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Institute of Policy Input & Research

SEMINAR REPORT

DISASTER MANAGEMENT

**Are we ready to face the
consequences of Climate change?**

SPEAKERS



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Executive Summary

The Institute of Policy Input and Research hosted its inaugural seminar titled "Disaster Management: Are We Ready for the Consequences of Climate Change?" at the World Times Institute Main Hall on September 24, 2022, attracting a diverse audience of around 100 students alongside esteemed speakers and chief guests. The seminar aimed to foster an informed dialogue and explore practical solutions to the pressing issue of climate change in Pakistan. Despite being responsible for only 0.49 percent of global emissions, Pakistan ranks as the 8th most vulnerable country to climate change. Additionally, it is the 2nd most vulnerable to rising food prices following extreme climatic events, according to a Bloomberg scorecard. Recent events underscore the severity of Pakistan's climate challenges, including one of the worst heatwaves globally, where the top 5 of the ten hottest places on earth were in Pakistan at one stage.

Moreover, Lahore, one of the major cities, held the unenviable position of the most polluted city in the world for multiple weeks. Recent floods have exacerbated Pakistan's economic woes, already in a fragile state. While the country managed to avert a Balance of Payment crisis by securing a \$1.17 billion bailout, the impact remains significant. Pakistan currently stands at 18 out of 119 countries on the Inform Risk Index by the UNDRR. The devastation caused by recent floods includes 33 million people displaced and more than 1400 deaths. The country anticipates a staggering \$30 billion loss, almost 9 percent of its GDP.

Chief guests, including veteran figures like Mr. Osman Khan, Dr. Mahmood Alam Durrani, and Ambassador Irfan ur Rehman Raja, highlighted the urgency of addressing climate change and its implications for Pakistan's economy and society. Notably, Pakistan's recent floods have inflicted significant economic losses, prompting discussions on the country's disaster management capacity and capability.

Key topics discussed included an assessment of management accountability for recent climate catastrophes, an overview of disaster management frameworks, and the formulation of short-term, medium-term, and long-term solutions. Emphasis was placed on the significance of the local government system and community building in disaster resilience.

The panel of speakers, featuring distinguished experts such as Mr. Faisal Fareed, Director General of the Provincial Disaster Management Authority, Shahid Iqbal, Secretary General of Al-Khidmat Foundation Pakistan, and Mr. Athar Mansoor, a Post-Doctoral Research Fellow specializing in AI and Big Data, provided valuable insights into various aspects of disaster management and climate change resilience.

In conclusion, the seminar served as a platform for informed discussions and collaborative efforts towards addressing the challenges posed by climate change in Pakistan. By fostering partnerships between government agencies, NGOs, academia, and local communities, there is potential to develop holistic solutions that build resilience and mitigate the impact of future disasters.

Takeaways from the Seminar

Q. What are the ramifications of climate change on both Pakistan and the global community, and what are the potentially dire consequences if immediate action is not taken?

The period of 1999-2011 is known as the warmest decade of the recent era, which is mainly due to climate patterns. This process has caused a worryingly high rate of melting of glaciers (about 400 tons have been lost each year since 1994). The current sea level is 6.7 inches higher than it was 25 years ago. The increase in greenhouse gas emissions and the impact of the acidification of the atmosphere on climate patterns have caused enormous changes in ecosystems globally, presenting a major risk. The impacts are devastating, especially for the 1 billion people who depend on marine life for their sustenance, and thus highlight the pressing need for global action to combat climate change.

In the context of Pakistan, the country with a minimal contribution of only 0.8% to global carbon emissions finds itself among the most vulnerable nations to unfavorable climatic changes. Geographically vulnerable, Pakistan faces increasing threats made by the phenomena like growing intensity of monsoon rainfall and fast glacier melting. During the last three decades, rainfall has dramatically increased by about 190%, which intensifies various problems including increased mortality rates, massive displacement, worsening agricultural conditions, economic downturns, food insecurity, and strain on the healthcare system.

The situation is critical, and the risk of its getting worse hangs over us like a dark cloud, if we fail to take urgent and decisive measures now. Not only does the inability to deal with the climate change risks immediately threaten the survival of human beings in Pakistan but also it is a big challenge to global security and sustainability. Therefore, the concerted efforts of both national and international stakeholders are necessary and urgent actions that should be taken to counter the negative effects of climate change and to preserve the future of our planet.

Q. How can Pakistan effectively manage the increasing frequency of disasters, especially considering recent patterns of heavy rainfall leading to drought, and what measures are necessary for improvement both domestically and internationally?

Pakistan has been confronting an unprecedented surge in disasters since 2010, compounded by a 1°C rise in global temperatures attributable to climate change. This shift has catalyzed a cycle of heavy rainfall followed by prolonged drought, posing formidable challenges to the nation's disaster management infrastructure. The geographical intricacies of Pakistan, particularly the significance of the River Indus Tributaries, must be taken into account when devising strategies to confront these evolving climatic patterns.

The recent uptick in heavy rainfall witnessed in locales like Baroch & Adwala (Mianwali District)

on July 13th and the Koh E Suleiman Range on August 12th underscores the urgency of enhancing disaster preparedness and response mechanisms. While existing institutions offer a foundation, comprehensive vulnerability assessments are imperative to identify high-risk regions and prioritize resource allocation, particularly in terms of healthcare facilities.

Moreover, recovery operations must be swiftly mobilized to relieve affected populations, including humans and livestock. This necessitates a multi-pronged approach encompassing not only immediate humanitarian aid but also long-term strategies for rehabilitation and resilience-building.

On a national level, Pakistan must prioritize investment in infrastructure that can withstand and mitigate the impact of extreme weather events. This includes bolstering flood defenses, improving water management systems, and promoting sustainable agricultural practices to mitigate the risk of drought. Additionally, enhancing coordination and communication among government agencies, non-governmental organizations, and local communities is essential for a cohesive and effective response to disasters.

Internationally, Pakistan should collaborate to address the root causes of climate change and mitigate its impact on vulnerable regions. This entails advocating for global climate action, accessing funding for adaptation and resilience-building initiatives, and sharing best practices with other countries facing similar challenges.

In summary, tackling Pakistan's escalating disaster risk requires a multifaceted approach that integrates scientific insights, community engagement, and international cooperation. By fortifying its disaster management capabilities and fostering collaboration at both national and global levels, Pakistan can better confront the complex challenges posed by climate change and safeguard the well-being of its citizens.

Q. How can the government effectively address deficiencies at the grassroots level to bolster disaster management capabilities, and why is community building integral for preparing for future calamities?

Disaster Risk Reduction (DRR) stands as a critical framework for understanding and mitigating the factors that contribute to disasters. This approach emphasizes the importance of analyzing risks systematically, reducing exposure to hazards, minimizing vulnerabilities, and enhancing overall preparedness. Guided by the National Disaster Management Act of 2010, the Disaster Management Cycle (DMC) outlines a comprehensive strategy encompassing preparedness, mitigation, risk reduction, relief, and rehabilitation.

Despite the potential limitations of foreign assistance, internal efforts spearheaded by the government are paramount. This includes robust population management strategies and active community involvement. However, challenges persist, particularly in regions grappling with weak infrastructure and inadequate guidelines for managing disaster impacts. Here, the importance of community training in disaster risk reduction cannot be overstated. Empowering communities with the necessary knowledge and skills is essential for enhancing resilience and fostering effective response mechanisms.

Furthermore, the operationalization of plans outlined by the District Disaster Management

Authority (DDMA) is imperative, especially in marginalized areas where vulnerable populations face heightened risks. These regions often contend with various health hazards, exacerbated by poverty and inadequate infrastructure. Proactive measures, such as prediction, preparation, resolution, and rehabilitation, are indispensable components of a comprehensive disaster management strategy, particularly in the context of escalating climate change impacts.

It's crucial to acknowledge the pivotal role that communities play in disaster response and recovery efforts. Their intimate knowledge of local conditions, coupled with grassroots initiatives, significantly contribute to resilience-building endeavors. Collaboration among government entities, academic institutions, and humanitarian organizations is essential for fostering a cohesive and inclusive approach to disaster management. By harnessing collective expertise and resources, stakeholders can work towards a resilient future, ensuring that communities are adequately equipped to confront and overcome the challenges posed by natural disasters.

Q. How can the strategic incorporation of technology into our policies strengthen disaster management, and what multifaceted solutions can be implemented in the short, medium, and long terms?

Integrating technology into disaster management policies stands as a pivotal step toward enhancing preparedness, response, and recovery efforts. In the short term, immediate actions can include the establishment of robust early warning systems leveraging technological advancements such as sensors and automated alert mechanisms. Social media platforms can also be utilized as effective tools for disseminating critical information and coordinating emergency responses in real-time.

As we progress into the medium term, the development and deployment of mobile applications tailored for disaster management purposes can greatly enhance situational awareness and facilitate efficient communication among response teams and affected communities. Furthermore, the utilization of drones equipped with high-resolution cameras can provide invaluable aerial surveillance capabilities, aiding in damage assessment and resource allocation.

Looking towards the long term, sustained investment in cutting-edge technologies like remote sensing and Geographic Information Systems (GIS) can revolutionize disaster risk mapping and forecasting, enabling authorities to anticipate and mitigate potential hazards more effectively. By harnessing the power of data analytics and predictive modeling, decision-makers can make informed decisions and allocate resources strategically to minimize the impact of disasters.

However, it's imperative to recognize that technology alone is not a panacea for comprehensive disaster management. In parallel with technological advancements, fostering economic growth through technology adoption is essential for building resilience in vulnerable communities. This involves shifting focus from solely relying on traditional agricultural sectors to embracing innovation and promoting digital literacy.

Moreover, community mobilization and civic engagement play a pivotal role in enhancing disaster resilience. Empowering communities with the necessary knowledge and skills to respond effectively to disasters fosters a culture of preparedness and collective action. Through grassroots initiatives and participatory approaches, communities can become active stakeholders in disaster

management efforts, complementing technological interventions with local expertise and resources.

In essence, a holistic approach that combines technological innovation with community empowerment and sustainable development strategies is essential for strengthening disaster management capabilities and building resilience in the face of evolving challenges.

Q. What is the anticipated trajectory for Pakistan's Disaster Management efforts over the next 5-10 years, and what comprehensive strategies can be implemented in the short, medium, and long terms?

Short-Term (0-3 years): In the immediate future, Pakistan can prioritize bolstering disaster resilience by integrating Disaster Risk Reduction (DRR) principles into urban planning frameworks. This entails aligning infrastructure development with disaster risk reduction objectives and investing in early warning systems and emergency response mechanisms to enhance disaster preparedness and response capabilities.

Medium-Term (3-7 years): Over the next several years, comprehensive disaster risk assessments can be conducted to identify vulnerable areas and prioritize mitigation efforts. By understanding the unique hazards faced by different regions, such as earthquakes, floods, or droughts, tailored strategies can be developed to address these risks. Investments in additional reservoirs and water management infrastructure can mitigate the impact of water-related disasters.

Long-Term (7-10 years and beyond): Looking ahead to the long term, Pakistan can further strengthen its disaster management capabilities by fostering a culture of preparedness and resilience. This involves investing in sustainable development practices that prioritize environmental conservation and community empowerment. Engaging local communities in decision-making processes and equipping them with the necessary knowledge and skills to respond effectively to disasters can enhance overall resilience. Additionally, leveraging technological innovations such as remote sensing and Geographic Information Systems (GIS) can improve disaster risk mapping and forecasting, enabling informed decision-making and resource allocation.

By adopting a comprehensive approach that encompasses infrastructure development, community engagement, and technological innovation, Pakistan can pave the way for a more resilient future, better equipped to withstand and mitigate the impact of disasters.

Q. Is there a noticeable gap between the Provincial Disaster Management Authority (PDMA) and the community due to the limited public visibility of their work?

While the PDMA remains dedicated to ensuring the well-being of citizens, the lack of public visibility regarding their efforts may indeed contribute to a perceived gap between the authority and the community. Despite their round-the-clock efforts, challenges arise from conflicts between the three tiers of governance: local, provincial, and federal governments. These conflicts often impede the seamless functioning of disaster management institutions.

Moreover, the absence of transparent communication channels and community engagement initiatives might further exacerbate the perceived gap. Establishing District Emergency Management Centers, such as those in Rajanpur and DG Khan, could serve as vital mechanisms for bridging this divide. Additionally, shifting the focus from solely prioritizing rescue and evacuation efforts to emphasizing relief and resilience-building strategies could help align PDMA's objectives more closely with the community's needs and expectations.

Q. How does the ongoing rift between Provincial and Federal authorities impact Risk Reduction efforts, and what measures can be taken to mitigate its effects?

The persistent rift between Provincial and Federal authorities poses significant challenges to effective Risk Reduction initiatives. This discord not only hampers coordination and collaboration but also undermines the overall efficiency of disaster management efforts. To address this issue, adopting a framework of network governance is imperative. This entails fostering collaboration between the private and public sectors, as well as engaging civil society organizations and local communities.

By promoting a more inclusive and participatory approach to disaster management, synergies can be leveraged to overcome bureaucratic hurdles and enhance the effectiveness of Risk Reduction strategies. Urgent action is needed to formulate and implement policies that facilitate seamless cooperation between Provincial and Federal authorities, thereby ensuring a more coordinated and robust response to natural and man-made disasters.



Findings – Bridging the gap between the theory and practice

The findings emphasize the critical importance of bridging the gap between theoretical frameworks and practical implementation in disaster mitigation efforts, particularly in the context of climate change. Encouraging and supporting the active involvement of communities alongside government policies is highlighted as essential for effective disaster response and relief efforts.

1. Pakistan has been grappling with a surge in disasters since 2010, exacerbated by a 1°C global temperature increase due to climate change. This has led to a cycle of heavy rainfall followed by prolonged drought, challenging the nation's disaster management infrastructure. The geographical complexities of Pakistan, especially the significance of the River Indus Tributaries, are crucial in devising strategies to address evolving climatic patterns. Recent heavy rainfall in areas like Baroch & Adwala and the Koh E Suleiman Range highlights the need to enhance disaster preparedness and response mechanisms. Comprehensive vulnerability assessments are essential to identify high-risk regions and allocate resources, especially for healthcare facilities. Swift mobilization of recovery operations is vital to aid affected populations, including humans and livestock, requiring immediate humanitarian assistance and long-term rehabilitation strategies.
2. At a national level, Pakistan must invest in weather-resistant infrastructure, improve flood defenses, enhance water management, and promote sustainable agriculture to mitigate drought risks. Strengthening coordination among government agencies, NGOs, and local communities is crucial for an effective disaster response.
3. Internationally, Pakistan should collaborate to address climate change's root causes, secure funding for adaptation initiatives, and share best practices with other vulnerable regions. In conclusion, addressing Pakistan's escalating disaster risk demands a comprehensive approach integrating scientific knowledge, community involvement, and global partnerships to effectively tackle the challenges posed by climate change and protect its citizens' well-being.
4. Disaster Risk Reduction (DRR) is vital for understanding and mitigating disaster factors, focusing on systematic risk analysis, hazard exposure reduction, vulnerability minimization, and enhanced preparedness. The National Disaster Management Act of 2010 guides the Disaster Management Cycle (DMC), covering preparedness, mitigation, relief, and rehabilitation. Internal government-led efforts are crucial despite limitations in foreign aid, emphasizing population management and community engagement. Challenges persist in areas with weak infrastructure, necessitating community training in disaster risk reduction for resilience. District Disaster Management Authority (DDMA) plans are essential, especially in marginalized regions facing heightened risks. Collaboration among stakeholders is key for a cohesive disaster management approach, empowering communities for effective disaster response and recovery in the face of escalating climate change impacts.
5. Integrating technology into disaster management is crucial for enhancing preparedness, response, and recovery efforts.

- a. Short-term actions involve establishing early warning systems with sensors and automated alerts, utilizing social media for real-time information dissemination and emergency coordination.
 - b. In the medium term, developing disaster management mobile apps improves situational awareness and communication, while drones with cameras aid in aerial surveillance for damage assessment.
 - c. Long-term strategies include investing in remote sensing and GIS for advanced risk mapping and forecasting, enabling better hazard anticipation. However, technology must be complemented by economic growth through innovation and digital literacy, alongside community empowerment for effective disaster response and resilience-building. This holistic approach combines technological innovation, community engagement, and sustainable development to strengthen disaster management capabilities.
6. Forecasting the trajectory of Pakistan's Disaster Management endeavors for the upcoming 5 to 10 years and devising comprehensive strategies across short, medium, and long-term horizons is crucial.
- a. **Short-Term (0-3 years):** Pakistan can prioritize integrating Disaster Risk Reduction (DRR) principles into urban planning frameworks, aligning infrastructure development with disaster risk reduction objectives. This includes investing in early warning systems and emergency response mechanisms to enhance preparedness and response capabilities.
 - b. **Medium-Term (3-7 years):** Comprehensive disaster risk assessments can be conducted to identify vulnerable areas and prioritize mitigation efforts. By understanding the unique hazards faced by different regions, tailored strategies can be developed to address these risks. Investments in additional reservoirs and water management infrastructure can help mitigate the impact of water-related disasters.
 - c. **Long-Term (7-10 years and beyond):** Pakistan can further strengthen its disaster management capabilities by fostering a culture of preparedness and resilience. This involves investing in sustainable development practices that prioritize environmental conservation and community empowerment. Engaging local communities in decision-making and equipping them with necessary knowledge and skills can enhance overall resilience. Additionally, leveraging technological innovations such as remote sensing and GIS can improve disaster risk mapping and forecasting, enabling informed decision-making and resource allocation.
7. The PDMA faces challenges due to a lack of public visibility, potentially creating a gap between the authority and the community. Conflicts among local, provincial, and federal governments hinder seamless disaster management operations. Transparent communication channels and community engagement initiatives are lacking, exacerbating the perceived gap. Establishing District Emergency Management Centers like those in Rajanpur and DG Khan could bridge this divide. Shifting focus towards relief and resilience-building strategies, in addition to rescue and evacuation, may better align

PDMA's objectives with community needs and expectations.

8. The ongoing discord between Provincial and Federal authorities presents significant obstacles to effective Risk Reduction initiatives, hindering coordination and efficiency in disaster management. Addressing this challenge requires adopting a network governance framework, promoting collaboration among public and private sectors, civil society organizations, and local communities. By embracing inclusivity and participation in disaster management, synergies can be harnessed to overcome bureaucratic barriers and improve Risk Reduction strategies' effectiveness. Immediate action is necessary to develop and enforce policies facilitating seamless cooperation between Provincial and Federal authorities, enhancing coordination for a more robust response to both natural and man-made disasters.
9. One key aspect identified is the need for comprehensive training programs, particularly targeting students and other individuals within the community. These programs aim to empower participants with the skills and knowledge necessary to access remote areas that are often cut off during disasters such as floods and heavy rainfall. By equipping individuals with the necessary tools to navigate challenging environments, they can effectively engage with and provide support to communities in need.

Expanding on these findings, it's crucial to recognize the role of technology in disaster management. Utilizing innovative solutions such as mobile applications and drones can greatly enhance the efficiency and effectiveness of relief efforts. For example, mobile apps can provide real-time updates on weather conditions and disaster alerts, while drones can be deployed for aerial reconnaissance and assessment of impacted areas, enabling more targeted and timely response actions.

Furthermore, community-based early warning systems can be established, leveraging local knowledge and resources to detect and respond to impending disasters swiftly. Empowering communities to take proactive measures in disaster preparedness and response not only enhances resilience but also fosters a sense of ownership and agency in managing risks.

In summary, bridging the gap between theory and practice in disaster management requires a multifaceted approach that empowers communities, utilizes technology, strengthens partnerships, and prioritizes proactive preparedness measures. By embracing these strategies, we can enhance our resilience to climate change-related disasters and ensure that relief reaches those most in need during times of crisis.