



THE
UNIVERSITY OF
LAHORE



CSSPR POLICY BRIEF

**A SYSTEMIC APPROACH OF CLIMATE
CHANGE DESIGN COMMUNICATION FOR
PAKISTAN**

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JULY 2023**

CSSPR

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A Systemic Approach of Climate Change Design Communication for Pakistan

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Introduction

Pakistan has been grappling with a multitude of challenges arising from climate change, including environmental degradation, natural disasters, and displacement. Climate change is increasingly posing a traditional security threat for Pakistan, as it exacerbates existing security challenges such as poverty, terrorism, and international migration. The country is particularly vulnerable to climate risks due to its geographical location, with its economy and social fabric heavily dependent on climate-sensitive sectors such as agriculture, water resources, and energy. According to the 2021 Global Climate Risk Index², Pakistan ranks fifth among the most affected countries by climate change, with floods, heatwaves, and droughts causing significant damage to the country’s infrastructure and economy.



CRI 2000-2019 (1999-2018)	Country	CRI score	Fatalities	Fatalities per 100 000 inhabitants	Losses in million US\$ PPP	Losses per unit GDP in %	Number of events (2000–2019)
1 (1)	Puerto Rico	7.17	149.85	4.12	4 149.98	3.66	24
2 (2)	Myanmar	10.00	7 056.45	14.35	1 512.11	0.80	57
3 (3)	Haiti	13.67	274.05	2.78	392.54	2.30	80
4 (4)	Philippines	18.17	859.35	0.93	3 179.12	0.54	317
5 (14)	Mozambique	25.83	125.40	0.52	303.03	1.33	57
6 (20)	The Bahamas	27.67	5.35	1.56	426.88	3.81	13
7 (7)	Bangladesh	28.33	572.50	0.38	1 860.04	0.41	185
8 (5)	Pakistan	29.00	502.45	0.30	3 771.91	0.52	173
9 (8)	Thailand	29.83	137.75	0.21	7 719.15	0.82	146
10 (9)	Nepal	31.33	217.15	0.82	233.06	0.39	191

The 10 countries most affected from 2000 to 2019 (annual averages)

However, despite the gravity of the threat posed by climate change, there remains an urgent need to change the narrative in Pakistan and raise awareness among the public, policymakers, and security institutions. The traditional security framework tends to focus on military-centric threats, overlooking the nexus between climate change and security, and hindering efforts to enhance resilience and adaptability. Moreover, the discourse on climate security in Pakistan often lacks coherence and depth, with limited research on the linkages between climate change and security, and inadequate engagement with the global climate governance regime³. To address these gaps, it is crucial to adopt a holistic approach to climate security that integrates social, economic, and environmental dimensions, identifies vulnerable communities and areas, and engages with regional and international partners to enhance collaboration on sustainable development and climate resilience. By doing so, Pakistan can develop a more nuanced understanding of climate risks and opportunities and devise effective policies and strategies to mitigate and adapt to the changing climate.

Design Communication for Climate Change Risk Mitigation

Climate change communication in the context of Pakistan will require a systemic approach, which considers the interactions between the various elements of such communication and the complex social, economic, political, and environmental context in which it occurs over time. With Pakistan having been one of the most affected countries by super floods, displacement, and climate-induced migration, the need for effective climate change communication cannot be overstated⁴. However, traditional approaches to communication that focus on changing individual behavior may not be sufficient to address the systemic drivers of climate change, including social and economic inequality, governance challenges, and political instability. Therefore, a systems approach that considers the complex interrelationships between these drivers and the various elements of communication, such as messaging, audiences, channels, and feedback mechanisms, will be necessary to develop more effective and holistic strategies for communicating climate change in Pakistan. This approach will require close collaboration between climate scientists, communication experts, policymakers, and community members to create a common understanding of the challenges and opportunities for addressing climate change and to identify the most effective ways to communicate with diverse audiences across different contexts and sectors. Ultimately, a systemic approach to climate change communication will not only be critical for building resilience to climate change in Pakistan but also for promoting sustainable development and social justice more broadly.

Climate change has given rise to a range of risks and challenges that have disproportionately affected vulnerable populations, both urban and rural, in Pakistan. In this regard, innovative design strategies and advanced technologies can be leveraged to improve communication design and provide information, awareness, and education to people affected by climate change risks. For instance, interactive information and communication technology (ICT) tools such as geotagging and remote sensing can be used to map climate change-induced flood risks accurately. Moreover, animation and visualization to create immersive storytelling experiences can facilitate a better understanding of the complex processes and impacts of climate change. Communication design can also leverage social media and mobile-based applications to enable quick dissemination of information and promote awareness among communities in need. By integrating advanced technologies

and innovative design approaches, communication design can create engaging and immersive communications that can provide useful information and promote behavior change to mitigate the risks of climate change in affected areas such as Pakistan.

Policy Recommendations

Implementing an integrated risk management strategy is paramount in mitigating the repercussions of climate change-related disasters in Pakistan. This encompasses the following measures:

1. Strengthening Early Warning Systems

The need for enhanced flood prediction capabilities and early warning systems in the country has become paramount to providing timely alerts to vulnerable communities. With improved flood prediction capabilities, the severity and extent of the damage can be predicted in advance, giving local authorities, communities, and stakeholders time to prepare and take appropriate action. Timely alerts can help reduce loss of life, protect infrastructure, and reduce property damage. In recent years, Pakistan has experienced a significant increase in the frequency and intensity of floods, requiring a renewed focus on improving early warning systems. The country urgently needs to invest in reliable technologies, timely data collection, and meteorological forecasting systems that are capable of providing accurate and up-to-date information for effective disaster risk management. The protection of lives and property is of utmost importance, and enhanced flood prediction capabilities and early warning systems represent an essential step forward for Pakistan in terms of disaster response and sustainable development. The government must engage the private sector in Pakistan for R&D in this domain.

2. Disaster Preparedness and Response

A citizen audit of the National Disaster Management Authority (NDMA) needs to take place to improvise for better results. Improving Pakistan's disaster response capacities is vital, particularly in light of its unfortunate position as the country most affected by super floods, displacement, and climate-induced internal migration. Given the gravity of the situation, it is imperative that Pakistan effectively respond to catastrophic events. Enhancing communication networks is one such measure, as it provides much-needed connectivity and data exchange between disaster response personnel and victims. This can enable timely and informed decision-making, ensuring that those most in need receive relief and rescue efforts as quickly and efficiently as possible. The training of emergency personnel is another indispensable component of enhancing disaster response capacities. Emergency personnel with relevant training and expertise are better equipped to tackle the logistical and operational challenges that arise during disasters. This can include dealing with the psychological and physical effects on survivors, managing evacuation and shelter efforts, and providing vital medical and humanitarian assistance. With these measures implemented, Pakistan can take meaningful steps towards creating a robust and efficient disaster response system that can help mitigate the impact of catastrophes and save lives.

3. Developing Flood Risk Maps

Creating comprehensive flood risk maps can aid in identifying high-risk areas in Pakistan across all four provinces, thereby informing land-use planning decisions and infrastructure development initiatives. Flood risk maps can play a crucial role in mitigating the effects of climate change in Pakistan. By accurately defining areas that are most vulnerable to flooding, these maps can help policymakers and local authorities make informed decisions about land use and development. This can include the implementation of zoning regulations that limit construction in areas at high risk of flooding and the establishment of early warning systems and evacuation plans for communities living in flood-prone areas. By providing a better understanding of flood risk, these maps can also inform the development of infrastructure and flood protection measures such as levees, dams, and drainage systems. The use of such strategies can help minimize the catastrophic effects of floods, protect lives, and reduce economic losses for those who are most vulnerable to the impacts of climate-induced disasters. By taking proactive steps to mitigate climate change in this way, Pakistan can create a safer and more resilient future for all its citizens.

4. Infrastructure Fortification

Investing in infrastructure fortification is a crucial step to mitigate the devastating effects of super floods and climate-induced migration in Pakistan. The country's vulnerability to flooding is mainly due to its vast river system, which drains water from the Himalayas to the Arabian Sea. The 2010 super floods in Pakistan and then again in 2022, considered to be one of the worst natural disasters in history, claimed thousands of lives and affected over 33 million people. In response to this catastrophe, there has been a growing recognition of the need to invest in infrastructure to improve resilience against future flooding events. Constructing resilient buildings is one viable solution to minimize the impact of super floods on human lives and property. The use of waterproof materials, such as reinforced concrete, and raising buildings above flood levels can significantly reduce flood-induced damage to infrastructure. Furthermore, flood-damage-resistant transportation networks, such as bridges and roads, can aid evacuation efforts, assist delivery and improve access to basic services during floods. Investing in infrastructure fortification can also lead to socio-economic benefits for Pakistan. Creating employment opportunities through construction projects, improving disaster response capacity, and reducing potential losses of life and economic assets all contribute to long-term development. Nonetheless, it is also important to recognize the limitations of infrastructure investments, as they may not address underlying determinants of vulnerability, such as poverty or lack of social services. Therefore, a comprehensive approach is needed to address the intersection of climate-change-induced migration and flooding in Pakistan, incorporating both hard and soft infrastructure investments, as well as attention to the root causes of vulnerability. Pakistan can host climate change resilient architecture competitions at the national and international levels to receive the most creative proposals that can then be built in flood-affected areas.

5. Community Engagement and Involvement

One effective strategy for mitigating the devastating effects of climate change and its resultant disasters is to encourage community involvement and awareness. In the context of Pakistan, which has been heavily impacted by super floods, displacement, and climate-induced migration, promoting community participation in disaster preparedness and response efforts will foster collective resilience and enhance the effectiveness of risk reduction measures. This approach recognizes that communities are better able to identify their vulnerabilities and capacities, and are well-positioned to take action to reduce their risks and respond to disasters. In addition, empowering communities through knowledge-sharing and training programs can play a significant role in increasing resilience, improving communication networks, and building capacity for effective disaster response. As such, promoting community engagement in all phases of disaster management, from preparedness to recovery, is critical to building a more sustainable and resilient future in Pakistan and beyond.

6. Belonging and Empowerment

One significant policy should be to provide support and foster collaboration with a range of organizations operating within communities where individuals feel a sense of belonging, whether formally or informally. These organizations may include civil society groups, business employers, professional institutions, and religious communities. Recognizing the potential influence of these organizations in disseminating messages about the magnitude of the climate change threat and its consequences, it is important to acknowledge their role as influential agents of secondary socialization. They play a pivotal role in shaping the behavior, values, and norms of communities through effective communication strategies. Furthermore, these organizations possess an in-depth understanding of the local realities and the developmental context, enabling them to employ persuasive techniques that rely on subtle, powerful, and at times, emotional language to encourage individuals to adopt sustainable behaviors. In the case of Pakistan, Akhuwat⁵ stands as an exemplary organization that has implemented a successful microfinance program utilizing a religious model. This success underscores the importance of aligning language and philosophy with the targeted communities to achieve wide-reaching impact.

7. Regional Approach

The pursuit of regional cooperation in addressing climate change is imperative for Pakistan, particularly in leveraging the advantages of existing operational programs. Numerous regional initiatives pertaining to climate change focus on shared natural resources among neighboring countries. The Indus Waters Treaty⁶ between Pakistan and India serves as a prime example in this regard. The underlying rationale behind these regional endeavors is that, instead of solely prioritizing national legislation, a collaborative effort among states to conserve shared natural resources holds greater significance. Recognizing the severity of the threat, it becomes crucial for states to adopt a global outlook, transcending their own capabilities and volition, to safeguard other shared natural resources and alleviate the escalating impacts of climate change in the region. Pakistan should engage in

collaboration with neighboring nations that face similar vulnerabilities to climate change. This collaboration should involve the establishment of a working group dedicated to addressing substantial climate change challenges at the regional level. These challenges may include, but are not limited to, migration, food security, and environmental security.

Conclusion

Climate change is one of the most pressing issues facing humanity today. It has far-reaching implications for our planet's future. Policymakers bear a great responsibility in making sure that citizens have the education needed to properly understand and tackle this global problem. For this reason, increasing efforts should be made to design comprehensive climate change curriculums and educational programs at all levels of learning to ensure we have an educated populace capable of dealing with the current and potential impacts of climate change. One of the ways for risk mitigation is to use design communication which is a powerful tool to help mitigate the risks of climate change in Pakistan and other vulnerable countries. By leveraging innovative design strategies and advanced technologies, communication design has the potential to provide information, awareness, and education to people who are affected by climate change risks. This can include educating communities about the need for disaster preparedness, promoting sustainable lifestyles and practices, communicating the impact of human activities on the environment, and highlighting the benefits of conservation and environmental protection. Through targeted campaigns and visually compelling media, design communication can help to motivate people to take urgent action to reduce carbon emissions, conserve natural resources, and protect fragile ecosystems. With its ability to reach and engage diverse audiences, design communication can play a critical role in building public understanding and support for effective climate change mitigation strategies, and ultimately help to mitigate the displacement and migration risks that climate change presents.

The impact of climate change on Pakistan cannot be overstated. The country has been ravaged by super floods that have displaced millions of people, resulting in climate-induced migration and food insecurity. These changes directly affect the fundamental security of the country. Climate change has therefore become a traditional security threat to Pakistan, compounding other social, political, and economic challenges already plaguing the nation. For Pakistan to address this existential threat, the narrative needs to shift. Climate change cannot be seen solely as an environmental issue but as a security matter that demands urgent attention. The short-term gains from traditional forms of security measures are eroding, as climate change exacerbates regional conflicts and mass displacement, leading to negative spillover effects and social instability. A shift in the national consciousness is needed to foster a more holistic and nuanced understanding of the threats posed by climate change to Pakistan. This will require a multilateral approach that considers not only the environmental effects of climate change, but also the ripple effects on regional and national security.

Endnotes

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2. Global Climate Risk Index 2021 <https://www.germanwatch.org/en/19777>
3. National Climate Resilience and Adaptation Plan (2023-2030), Ministry of Climate Change, Government of Pakistan <https://docc.sindh.gov.pk/files/DoCC/Documents/NAP%20Final%20Draft-edited.pdf>
4. The Government of Pakistan (GoP), is a signatory to the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC), and submits updated Nationally Determined Contribution (NDC) that reflects national consensus and endeavors to accelerate the transition towards a climate-resilient economy <https://unfccc.int/sites/default/files/NDC/2022-06/Pakistan%20Updated%20NDC%202021.pdf>
5. Akhuwat <https://akhuwat.org.pk/>
6. The Indus Waters Treaty between India and Pakistan <https://treaties.un.org/doc/Publication/UNTs/Volume%20419/volume-419-I-6032-English.pdf>