pandemic

The coronavirus, which first appeared on the planet in late 2019, beginning in Wuhan, triggered a national and international emergency. The epidemic caused serious harm to both the domestic and global economies. Environmental scientists have observed some positive effects of it on the environment in addition to its negative effects because of the restrictions on activity. The issue of climate change in the post-corona virus world was brought up by Fred Pearce in his article "After the Corona Virus, Two Sharply Divergent Paths on Climate." 2020 (Pearce). In this sense, two opposing viewpoints the optimistic and pessimistic views are gaining traction.

Some academics are optimistic that, following the coronavirus, it will be simple for policymakers and environmentalists to address environmental concerns because, as a result of the global climate change lockdown during the pandemic, a recovery has been shown. Bill Gates shares this upbeat perspective, predicting that the world would be ready to accept responsibility for climate change after the coronavirus in order to prevent further deadly circumstances. According to Glen Peters, the research director at the Center for International

Climate and Environment Research, CONVID-19 and carbon dioxide emissions are closely related. He added that the unexpected decrease in CO₂ emissions was brought on by the global shutdown brought on by CONVID-19. This drop in CO₂ emissions was not even noted during the 2008 financial and economic crisis (Peters, 2020).

The pessimistic viewpoint, on the other hand, is also significant because it has historically held true. As the virus has caused an economic catastrophe worldwide, nations will be more concerned with stabilizing their economies in the post-corona age than with protecting future generations from a climate emergency. The desire of nations in the future to preserve their economies will set aside the climate issue, which has had an adverse impact on the earth for years. After CONVID-19, critics anticipate a leap backward rather than an advance. Governments will reportedly make frantic attempts to stabilize their economies, and for this reason, the use of ancient, energy-intensive industries and fossil fuels for industrial purposes will gain momentum. These actions will counteract the negative view of climate challenges and CO₂ emissions in this way. 2020 (Pearce).

The pandemic caused a serious setback to Pakistan's economy, which was already under strain under the Imran Khan government. The initial assessment study made public by Islamabad estimated the CONVID-19-related economic loss at a staggering 2.5 trillion (Haider, 2020).

When considering the effects of climate change on Pakistan, it is already evident that Pakistan's contribution to carbon dioxide emissions is negligible despite Pakistan experiencing enormous effects of climate change in the form of floods, heat waves, droughts, and the melting of glaciers, among other things. Applying Fred Pearce's two perspectives on the globe following the Corona virus, it is obvious that Pakistan has the greatest likelihood of being included in the gloomy perspective. Imran Khan stated in a speech at the UN Climate Action Summit in 2019 that Pakistan is considering greenhouse gas emission reduction as a means of addressing the issues brought on by climate change.

However, following the Corona virus, Pakistan will attempt to restore its faltering economy, which increases the likelihood that climate change will be given a lower priority, which in the opinion of pessimists is a green light for climate issues. In addition, when the globe desperately begins to industrialize using energy-intensive fossil fuels after the coronavirus in an effort to salvage their economies, Pakistan will be among the most vulnerable nations to climate threats.

Strategies to cope with climate change

Climate change is a severe problem in the modern era. It is crucial to connect with the public and raise awareness of its dangers. Climate change is not given enough attention by people. The general public should be made aware by media tactics that taking no action carries risk. The general public, farmers, fishermen, vulnerable communities, young people, people with disabilities, school-age children, policymakers, opinion leaders, researchers, civil servants, and the business community are among the target audiences for this endeavor. Reading materials, advertising materials, phone calls, SMS, in-person conversations, online, audiovisuals, documentaries, talk shows, music, and the curriculum are all examples of communication methods that can be used for this purpose (ESPACE, n.d.).

Adopting sensible mitigation and adaptation policies is necessary. It is important to establish a community that provides information on climate change adaptation and mitigation. Reliable information should be used for this. The main cause of climate change is toxic emissions. The number of such automobiles must be decreased. Instead of using private transportation, one should develop public transportation-oriented behavior. Hybrid automobiles should be used as they emit fewer pollutants. Fossil fuel use should be minimized because it is one of the main causes of environmental deterioration. Alternative energy sources, including wind, bio, hydro, and solar energy, should be utilized in its place. Renewable energy sources are the best solution to climate change. (Shahzad, 2015).

The issue's core is good governance, and any potential solutions can only be implemented if the government frames and designs effective decision-making that can be implemented. Priorities should guide the development of policies for adaptation and mitigation, which should then be carried out strictly. Dam building is necessary to evaluate and address Pakistan's growing water crisis, as is taking steps to lengthen the useful lives of current storage facilities. (GOP, 2012).

After COVID-19, it is crucial for people to alter their lifestyles since sudden automobile use and high-speed economic activity can put the planet at risk of yet another catastrophe in the shape of a climate explosion. Governments must use renewable energy sources for this purpose if they want to stabilize their economies after being affected by the coronavirus. At the national and international levels, a reasonable and cooperative attitude should be used.

The effects of climate change on India

Uttarakhand Disaster 2013

One of the greatest disasters in recent memory struck the state of Uttarakhand on June 16, 2013, causing significant harm and loss to both lives and property. Flash floods and extremely heavy rainfall struck the state. The state's whole district system was impacted. The state's Baleshwar, Chamoli, Pithoragarh, Rudraprayag, and Uttarkashi districts were the five hardest affected. Due to the accident occurring during the busiest travel and pilgrimage season, there were more fatalities, and rescue and relief efforts took longer to complete. The Rudraprayag district's Mandakini valley, where the tragedy was most severe, was the area most affected. Flooding at the Kedarnath Shrine and the surrounding areas was caused by torrential rain. Other pilgrimage sites in the state that draw a large number of visitors during the summer, such as Gangotri, Yamunotri, and Badrinath, were also impacted. For days, many were left stranded and forced to seek refuge in the mountains.

Due to ruined roads, landslides, and debris from flash floods, more than one lakh people were stranded in several areas. According to the State

Government's official statistics from May 9, 2014, 169 people perished overall, and 4021 other people were either reported missing or assumed dead. Be aware that the 2013 Uttarakhand floods were primarily caused by human-induced climate change, according to research released by the American Meteorological Society.

Even though the report did not state explicitly that climate change is to blame for the flooding, it did make a strong case for it. The research claims that the excessive rainfall that was recorded in June 2013 was a century-scale event and that climate change is to blame for the increased frequency of such extreme events based on statistical analysis.

Chennai Floods in 2015

Over 4 million people were affected by repeated torrential rainstorms that occurred in Chennai throughout November and December 2015, flooding the coastal districts of Kancheepuram and Tiruvallur and causing \$3 billion in economic damage. The Deputy Director General of the Delhi-based Center for Science and Environment claims that the Chennai floods were a direct result of the rising global temperature, which broke a record that had stood for 100 years and caused one day's rainfall to equal a month's typical rainfall.

Drought season 2016

In 2016, India went through one of its driest two-year periods, which had an impact on practically the whole nation. May saw temperatures in the state of Rajasthan rise over 51 degrees Celsius. According to the national drought assessment, the country has a moisture deficit of at least 50% from years past. Additionally, according to the Central Water Commission, the water level in India's 91 reservoirs was at its lowest point in a decade and barely represented 17 percent of their overall storage capacity in May. Maharashtra was the area of the country most severely impacted by the severe drought. This area has seen an ongoing water shortage, increased debt, and a rise in farmer suicides during the last five years. The area's predominantly rain-fed agriculture has been impacted by erratic climate trends. The lack of

or limited supply of water in dams, the lack of cattle feed, the lack of cash to launch related enterprises, and unemployment are some of the major issues the people in this region confront. Maharashtra's agriculture has recently been impacted by harsh weather conditions like hailstorms, heat waves, frost, and irregular rains. In addition, the 2013 heat wave in India reduced wheat production by roughly four million tones. The farmers in Maharashtra suffered a tremendous loss as a result of a rise in temperature of just one degree during the blooming stage of the same year.

The most affected areas

When there is a natural disaster or man-made disaster, whether it be flooding brought on by illegal construction, as in the case of Uttarakhand, or rains, as in Chennai, where inadequate arrangements were made for the water to flow out of the city, or the recent drought, which saw an increase in deaths, the poor, the weak, and the underprivileged will bear the brunt of it. The aforementioned incidents from the recent past all showed the same thing. The disadvantaged have frequently been the victims of disasters that were caused by the wealthy and powerful segments of society. They seldom have any means of contacting the legal system and requesting justice. There would be anarchy and people would commit suicide out of desperation, like the farmers in Maharashtra who died from the drought, in those situations where the state fails and the judiciary remains silent on urgent matters of fundamental importance like climate change. Large business houses that contribute significantly to air and water pollution get away with simple "corporate social liability" agreements. The laws are not strict enough to hold offenders accountable. There won't be any legal action against the government for neglect of duty. Cases that do succeed in making it to the Apex Court through public interest litigation only manage to make a little difference in preventing future crises. India has faced a variety of problems as a result of climate change year after year, but we have not learned from our previous mistakes.

Conclusion

Even though they produce fewer greenhouse gases than wealthy countries, developing countries like Pakistan are nonetheless severely impacted by the dangers of climate change. The coronavirus will make things worse because, in the years following the outbreak, the pandemic's economic costs will take precedence over climate change. Due to the high industrial activity following the coronavirus, recovery brought on by the global shutdown will once more receive the green signal of climate change. Pakistan's economy is heavily based on agriculture, so there will be resistance to the problems posed by climate change in that country. Due to the high industrial activity following the coronavirus, recovery brought on by the global shutdown will once more receive the green signal of climate change. Pakistan's economy is heavily based on agriculture, so it won't be vulnerable to the problems of climate change. If the aforementioned suggestions are followed to the letter and in their entirety, the consequences of climate change in Pakistan can be lessened. To deal with the challenge of climate change, adaptation and mitigation policies as well as effective governance would be beneficial. Imran Khan, the prime minister of Pakistan, unveiled a five-year plan in 2018. A significant tree-planting initiative was initiated as part of this plan to counteract rising temperatures, floods, and other climate-related catastrophes. This is a well-planned program that needs to be implemented in schools, colleges, universities or public and private sector.

Reference

- Sustainable development goals. (n.d.). World Health Organisation. Retrieved March 29, 2022, from <https://www.who.int/health-topics>
- The relevance of the sustainable development goals (SDGs) for companies. (2021, January 12). Seventeen Goals Magazin. Retrieved March 29, 2022, from <https://www.17goalsmagazin.de/en>
- Ahsan, A. (2019, September 16). Pakistan and India face common threats climate change

- is biggest one. Dawn. Retrieved January 7, 2022, from <https://www.dawn.com/news/1505534/pakistan-and-india-face-common-threats-climate-change-is-the-biggest-one>
- Zaidi, S. A. H., Mirza, F. M., Hou, F., & Ashraf, R. U. (2019). Addressing the sustainable development through sustainable procurement: What factors resist the implementation of sustainable procurement in Pakistan? *Socio-Economic Planning Sciences*, 68, 100671. <https://doi.org/10.1016/j.seps.2018.11.008>
- P.K.G. (2012). Climate Change and Conflict in South Asia. *Strategic Analysis*, 1(2012). <https://www.researchgate.net/publication/273031393>
- Dr. Mubeen Adnan, F. S. (2021). Climate Change: Impacts on Pakistan and Proposed Solutions. *Pakistan Social Sciences Review*, 5(15May), 229–232
- Field, C. B., Barros, V., Stocker, T., Qin, D., Dokken, D., Ebi, K., & Tignor, M. (2012). PCC, 2012: Managing the risks of extreme events and disasters to advance climate change adaptation. A special report of Working Groups I and II of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK, and New York, NY, USA, 30(11), 7575-7613.
- United nations. (2015, November 7). SDG 13: Climate Action. United Nations in India. Retrieved July 27, 2022, from <https://in.one.un.org/page/sustainable-development-goals/combat-climate-change-sdg-13/>
- S.T. (2020). India, Pakistan, and the Coming Climate-Induced Scramble for Water. Salzburg Global Seminar, oct15, 3–9. <https://www.salzburgglobal.org/news/opinions/article/india-pakistan-and-the-coming-climate-induced-scramble-for-water>
- S.T. (2021). Can the Climate Crisis Bring India and Pakistan Together? Salzburg Global Seminar, jan13. <https://www.salzburgglobal.org/news/opinions/article/can-the-climate-crisis-bring-india-and-pakistan-together>
- B.O. (2021a). Climate Change Litigation: Global Perspectives (1st ed., Vol. 5) [E-book]. Brill | Nijhoff. https://doi.org/10.1163/9789004447615_006
- UN. (2012, March 9). United Nations. Retrieved July 27, 2022, from <https://www.un.org/en/climatechange/what-is-climate-change>
- Pearce, F. (2020). After the Coronavirus, Two Sharply Divergent Paths on Climate” Yale school of forestry and environmental studies. <https://e360.yale.edu/features/afterthe-coronavirus-two-sharply-divergent-paths-on-climate>
- Peters, G. (2020). How changes brought on by coronavirus could help tackle climate change. <https://theconversation.com/how-changes-brought-on-by-coronavirus-could-help-tackle-climate-change-133509>. Rasul, G. Chaudry, Q. Mahmood, A. Hyder, K. & Dahe, Q. (2011). Glaciers and glacial lakes under changing climate in Pakistan. *Pak J Meteorol*, 8(15):1–11
- Siddiqui, R., Samad, G., Nasir, M., & Jalil, H. H. (2012). The impact of climate change on major agricultural crops: evidence from Punjab, Pakistan. *The Pakistan Development Review*, 261-274.

