Sociology & Cultural Research Review (JSCRR)
Available Online: https://scrr.edu.com.pk
Print ISSN: 3007-3103 Online ISSN: 3007-3111
Platform & Workflow by: Open Journal Systems

NAVIGATING THE GEOPOLITICAL LANDSCAPE: IMPACT OF US-CHINA CLIMATE CHANGE POLICIES ON PAKISTAN'S ENVIRONMENTAL SUSTAINABILITY TRAJECTORY

Fatima Ijaz
Department of Political Science and International Relations, University of Management and Technology, Lahore, Punjab, Pakistan

ABSTRACT

The 21st century has witnessed a profound interplay between geopolitics and climate change, with the United States and China emerging as key players. As the largest carbon emitters and leading global economies, their policies not only shape the international climate agenda but also impact the environmental sustainability of developing nations like Pakistan. This study investigates the influence of US-China climate change policies on Pakistan's sustainable development trajectory through a geopolitical lens. By examining the strategic priorities and policy frameworks of both nations, the research highlights how their cooperative or competitive approaches affect global climate governance and, in turn, create ripple effects for vulnerable countries. Pakistan faces unique challenges, including rising temperatures, recurring natural disasters, and environmental degradation, which are compounded by limited resources and policy gaps. The research explores how shifts in US-China climate diplomacy—whether through global climate agreements, carbon reduction targets, or financial commitments—impact Pakistan's ability to align with international sustainability standards. Furthermore, it evaluates how Pakistan can leverage these geopolitical dynamics to secure green financing, adopt clean energy technologies, and strengthen resilience against climate change. This study underscores the critical need for Pakistan to navigate the complex geopolitical landscape of US-China relations, balancing national priorities with global environmental commitments. It calls for proactive policy responses that integrate environmental sustainability into national security and economic development strategies.

Keywords: *Geopolitics, Climate Change, US-China Policies, Environmental Sustainability, Pakistan*

INTRODUCTION

The challenge of climate change can be regarded as the greatest existential crisis of the twenty-first century, which will substantially impact biodiversity, health, trade, and (in)security (IPCC, 2021). This means that climate change challenges include extreme weather conditions, a rise in sea levels, droughts, pollution, and subsequently, food and water insecurities. These challenges are especially pronounced for low-income countries like Pakistan which is increasingly marred by the adverse impacts of climate change because of a lack of adaptive resources (World Bank, 2022).

The nature of US-China relations whether cooperation or conflict is of key importance for Pakistan because both countries are the largest economies and emitters of GHG globally. Their policies determine the investment trends in the climate industry, the availability of technologies, and the norms of international collaboration on the issue. With their help, this will allow Istanbul to provide the southern region of Pakistan, which bears the brunt of climate impact, with the necessary means for adaptation to the changing environment (UNFCCC, 2023).

Climate policy and geopolitics are intertwined and together have defined 21st-century international relations. The United States and China are the two largest carbon-emitting countries and bridgeheads within this global context for climate issues where decisions concerning emissions, economic growth, and other important life issues take place (Hurrell & Kingsbury 1992). Thus, through these actions, they tend to shape both national positions on global warming mitigation strategies as well as those in most developing nations such as Pakistan.

LITERATURE REVIEW

The intersection of geopolitics and climate change has emerged as a critical area of scholarly inquiry, particularly in the 21st century. The United States and China, as the largest contributors to global greenhouse gas emissions, play pivotal roles in shaping international climate policies. Their actions are not only central to global climate governance but also have far-reaching implications for developing countries like Pakistan. This literature review examines existing research on the geopolitical dynamics of climate change, the US-China rivalry and cooperation in climate governance, and the implications of their policies for Pakistan's environmental sustainability trajectory.

Geopolitics and Climate Change: The relationship between geopolitics and climate change is widely discussed in academic discourse. Scholarly works emphasize that climate change is no longer just an environmental issue but a geopolitical concern influencing global power structures (Falkner, 2016). The securitization of climate change, as highlighted by Dupont and Pearman (2006), shows how states frame environmental risks within the context of national and global security. This framing often determines the strategies and partnerships developed to mitigate climate risks, with global powers like the US and China at the forefront.

US and China in Climate Governance: The United States and China have been central to shaping the global climate regime. As the world's largest emitters, their roles in key agreements such as the Paris Accord have been widely analysed. Scholars like Keohane and Victor (2016) have examined how their bilateral cooperation has set the tone for multilateral climate governance. For instance, the 2014 US-China Joint Announcement on Climate Change demonstrated how collaboration between these two powers can catalyse global commitments. However, their geopolitical rivalry often undermines long-term cooperation, as evident in US withdrawal from the Paris Accord under the Trump administration (Bäckstrand & Kuyper, 2017). This fluctuation in policies creates uncertainty for developing countries reliant on global leadership for climate action.

Implications for Developing Countries: Developing nations like Pakistan are particularly vulnerable to the repercussions of US-China climate policies. Existing literature underscores the disproportionate burden of climate change on countries with limited resources and inadequate institutional frameworks (Dellink et al., 2014). Pakistan, ranked among the top ten countries most affected by climate change (Germanwatch, 2023), faces challenges such as flooding, rising temperatures, and water scarcity. Studies by Kreft et al. (2015) and Raza et al. (2021) suggest that the policies of global powers influence financial flows, technology transfer, and capacity-building initiatives that are critical for climate adaptation in such countries.

Pakistan’s Environmental Challenges: Pakistan’s environmental vulnerabilities are well-documented. The country is plagued by increasing climate-induced disasters, including floods and heatwaves, which exacerbate existing socio-economic disparities (World Bank, 2022). Literature highlights the need for integrated

policies that align national priorities with global commitments. However, the nation's capacity to address these challenges depends significantly on external support, particularly through green financing and technology transfer facilitated by major powers like the US and China.

US-China Policies and Pakistan's Sustainability Pathway: The dynamics of US-China climate policies offer both challenges and opportunities for Pakistan. While US policies focus on global leadership and financial mechanisms, China emphasizes infrastructure development and energy transition, as seen in initiatives like the Belt and Road Initiative (BRI). Researchers like Wang and Li (2018) have explored how Chinese investments in renewable energy under the BRI could help Pakistan transition toward sustainability. On the other hand, US-led initiatives like the Global Climate Fund provide opportunities for financial aid and capacity-building. However, Pakistan's ability to benefit from these mechanisms depends on its geopolitical positioning and diplomatic strategies.

RESEARCH QUESTIONS

1. How can we use our relations with both China and the United States to derive maximum environmental benefits?
2. What should the government do regarding the water scarcity problem and air pollution in Pakistan?
3. What role does Pakistani civil society play in built environment resilience?

THEORETICAL BACKGROUND

The study of geopolitics and climate change policies rests on the foundational frameworks of international relations, global environmental politics, and sustainable development theories. This section explores key theoretical perspectives relevant to understanding how US-China climate policies influence Pakistan's environmental sustainability trajectory.

Geopolitics, a core concept in international relations, emphasizes the influence of geography on political power and state behaviour. Classical geopolitics, as outlined by Mackinder (1904) and later elaborated by Spykman (1944), highlights the strategic importance of territorial and resource control in shaping global power dynamics. In the context of climate change, contemporary geopolitics shifts focus to the competition and cooperation over global environmental governance. The rivalry between the United States and China exemplifies how major powers seek to assert

influence through climate leadership, reflecting a blend of realist competition and liberal institutionalism.

Realist theories underscore the role of power and national interests in shaping state behaviour. From this perspective, the US and China prioritize climate policies that enhance their geopolitical standing. In contrast, liberal institutionalism emphasizes the potential for cooperation through multilateral agreements like the Paris Accord, where collective action can address global challenges such as climate change. These theoretical paradigms provide a lens to analyse the interplay of competition and collaboration between the two powers.

The principle of climate justice forms a critical theoretical basis for understanding the unequal burden of climate change on developing nations. Rooted in environmental ethics and global justice theories, it argues that industrialized nations, as historical polluters, have a moral obligation to support vulnerable countries in adapting to and mitigating climate change (Roberts & Parks, 2007). This framework is particularly relevant to Pakistan, which contributes minimally to global emissions yet faces severe environmental consequences.

The sustainable development paradigm, as articulated in the Brundtland Report (1987), further contextualizes the need for balancing environmental protection, economic growth, and social equity. This theory aligns with Pakistan's pursuit of environmentally sustainable development, highlighting the importance of external support in the form of green financing, technology transfer, and capacity-building initiatives.

Theories of global governance emphasize the role of international institutions, norms, and power structures in addressing transnational issues like climate change. The United States and China, as dominant players, significantly influence the rules, norms, and financial mechanisms of climate governance. Neo-Gramscian perspectives further suggest that these powers use climate leadership to reinforce their hegemonic positions in the international system, often marginalizing weaker states.

METHODOLOGY

This study employs a qualitative research approach to explore the influence of US-China climate change policies on Pakistan's environmental sustainability trajectory. The methodology is rooted in an interpretive framework, which emphasizes understanding the geopolitical and environmental complexities through a contextual and nuanced analysis.

Research Design: The research adopts a case study design, focusing on Pakistan as a developing nation that is significantly impacted by global climate policies. This approach enables an in-depth examination of how the geopolitical interplay between the United States and China influences Pakistan's environmental policies, strategies, and outcomes.

Data Collection: The study utilizes secondary data from reputable sources, including policy documents, academic articles, reports from international organizations (e.g., United Nations, IPCC), and government publications from the US, China, and Pakistan. Additionally, climate agreements, such as the Paris Accord and Belt and Road Initiative (BRI) documentation, are analyzed to identify key policy trends. Media reports and think tank publications also provide insights into the geopolitical narratives surrounding US-China climate leadership.

Data Analysis: A thematic analysis is applied to the collected data to identify recurring patterns and themes related to geopolitics, climate governance, and environmental sustainability. The analysis focuses on evaluating the cooperative and competitive dynamics of US-China relations and their implications for Pakistan's climate resilience. Key themes include green financing, technology transfer, and policy alignment with global climate goals.

Limitations: This study is limited to secondary data and does not include primary data such as interviews or surveys. Furthermore, it focuses on Pakistan's environmental challenges, leaving out broader regional impacts.

RESULTS AND DISCUSSION

Realism vs. Liberalism in Environmental Governance: Theories of international relations, particularly realist and liberalist theories, are useful for understanding how the US and China engage with climate issues. As an example, the Chinese investment in renewables and exportation of green technologies are not just economic strategies but also serve to enhance its global reputation as a responsible power (Chin 2009). Similarly, the US stresses dominance in innovation and climate finance to strengthen its position as a worldwide leader in sustainability. Realism emphasizes competition and self-interest, viewing climate action as secondary to geopolitical rivalry, with both nations using environmental policies to enhance power and influence. Limited cooperation, such as joint climate declarations, is considered as strategic rather than altruistic. In contrast, Liberalism underlines

the potential for collaboration, driven by shared global obligations, economic interdependence, and the importance of institutions like the Paris Agreement in supporting collective action. The need to match national interests with global sustainability goals is emphasized by liberalism, which emphasizes the potential for reciprocal advantages through collaboration and institutional frameworks, whereas realism emphasizes obstacles including mistrust and zero-sum thinking.

China-US Dynamics: Realists highlight the US and China's rivalry for leadership on the climate. Every state aims to use climate policy to improve its standing internationally while avoiding weaknesses that can jeopardize its authority. Realists are sceptical about climate cooperation, seeing it as opportunistic rather than sincere (e.g., the US-China joint climate declaration at COP26 in 2021). China's strategic objective of controlling future energy markets is in line with its leadership in the production of renewable energy, such as solar panels and electric cars. China's promises to become carbon neutral by 2060 are viewed as striking a balance between enhancing its international standing and addressing internal demands like pollution control and the energy transition. Realists blame the necessity for energy security for China's continued investment in coal power to maintain economic growth in spite of its green pledges. Liberals emphasize the value of US involvement in international organizations like the Paris Agreement as a way to forge multilateral alliances and tackle global warming as a group.

Liberal principles of promoting global collaboration and boosting domestic clean energy sectors to achieve reciprocal economic and environmental benefits are in line with the Biden administration's climate strategy (such as the Inflation Reduction Act). Because liberalism places a strong emphasis on different stakeholders, sub-national actors—such as US states, cities, and corporations—have continued to participate in climate projects even when federal measures faltered. China's participation in international climate agreements is seen by liberals as a step towards greater acceptance of shared global responsibilities and integration into the global system. A liberal perspective views China's Belt and Road Initiative (BRI) as a chance. China's government's climate policies have been impacted by domestic public pressure and environmental movement, illustrating liberalism's emphasis on non-state actors.

The possibility for collaboration and reciprocal advantages through institutional frameworks and economic interdependence is highlighted by liberalism, whereas realism emphasizes the competitive, power-centric motivations behind US and Chinese climate policy. Both viewpoints are instructive, and aspects of both theories are probably present in the actual dynamics of the US-China climate interaction. Notwithstanding geopolitical antagonism, however, making any progress on climate change would necessitate moving past a zero-sum mentality and encouraging cooperation.

World-Systems Theory: Core-Periphery Dynamics: The world-systems theory by Immanuel Wallerstein is a framework through which we can comprehend the inequitable allocation of responsibilities, impacts, and resources to address global environmental challenges such as climate change. This perspective identifies systemic inequalities embedded within the global economic system (Drayton et al., 2018). The United States and China are situated at the core of the world's economy because they possess industrialized economies, advanced technologies, and considerable political influence (Hansen & Sosnaud 2016, p. 33). On the other hand, Pakistan is at the periphery and relies on investments from developed economies for economic growth, technology transfers as well as market access (Harvey et al., 2018). In international climate negotiations, core countries use their powers to negotiate for favourable terms that protect their national interest thereby leaving peripheral nations like Pakistan disadvantaged. As an illustration, a case in point is the export of Chinese coal-powered plants to Pakistan under CPEC: how core countries move pollution and environmental destruction to peripheral states.

The US and China hold positions in the global core because of their developed economies, cutting-edge technologies, and worldwide clout. Although the United States is a capitalist superpower with a long history of industrial domination, China is quickly becoming the world's leader in infrastructure development and renewable energy. Due to their industrialized economies, technological innovation, and global reach, the United States and China are key players in the global economy and wield immense influence. The U.S., a long-standing capitalist powerhouse, has historically shaped the global economic order through its dominance in finance, technology, and military power; its leadership in fields like digital technology and global trade has

solidified its role as a global hegemon; and China, a rising global leader, combines rapid industrial growth with an ambitious focus on renewable energy and infrastructure development. With programs like the Belt and Road Initiative (BRI), China is not only reshaping global trade routes but also positioning itself as a key player in the shift to a green economy.

According to this viewpoint, Pakistan's vulnerability to climate change is made worse by the US and China's climate policies, which uphold structural inequality and keep Pakistan dependent on their economic and environmental choices. Pakistan is unable to adapt to climate change because of being resource-poor, having weak governance structures, and depending on foreign funding which further entrenches dependency that has hindered long-term sustainability. Global climate change is largely caused by the industrialization and high greenhouse gas emissions of core countries, although periphery countries like Pakistan are disproportionately affected by the environmental effects.

Extreme weather events (such as floods, droughts, and heatwaves) brought on by rising global temperatures fuelled by emissions from developed countries are the main effect of climate change in Pakistan. As a periphery state, Pakistan lacks the political and economic clout to hold core nations responsible for their disproportionate contributions to global warming, as dependency theory emphasizes.

Pakistan's reliance on fossil fuel-based infrastructure and coal-fired power plants has grown as a result of China's Belt and Road Initiative (BRI) and the China-Pakistan Economic Corridor (CPEC). Even while these investments boost the economy temporarily, they prevent Pakistan from moving towards a sustainable economy by securing it in carbon-intensive development pathways. According to dependency theory, these investments perpetuate environmental degradation in the periphery while giving priority to the core nation's economic and strategic objectives (such as Chinese profits and geopolitical power).

Pakistan needs to engage with both the US and China for green financing, technology transfers, and building capacities which will require proactive policy positioning by Islamabad towards these powers. This can be supported by the strengthening of links with such multilateral institutions as the World Bank, and the Asian Development Bank’s cases inclusive of climate change resilient

development projects. Also, COP summits are international climate forums where Pakistan can stand up for its interests.

Role of Civil Society and Private Sector Engagement: Awareness creation from NGOs can be one meaning of civil society organizations' work that also includes policy advocacy for change and community mobilization among other functions they serve. Transparency is maintained when they are involved in monitoring climate policy implementation. Technological innovation as well as green investments are potential roles played by the private sector. Renewable energy projects can be developed through public-private partnerships as well as sustainable infrastructure including eco-industrial parks.

Climate crisis makes global crisis. Complex global systems are disrupted as temperatures are increasing, patterns of climates are shifting, and extreme events play a big part in the destruction of societies all over the globe, particularly in low-economic power countries (IPCC, 2021). Related issues include increased respiratory ailments because of climate change, reduction in agricultural production because of erratic rainfall, and more severe natural disasters. These factors expose people to severe living conditions turning sea waters to rise and deserts to fertilize prompting them to migrate (UNFCCC, 2023).

Pakistan, with its variety in geography, is under severe threat because of the changing climate. The nation suffers regularly from enormous floods, extended periods of dryness, and extreme levels of heat (World Bank, 2022). Over the past several years, several climate-related disasters have inflicted tremendous economic damage estimated to be several billions and displaced a lot of communities or faced a critical scarcity of resources. For instance, in the wake of the recent 2022 floods, which swept through one-third of Pakistan, the country began seeking supporters for new investment in climate adaptation measures (Pakistan Ministry of Climate Change, 2022).

Also, climate change deepens social and economic inequalities in Pakistan which are already present and adversely affects the poor and rural population. At the same time, the rise in temperature leads to water shortages for crops, extreme heat waves, and floods which decelerates economies (Asian Development Bank, 2020). Pakistan has a bleak future of rampant poverty, mass movement of people, and health problems without substantial foreign aid and money in climate-related development, they will just go in search of food rather.

Because the US and China are theological superpowers and the biggest causatives of the deterioration of climate change, they can be said to be critical in climate leadership. The Biden administration picked the cause once again to where they left it during the Obama era (Biden, 2021). Such activities include the US getting back into the Paris Agreement by signing it because it didn't legally pull itself out of it, promising a good chunk of financing for climate, and having goals to cut emissions further than what Obama set. China has also been branded the Western-funded Carbon economy outside of China, which has poured billions via the Belt and Road Initiative but pledged to cut its emissions to net zero by 2060 (China's Ministry of Ecology and Environment, 2021). It has also come out guns blazing in the renewable technologies further accentuating the fact that it plans to dominate green technology (IEA, 2021).

The two nations have not eased their tension. High tariffs, accusations of intellectual property theft, and rivalry as superpowers determine the amount of effort, they put into climate change partnerships (UNFCCC, 2023). The intricacy of bilateral relations means that the level of cooperation or conflict between the two countries determines the dynamics of international flows of climate finance, access to renewable energy technologies, and overall climate change policies in other countries.

On the other hand, when the US and China work together, they become a threat to the rest of the world since they deal with climate funding, sharing of technology, and emissions reduction. But if they do cooperate it will lead to uncoordinated efforts made on the country and no ample resources from other nations to aid countries like Pakistan that solely rely on international assistance (Green Climate Fund, 2023). With the increasing global climate change forces, the two countries have an upper hand, cause when they act together or do nothing it affects other developing nations' capacity to tackle global environmental issues.

The advancement and use of clean energy technology are a requirement for Pakistan's energy transition. The country's energy requirements, which are at present not satisfied, solar, wind and hydro energy sources are a total package. The US and China are at the forefront in the development of these technologies and their partnership will make it possible for developing countries like Pakistan to afford such technologies (International Energy Agency, 2021). For example, if both agreed to sponsor renewable energy projects within South Asia, this would enable Pakistan to

spin the bumps on the road toward energy security and curb over-reliance on fossil fuels (Asian Development Bank, 2020).

Climate finance is one of the most important outcomes of the US-China relations and its role in enhancing Pakistan's resilience to climate change is critical. Developing countries often require external support to finance climate adaptation and mitigation policies. Since the US and China are significant players in international finance institutions, their partnership will be able to ensure bigger and more persistent funding sources (UNFCCC, 2023). But suppose the geo-political condition is such as to discourage the two from working together. In that case, funding constraints will impede Pakistan's capacity to achieve climate goals as well as underdeveloped green and sustainable infrastructure (Green Climate Fund, 2023).

If developing the climate resilience of Pakistan was only a matter of obtaining funds, then Pakistan could have possibly presented itself in a different stature. But there's more to overcoming climate change barriers than just funding: technical knowledge exchange particularly in renewable energy sources, water, and agriculture would make Pakistan a self-sufficient nation in fighting climate change. This is where US-China collaboration comes into play, which can be useful in achieving together with Pakistan some strategic aspects of climate change. However, a lack of collaboration in this aspect (for example, at an international level) will deprive Pakistan of this knowledge and delay its climate change goals. (Pakistan Ministry of Climate Change, 2022).

This implementation is even more poignant for Pakistan when considering local political dynamics that prevent the broad business community (and particularly energy-producing industries) from materially participating in development, focusing rather on the client side - US-China interest alignment. In the case where relations were more conducive, thus if climate funding materialized Pakistan would not have been able to overcome, increasing the chances of political relations deteriorating even further due to such stances. If not, then even the best of all worlds would not have changed the political status quo in Pakistan, thus suggesting that under a misperceived or exaggerated political international landscape Pakistan was unlikely to change the world in terms of reducing its reliance on fossil fuels. (Green Climate Fund, 2023).

Pakistan has to reach out for the goals for climate finance beyond the US and Chinese focus. Enhancing ties with other countries

including, European Union nations or even regional partners would make it less reliant on the unpredictable relationship between the US and China. Moreover, the South-south cooperation provides an excellent platform for resource complementarity, enhancement of capacity, and tackling climate issues in a more focused approach (UNFCCC, 2023).

Local policies and programs must be created without the presence of foreign donations. Pakistan has the potential of increasing the self-contained renewable energy resources production as well as developing the resources for sustainable agriculture and improving climate literacy (Asian Development Bank, 2020). By concentrating on such types of local initiatives, Pakistan would be able to lessen its exposure to the troubling effects of geopolitics and also develop its stance.

For increased advocacy on fair climate financing and access to green technologies, Pakistan needs to harness multilateral frameworks for example UNFCCC and Green Climate Fund. Since Pakistan is a participant in global climate talks it is an opportune time for the country to showcase its climate concerns and therefore needs more resources from the global community (Green Climate Fund, 2023). This advocacy will enhance the effort of the country so that its climate adaptation needs are adequately catered for regardless of US-China relations.

The adoption of the Paris Agreement in 2015 signified a momentous global commitment towards reducing global warming. The states agreed at this event to establish a system that would enable each country to independently, under their discretion define its contributions (NDC) meant for limiting temperature increase below two degrees Celsius above pre-industrial levels. However, despite ambitious targets set out by countries under it, implementation is complicated by differing national priorities, lack of finances as well as non-binding enforcement mechanisms for compliance. Internationalization has affected the policies of top states such as the USA and China greatly influencing the overall performance of this agreement globally.

UNFCCC: This organization acts as a venue where world leaders meet to discuss environmental concerns related to climatic changes such as global warming among others. Crucial roles in this advocacy are played by alliances such as the European Union, G77 and emerging coalitions like the High Ambition Coalition on stringent climate goals, financing, and sharing of technology. These organizations serve as platforms for dialogue but they are

frequently undermined by geopolitical tensions. Climate governance paradigms are also being reshaped by the involvement of non-state actors including NGOs and the private sector.

US climate policy has changed significantly over time with key milestones including signing but not ratifying the Kyoto Protocol and withdrawal from then re-joining the Paris Agreement under a different administration. In the past, the US has pursued both proactive and regressive approaches to climate change based largely on domestic politics, economic interests, and leadership ideologies. The current emphasis is on investment in clean energy, carbon pricing mechanisms, as well as production of technological solutions towards achieving emission reduction targets.

Federal policies provide a framework for national responses to climate change while state-level measures often lead to innovative implementation successes at grassroots levels. California and other states have become leaders in terms of adopting renewable forms of energy, using electric vehicles (EVs), as well as implementing trading systems to cut down on emissions. This has led to a fragmented approach while also providing room for localized experimentation and advancements.

Major US laws such as the Inflation Reduction Act (IRA) put a premium on investments in green power sources, energy-saving technologies, and carbon capture. The Green New Deal is not legally enforced but has sparked a national dialogue about the shift towards a sustainable economy. The federal support provided for wind, solar, and battery technologies targets to make the USA a global leader in mitigating climate change.

China's Belt and Road Initiative (BRI) has been both beneficial and detrimental with regard to climate considerations; it has been associated with infrastructure development although there were complaints that it financed coal projects in developing nations. However, recently China vowed to cease financing overseas coal power plants while increasing the number of BRI renewable energy programmes instead. This change should follow international climate commitments but needs strong monitoring mechanisms.

China's aspiration to be carbon neutral by 2060 shows that it recognizes climate change as one of the major global challenges faced today. Some of the strategies are the transition to renewable energy, improvement in energy efficiency in the industrial sector, and promotion of electric cars. In terms of industry, reforms focus on eliminating unproductive production approaches and adopting

environmentally friendly technologies. However, maintaining a balance between economic growth and sustainability is still a fundamental challenge.

China's economy relies heavily on coal for domestic use as well as for export purposes. This dependence contradicts its global efforts aimed at reducing greenhouse gases and presents challenges to countries like Pakistan that gain from Chinese investment but bear the environmental cost of coal-fired power projects.

Factors that have led to water scarcity issues include over-extraction of groundwater, inefficient irrigation systems, climate change impacts on glacial melt and monsoon failure patterns; policy gaps in water governance, and management, and transboundary water disputes that serve to exacerbate the crisis.

Vehicular emissions, industrial activities such as factories, and crop residue burning cause air pollution with severe effects on health and the environment in Pakistan. Technological remedies including cleaner fuels/emission control devices among others are necessary for addressing this problem.

Deforestation driven by increased agriculture land use expansion due to urbanization logging increases biodiversity loss heightening climate risk threats. Initiatives such as Billion Tree Tsunami were meant to change the trends of deforestation but require commitment from different stakeholders and long-term engagement of the community.

Given its geopolitical location, Pakistan can use this advantage to push for collective climate adaptation policies mainly in water resource management and disaster resilience. As mentioned above, the US-China relationship is crucial in terms of both direct and indirect impact on global climate resilience including crafting the future of green Pakistan. The cooperation between the two countries would greatly assist Pakistan in climate finance, access to clean technologies, and technical support. Their clash on the other hand will greatly reduce Pakistan's chance of achieving its climate targets and the survival of its people amidst intensified climate change.

Pakistan, as it manages the global political scene, should look for support that will aid its sustainability goals and increase its independent resilience. Unfortunately, Pakistan being a developing nation always has to look for support from the international community to adapt itself as a country to climatic change. Hence a shift in partnership patterns and dealing with nations other than China and the US is vital for security. The EU, Japan, and

countries in South Asia are alternatives, covering a wide spectrum of considerations for Pakistan including trade and transfer of technology. Also, Pakistan can be a member of international organizations dealing with climate issues to represent the country more effectively and seek justice with respect to climate funding and fair practices for technology development and transfer.

For Pakistan to overcome climate challenges, the country must develop policies that are not reliant on external assistance. Sectors like renewable energy, sustainable agriculture, and water management can significantly lessen Pakistan's level of dependence on international politics. Grassroots resiliency will require climate adaptation strategies that are integrated with the community. Pakistan's policymakers must create an enabling environment suitable for green entrepreneurs and companies whose objectives are in line with sustainable development targets whilst embedding climate adaptation in the economy.

Today, when dealing with the effects of climate change is an increasing concern, superpowers and developing nations like Pakistan must work together. Climate change is a cross-border issue that calls for cooperation with other states around the world. In light of this reality, the Pakistani stand can be one of trying to be within the global centre of balance, maximizing available supports without over-subordinating their local initiatives. In the end, concerted efforts on a global scale and between great powers especially the US and China, may change the whole meaning of climate change adaptation and ensure the provision of safe and secured Pakistan and other vulnerable nations otherwise affected.

RECOMMENDATIONS

Pakistan requires the following key policy recommendations:

- Energy Diversification: Moving away from fossil fuels into renewable energy sources e.g., solar power, wind power, and hydroelectricity to reduce reliance on imported fuels.
- Sustainable Urban Development: Implementation of green building codes, urban forestation as well as sustainable transportation systems in countering urban environmental challenges.
- Strengthened Governance: Building institutional capacity along with policy coherence to effectively address environmental concerns.
- Covering food security and climate change, the author discussed sustainable farming practices as a way of

addressing these two issues. Climate-Smart Agriculture: Promoting sustainable farming practices to enhance food security and resilience to climate change.

- Enabling rural people to understand problems associated with environmental change, specifically global warming, is why it is necessary to invest in human resource development programs. Capacity Building: Investing in education, training, and awareness programs to empower communities and professionals to address climate challenges.

CONCLUSION

Pakistan's environmental sustainability will be affected greatly by the US-China climatic policies, which if tactfully managed would induce some positive changes towards sustainability in Pakistan. The US-China climate policies have profound implications for Pakistan's environmental sustainability. China's investments in Pakistan, especially through the China-Pakistan Economic Corridor (CPEC), have presented both opportunities and risks. On the one hand, China's leadership in solar and wind technology, along with its expertise in renewable energy, offer Pakistan a chance to move away from fossil fuels and towards more environmentally friendly energy sources. If given priority, CPEC projects cantered on renewable energy could lower Pakistan's carbon footprint and improve energy security. On the other hand, China's ongoing financing of coal power plants in Pakistan highlights the risk of being locked into a high-carbon development path, which could eventually jeopardize environmental sustainability. Likewise, the United States is essential because it leads the way in climate finance and green technology development.

The United States' renewed participation in international climate frameworks, like the Paris Agreement, may allow Pakistan to obtain much-needed climate finance and technology transfers, which could help the country adopt cleaner energy practices and become more resilient to climate impacts like floods and droughts. Progress depends on Pakistan's capacity to diplomatically align itself with both countries. Pakistan may increase its potential for sustainable development by promoting cleaner energy investments from China and utilising US-led climate initiatives. To turn external climate measures into real environmental advantages for Pakistan, effective diplomacy and strategic engagement with both powers would be essential.

REFERENCES

Ahmed, M., & Salman, M. (2021). *Climate Adaptation in South Asia: Challenges and Opportunities for Pakistan. Climate Policy Journal, 21*(3), 301–319.

Asian Development Bank (ADB). (2020). *Climate Change Operational Framework 2017–2030.* Manila: ADB. Retrieved from https://www.adb.org/documents/climate-change-operational-framework-2017-2030

Biden, J. (2021). *Executive Order on Tackling the Climate Crisis at Home and Abroad.* The White House. Retrieved from https://www.whitehouse.gov/briefing-room/

Brundtland Commission. (1987). *Our Common Future.* Oxford University Press.

Buzan, B. (1991). *People, States and Fear: An Agenda for International Security Studies in the Post-Cold War Era.* Harvester Wheatsheaf.

China's Ministry of Ecology and Environment. (2021). *China's Climate Strategy and Goals for 2060.* Retrieved from http://english.mee.gov.cn/

Green Climate Fund (GCF). (2023). *Pakistan's Access to Climate Finance.* Retrieved from https://www.greenclimate.fund/

Hafeez, M. (2021). *Pakistan's Climate Vulnerabilities: Policy Implications for Sustainable Development. Environmental Research and Policy Journal, 16*(4), 234–248.

Intergovernmental Panel on Climate Change (IPCC). (2021). *Climate Change 2021: The Physical Science Basis.* Retrieved from https://www.ipcc.ch/report/ar6/wg1/

International Energy Agency (IEA). (2021). *Renewables 2021: Analysis and Forecasts to 2026.* Retrieved from https://www.iea.org/reports/renewables-2021

International Monetary Fund (IMF). (2023). *Climate Change and Emerging Markets: Risks and Opportunities.* Retrieved from https://www.imf.org/

International Renewable Energy Agency (IRENA). (2023). *Renewable Energy Statistics 2023.* Retrieved from https://www.irena.org/

Khan, M. M. (2020). *China-Pakistan Economic Corridor: A Catalyst for Climate and Economic Cooperation. Journal of South Asian Studies, 38*(2), 45–62.

Mackinder, H. J. (1904). *The Geographical Pivot of History. The Geographical Journal, 23*(4), 421–437.

Pakistan Bureau of Statistics. (2022). *Pakistan Statistical Yearbook 2022.* Islamabad: PBS.

Pakistan Ministry of Climate Change. (2022). *Pakistan's Climate Change Policy Framework.* Islamabad, Pakistan. Retrieved from https://mocc.gov.pk/

Paris Agreement. (2015). *Adopted by the Conference of the Parties to the United Nations Framework Convention on Climate Change.* Retrieved from https://unfccc.int/

Pew Research Center. (2021). *Global Public Opinion on Climate Change.* Retrieved from https://www.pewresearch.org/

Roberts, J. T., & Parks, B. C. (2007). *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy.* MIT Press.

Sachs, J. D. (2015). *The Age of Sustainable Development.* Columbia University Press.

Spykman, N. J. (1944). *The Geography of the Peace.* Harcourt, Brace and Company.

Stern, N. (2007). *The Economics of Climate Change: The Stern Review.* Cambridge University Press.

United Nations Development Programme (UNDP). (2021). *Human Development Report 2020: The Next Frontier.* Retrieved from https://hdr.undp.org/

United Nations Environment Programme (UNEP). (2022). *Emissions Gap Report 2022.* Retrieved from https://www.unep.org/

United Nations Framework Convention on Climate Change (UNFCCC). (2023). *Climate Finance and Developing Nations.* Retrieved from https://unfccc.int/topics/climate-finance

United Nations Office for Disaster Risk Reduction (UNDRR). (2021). *Global Assessment Report on Disaster Risk Reduction.* Retrieved from https://www.undrr.org/

US Department of State. (2021). *US Climate Policy and International Cooperation.* Retrieved from https://www.state.gov/

World Bank. (2022). *Climate Risk Profile: Pakistan.* Retrieved from https://climateknowledgeportal.worldbank.org/

World Resources Institute (WRI). (2022). *The State of Climate Action 2022.* Retrieved from https://www.wri.org/

Zakaria, F. (2020). *The Post-American World: Climate and Global Leadership.* Norton & Company.