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The Strauss Center’s program on Complex Emergencies and Political Stability in Asia (CEPSA) explores the causes and dynamics of complex emergencies in Asia and potential strategies for response. In doing so, the program investigates the diverse forces that contribute to climate-related disaster vulnerability and complex emergencies in Asia, the implications of such events for local and regional security, and how investments in preparedness can minimize these impacts and build resilience. CEPSA is a multi-year initiative funded by the U.S. Department of Defense’s Minerva Initiative, a university-based, social science research program focused on areas of strategic importance to national security policy.

ABOUT THE AUTHORS
Dr. Jennifer Bussell is an Assistant Professor of Public Policy and Political Science at the University of California, Berkeley, and a senior fellow at the Robert Strauss Center.

Asim Fayaz is a graduate research assistant on the CEPSA program at the University of California, Berkeley.

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Overview

This case study discusses government capacity to prepare for and respond to natural disasters—floods, earthquakes, and heat waves—in Pakistan. The analysis finds that several hypotheses described at the start of this report are particularly relevant to explaining the extent of disaster preparedness and risk reduction in Pakistan. Out of the seven, four—perceived risk, economic strength, electoral incentives and democracy and political development—are generally found to be relevant, but the other three—moral hazard, civil society and external actors—met with substantial contradictory evidence.

Out of these, lack of economic strength was cited the most number of times as the primary reason for Pakistan's lack of investment in disaster preparedness. Even by developing world standards, Pakistan’s GDP is considered low while the population continues to increase. All respondents stated that in the face of immediate crises like extremism, need for development, and even disaster relief and rehabilitation, spending on disaster preparedness is not considered important. Evidence also validates the perceived risk hypothesis—disaster preparedness efforts focus only on predictable, regular events, rather than less predictable hazards, even where unpredictable hazards have done significant damage in the past. There is a general understanding that other, more basic issues like improving healthcare and education service delivery and reducing the electricity shortfall have to be addressed before the country can afford to invest in prevention and preparedness activities.

A number of respondents referred to electoral incentives but their claim was that politicians gain more electorally from disaster response than from preparedness and risk reduction. Politicians realize that citizens value their disaster relief efforts more, so they have a perverse incentive to spend less effort and resources on disaster preparedness.

The following sections provide an overview of the natural hazards endemic to Pakistan and discuss the political history and socioeconomic conditions that make it challenging to tackle those natural hazards proactively. An assessment of Pakistan's institutional capacity for disaster response and disaster risk management is then provided with respect to the Hyogo Framework for Action's five priorities for action. Each of the seven hypotheses are subsequently reviewed in light of the evidence from field interviews and other sources. The concluding section offers policy recommendations for improving disaster preparedness as well as ideas for further research.

Introduction

Pakistan is a relevant case for evaluating disaster preparedness given its history of natural hazards, its unique geographical position, and the strategic interests of its neighbors and allies. Pakistan commands substantial global attention due to its role in fighting terrorism alongside managing massive natural disasters that every year cause considerable destruction.

Pakistan ranks thirty-sixth in the world by geographic area of 796,095 km² yet it has the sixth-largest population globally, with over 200 million people. The urban-rural divide has predominated for much of the country's history, with 38.8% of the total population living in areas officially recognized as urban. Much of the rural economy is still reliant on agriculture—accounting for 24% of GDP and half of the employed labor force—and suffers heavily as a result of floods or other natural disasters. These constraints are thought to contribute to overall low levels of human development and significant poverty, with the Human Development Index ranking Pakistan 147 out of 188 while Oxford's Multidimensional Poverty Index national value for Pakistan—calculated by multiplying the incidence of poverty by the average intensity of poverty across the poor—is 0.23, ranking thirty-sixth in the world. In 2011, 12.7% of the population lived on less than $1.25 a day. The disease burden also continues to increase as the population grows rapidly.

Pakistan has endured numerous natural hazards in the last decade, beginning with a massive earthquake in 2005 in the Kashmir region that killed over 75,000 people and is remembered as one of the worst natural disasters in South Asia. 2010 saw some of the worst floods in Pakistan's history, killing 1,800 and affecting...
21 million. In 2013, flooding killed 178 people and affected 1.5 million. 367 people died due to widespread flooding in 2014, which was the “fourth consecutive year of high-impact monsoon rains in Pakistan. In 2015, people in Karachi, Pakistan’s largest city, experienced a heat wave that killed over 1200 people.”

The effect of these natural shocks is exacerbated by vulnerabilities in the way disasters are managed and prevented as well as the inertia of deeper sociocultural issues that are considered beyond the scope of disaster management and hence irrelevant. As a result, simple events continue to cause large-scale shocks.

Government response to disasters has gradually improved but still there is much to be done. While Pakistan faces disasters of various forms, respondents seemed to focus on floods and the enhanced ability to respond to swelling rivers. There is more use of data and forecasting to deal with imminent hazards of this type. However, there is still no focus on preparedness or prevention, especially for unpredictable disasters like earthquakes as well as more recent phenomena like heat waves. The international community continues to play an important role in building capacity, sharing lessons from other countries, and providing monetary support. Unlike many other countries, the government also relies heavily on the army to support civilian efforts for disaster management and providing relief.

### Methodology

This case study draws on publicly available sources of data, public reports, and fieldwork conducted in Pakistan during December 2015. On-site research consisted primarily of interviews with government officials and representatives of non-governmental organizations with an interest in disaster management. Nine in-person interviews included included representatives of provincial planning and development departments, the primary emergency response agency, the emergency and disaster response team of the national space agency, the climate change ministry, and a leading NGO focusing on disaster risk reduction.

### Background on Natural Hazards

Different natural hazards affect different parts of Pakistan. A number of geological fault lines pass through the northern region, producing regular earthquakes of varying intensity. For instance, the boundary between the Indian and Eurasian tectonic plates runs through Kashmir where there was a magnitude 7.6 earthquake in 2005.

Earthquakes have also occurred in Balochistan, the western province, where the topography is mostly mountainous. In contrast, the middle of the country, comprised of the plains of Punjab and some parts of Sindh, experiences floods as the rivers swell in the summer. A significant portion of Sindh is also vulnerable to drought and heat waves. Every year, people die from the heat in the Thar Desert, but in 2015, the effect of rising temperatures extended to the coastal metropolitan city of Karachi, killing many people. Since 2005, over 40 million people have been affected by natural hazards causing an economic loss of over USD 20 billion.

### Table 1: Recent History of Major Natural Disasters in Pakistan

<table>
<thead>
<tr>
<th>Year</th>
<th>Type</th>
<th>Location</th>
<th>Dead/Injured/Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998-2002</td>
<td>Drought</td>
<td>Sindh</td>
<td>2.2 million affected</td>
</tr>
<tr>
<td>1999</td>
<td>Cyclone</td>
<td>Coast of Sindh</td>
<td>0.6 million affected</td>
</tr>
<tr>
<td>2005</td>
<td>Earthquake</td>
<td>Kashmir</td>
<td>Loss of USD 5.2 billion</td>
</tr>
<tr>
<td>2008</td>
<td>Earthquake</td>
<td>Balochistan</td>
<td>164 died</td>
</tr>
<tr>
<td>2010</td>
<td>Floods</td>
<td>Widespread</td>
<td>20 million affected; loss of USD 10 billion</td>
</tr>
<tr>
<td>2011</td>
<td>Floods</td>
<td>Widespread</td>
<td>9.5 million affected; loss of USD 2.47 billion</td>
</tr>
<tr>
<td>2013</td>
<td>Earthquake</td>
<td>Balochistan</td>
<td>300,000 affected; 800 died</td>
</tr>
<tr>
<td>2015</td>
<td>Heat wave</td>
<td>Karachi</td>
<td>1200 died</td>
</tr>
</tbody>
</table>
Flooding is the primary concern for disaster managers in Pakistan. There are three active rivers in Punjab province, the Indus, Jhelum and Chenab, that regularly experience flooding. The map in Figure 1 shows these rivers and the regions around them that have historically been flooded. Unlike India, Pakistan failed to construct major dams on its rivers after the Indus Water Treaty of 1960, so the government is unable to control their rivers when they swell. The number of people affected by the flooding fluctuates, but it can be as high as 20 million in a given year. This is largely because of poor enforcement of land use and control laws. Nomadic communities are most commonly affected by floods but once the water retreats, they move back and occupy the flood plains. The first major floods in the post-Independence period occurred in 1950 and flooded 10,000 villages, spreading over 17,920 square kilometers and killing about 2200 people. Before 2010, the last major floods had been in 1992 and killed over 1,000 people, affecting over 13,000 villages.15

In 2010, the snowcaps and glaciers melted more than usual and caused a massive flood. The flood inundated over 37,280 square kilometers of land across Punjab and Sindh, affecting more than 20 million people in almost 36 districts.16 Entire villages were swept away as the government burst key embankments to protect major cities and towns. According to the National Disaster Management Authority’s Annual Report, this event resulted in economic losses of over USD 10 billion. Crops were destroyed and there was massive loss of assets, especially of livestock. The flood also displaced millions of people resulting in loss of economic output. In 2011, flooding occurred again, affecting 9.5 million people and causing economic losses of USD 2.47 billion. Since then, there have been sizeable floods every year.
that have continued to cause considerable damage. Flooding is an imminent threat that can be preempted, whereas earthquakes are largely unpredictable. In 2005, an earthquake with a Richter scale magnitude of 7.6 occurred in Kashmir near the city of Muzaffarabad and caused massive damage in large parts of the country. It is estimated that over 100,000 people died while economic losses of over USD 5 billion were incurred. The northern areas of Pakistan are economically deprived and hence the construction quality of houses and buildings was poor and did not follow any standards. The region had a booming tourism industry that completely collapsed as a result. In 2013, there was an earthquake in another economically deprived part of the country, Balochistan, which resulted in over 800 deaths and affected more than 300,000 people. The causes were similar.

Unlike floods, which are imminent yet immediate, and earthquakes, which are unpredictable, droughts and heat waves are characterized as slow onset disasters. A large part of Sindh province has always suffered from droughts and dry spells in the summer, especially because some of it is comprised of the Thar Desert. In 2015, the heat wave extended to Karachi, a metropolitan city of over 20 million people, with temperatures staying above 45 degrees Celsius for over 5 days. This resulted in over 1,500 deaths and thousands more affected. Unlike other disasters and despite the slow onset and measurable nature of heat waves, the city government was completely taken by surprise and did not know how to respond. It was also the month of Ramadan, when Muslims fast from dawn to dusk. Most of the people affected were day laborers who died due to dehydration. The phenomenon of heat waves is not just limited to Sindh. Temperatures now, for instance, go as high as 50 degrees Celsius in Lahore, the second largest city, where people also die from exposure to heat.

Political Economy

Following independence in 1947 from the British, Pakistan has gone through many political changes. From the first war that broke out in 1948 over Kashmir (and the control of the rivers of Punjab), relations with India have always been in flux. The army has capitalized on this tension to solidify its role in foreign policy as well as take over the government thrice through coups. The two major political parties, the Pakistan Muslim League – Nawaz (PML-N) and Pakistan People's Party (PPP) have both been in power multiple times in the federal government as well as in the two economically strongest provinces, Punjab and Sindh. Local governments have typically only been in place when the army has been in power, because the political parties find them to be a threat to their power. In the absence of elected local governments, the political leadership appoints civil servants, often based on political inclinations, to act as de facto mayors and to run municipal operations.

The PPP, which has roots in Sindh and leads the provincial government there, first came to power in 1971. Its founder, Zulfiqar Ali Bhutto, became the President after Pakistan lost East Pakistan (later known as Bangladesh), and then became Prime Minister in 1973. He was later hanged on charges of murder by the military dictator, General Zia-ul-Haq. His daughter, Benazir Bhutto, subsequently became Prime Minister, serving terms from 1988-90 and 1993-96, both of which were cut short on charges of corruption. After spending many years in exile, she attempted to return to politics in 2007 and was assassinated in a bombing after leaving a political rally.\textsuperscript{17}

The other major political party, PML N, first came into power in 1990-93 when Nawaz Sharif became Prime Minister. His second term as Prime Minister from 1997-99 was cut short when the Chief of Army Staff, General Musharraf, led a coup and deposed him. Sharif is currently serving his third term as Prime Minister, having swept the elections in 2013. The PML-N draws its power from Punjab province, where Nawaz Sharif’s younger brother, Shahbaz Sharif, leads the provincial government.

A third political party, the Pakistan Tehreek-e-Insaf (PTI), founded by ex-captain of the national cricket team, Imran Khan, has become a major force in the last decade. The PTI controls the less developed Khyber Pakhtunkhwa province in the north of Pakistan.

Over the years, military leadership has used the doctrine of necessity – “a common law doctrine which provides a justification for otherwise illegal government conduct
during a public emergency” – to justify coups to depose the constitutional government at multiple occasions.\(^\text{18}\) The most recent coup was in 1999 when the Chief of the Army Staff, Pervez Musharraf, deposed Prime Minister Nawaz Sharif and became the administrator, sending political leaders to exile. He then legitimized his rule by holding elections, becoming President himself, and bringing a weak political party into power. Although Pakistan has a parliamentary system of democracy, the President’s office had executive power during his tenure from 1999-2008. Pakistan was also under military rule from 1958-1971 and 1977-1988. Even when the army has not been in power, they have supported depositions of elected leaders and have maintained control of foreign policy by capturing public imagination through highlighting the threat of war with India. As a result, they continue to receive 3.6% of GDP while India, the perceived rival, has reduced its military spending to 2.4% of GDP.\(^\text{19}\) The military has also played a key role in the “War on Terror” and the recent military action, Zarb-e-Azb, against the Taliban in the northern region of Pakistan, which displaced millions of people who have since spilled over into other parts of the country.\(^\text{20}\)

Military governments have always preferred having local governments in place because it diminishes the power base of the political parties. Political parties in power in the federal government or provincial government, on the other hand, have always found local governments to be a threat to their power, preferring top-down management through civil servants at the local level.\(^\text{21}\) After the 18th Amendment to the Constitution was passed in 2010, many functions, including disaster management and risk reduction, were devolved to districts.\(^\text{22}\) However, in the absence of political governments at the local level, district administrations continue to lack resources and remain dependent on the provincial governments for resources and direction. Despite the reliance of political parties on bureaucrats to manage operations, the quality of human resources in the bureaucracy has deteriorated considerably over the last three decades. This is in large part due to an outdated induction process, low salaries compared to the private sector, and skewed accountability structures that result in bureaucrats becoming more politically aligned than would likely be the case under a more meritocratic system.\(^\text{23}\) In turn, this has important implications for the ability of bureaucrats to act independently in the face of complex and dynamic natural hazards.

**Socioeconomic Context**

Indicators of socioeconomic status have generally improved over the last two decades, representing modernization of the economy and an increase in

<table>
<thead>
<tr>
<th>Indicator</th>
<th>1994</th>
<th>2004</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita (current USD)</td>
<td>434.03</td>
<td>652.02</td>
<td>1316.61</td>
</tr>
<tr>
<td>GDP growth rate (%)</td>
<td>3.74</td>
<td>7.39</td>
<td>4.74</td>
</tr>
<tr>
<td>Net bilateral aid, DAC donors (USD ‘000)</td>
<td>527710</td>
<td>426400</td>
<td>1843190</td>
</tr>
<tr>
<td>Net enrollment rate, primary school (%)</td>
<td>-</td>
<td>63.32</td>
<td>71.86*</td>
</tr>
<tr>
<td>Primary school completion rate (%)</td>
<td>-</td>
<td>61.24**</td>
<td>73.12*</td>
</tr>
<tr>
<td>Health expenditure (% of GDP)</td>
<td>3.27***</td>
<td>2.81</td>
<td>2.75*</td>
</tr>
<tr>
<td>Life expectancy at birth</td>
<td>61.22</td>
<td>63.66</td>
<td>65.96*</td>
</tr>
<tr>
<td>Improved water source (% of population with access)</td>
<td>87.20</td>
<td>89.30</td>
<td>91.30</td>
</tr>
<tr>
<td>Improved sanitation facilities (% of population with access)</td>
<td>26.00</td>
<td>44.10</td>
<td>61.80</td>
</tr>
</tbody>
</table>


*2013 data, not 2014
**2005 data, not 2004
***1995 data, not 1994
foreign aid flows as a result of the war on terror and growing interest of the international community in investing in Pakistan. Table 2 highlights changes in key indicators over the last two decades, including measures of educational, health and economic performance. GDP grew at an exceptionally high rate of 7.39% during the early 2000s and continued to grow at 4.74% in 2014. Yearly bilateral aid flows from DAC donors reduced by about 20% from 1994 to 2004 but then grew more than three fold to over USD 1.8 billion in just 2014. Much of this inflow was absorbed by the armed forces but there still has been a marked increase in donor-funded development projects.

However, other measures of progress have not improved so dramatically. The net enrollment rate in primary schools is 72%--versus 90% in India and 96% in Sri Lanka—with over 6.5 million children not in school.24,25 Despite a large increase in population, health expenditure as a percentage of GDP has actually diminished over the last two decades. Pakistan also ranks poorly on poverty indicators with 12.7% of people making less than $1.25 a day. Thus, while overall performance appears to be improving and GDP continues to grow at a high rate, the country faces significant developmental challenges that impact the socioeconomic conditions of its citizens.

### Institutional Capacity for DRR, Preparedness and Response

Pakistan's unique geography and location as well as its socioeconomic conditions make it susceptible to natural disasters.

In many ways, Pakistan's capacity to deal with disasters has significantly improved. The West Pakistan National Calamities (Prevention and Relief) Act and the Civil Defense Act were passed in 1958. From 1958 till the Kashmir earthquake in 2005, the disaster management function was not formally housed in one location; the Emergency Relief Cell in the Federal Cabinet Secretariat led coordination efforts but districts independently sourced disaster relief equipment and responded to disasters. The earthquake in 2005 was the catalyst that resulted in the creation of the Earthquake Reconstruction and Rehabilitation Authority (ERRA) and initiated a conversation on setting up a formal disaster management authority. However, it was only in 2010, when a large part of the country was flooded, that the government took the next major step and passed the National Disaster Management Act. In the same year, the landmark 18th Amendment to the Constitution was also passed that devolved the disaster management function to district governments.

<table>
<thead>
<tr>
<th>Year</th>
<th>Activity/Incident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1958</td>
<td>West Pakistan National Calamities (Prevention and Relief) Act and Civil Defense Act passed; Emergency relief cell in Cabinet Secretariat</td>
</tr>
<tr>
<td>2005</td>
<td>Massive earthquake in October; Federal Relief Commission formed; Earthquake Reconstruction and Rehabilitation Authority formed</td>
</tr>
<tr>
<td>2006</td>
<td>National Disaster Management Ordinance promulgated</td>
</tr>
<tr>
<td>2007</td>
<td>National Disaster Management Authority notified; National Disaster Risk Management Framework formulated with 5-year plan</td>
</tr>
<tr>
<td>2008</td>
<td>Disaster Risk Management trainings initiated</td>
</tr>
<tr>
<td>2010</td>
<td>National Disaster Management Act passed; 18th Amendment to the Constitution of Pakistan passed</td>
</tr>
<tr>
<td>2011</td>
<td>National Disaster Management Plan formulated (2012-2022); Federal Ministry of Climate Change formed</td>
</tr>
</tbody>
</table>
The Hyogo Framework for Action, established at the World Conference for Disaster Reduction in 2005, serves as the starting point for structuring the analytical work. This framework outlines a set of five overall priorities for countries to shape policies for disaster risk reduction, including effective preparedness and response policies, over the period 2005-15. We use these priorities to gauge Pakistan’s progress in establishing institutional capacities for disaster risk reduction, preparedness, and response.

**Priority 1. Ensure that disaster risk reduction is a national and a local priority, with a strong basis for implementation.**

In principle, Pakistan now has a strong institutional structure to prepare for and respond to natural disasters. The National Disaster Management Authority (NDMA) is the lead agency at the federal level to deal with disaster management activities. According to their website, “in the event of a disaster all stakeholders, including Government Ministries / Departments / Organizations, Armed Forces, INGOs, NGOs, UN Agencies work through and form part of the NDMA to conduct one window operation.”

The NDMA is a huge improvement on the National Calamities (Prevention and Relief) Act of 1958 that previously governed disaster-related activities. It is also aimed to strengthen disaster preparedness and focus on risk reduction.

The National Disaster Management Ordinance was promulgated in 2006 after the 2005 earthquake but it wasn’t until the urgency created by the 2010 floods that the act was formally passed and NDMA came into being. This could be attributed to a power struggle with the military that controlled the Earthquake Reconstruction and Rehabilitation Authority (ERRA), although members of the Armed Forces head both institutions. Some people interviewed said that some time after the earthquake in 2005, many people openly questioned the need to have a formal NDMA since disasters occurred so infrequently. The floods in 2010 catalyzed a change in that mindset. The widespread damage attracted a massive inflow of support from foreign countries and international organizations as well as domestic civil society, cementing NDMA’s flag-bearing role as the central coordinator.

Despite these institutional improvements, competing interests remain a problem at every level, especially when it comes to the political economy of disaster relief. The government prioritizes giving cash compensation to victims of disasters, especially because it makes for good public relations, resulting in significant political benefits. The current Prime Minister Nawaz Sharif initiated this behavior in 1990 during the floods in his first term. An extreme example of this came from one interviewee who mentioned that in 2013 floods, District Layyah was declared flood affected despite it being completely dry because the local politicians wanted to distribute cash compensation to their constituents. One could argue that politicians who draw mileage from such acts could have a perverse incentive not to focus on disaster preparedness that aims to limit such instances of public suffering.

Mission overlap between policy-making institutions also results in coordination issues and communication gaps. ERRA continues to exist despite NDMA being the federally backed body designated to lead. Recently, a Ministry of Climate Change was formed, but the issue

| Table 4: Institutions Formed Under the National Disaster Management Act, 2010 |
|---------------------------------------------|-----------------|
| **Entity**                                | **Chair**       |
| National Disaster Management Commission    | Prime Minister, ex officio |
| National Disaster Management Authority     | Director General |
| Provincial Disaster Management Authority   | Director General |
| District Disaster Management Authority     | Head of the Local Council |
| Local Authority                           | -               |
| National Institute of Disaster Management | DG, NDMA        |
of climate change has many overlaps with disasters and, hence, the relations between these bodies remain contentious. More than one interviewee mentioned the redundancy of this ministry given the lack of clarity on the chain of command. An Army General runs the NDMA, while a senior bureaucrat and a Federal Minister run the Ministry. Even at the provincial level in Punjab, for instance, there are tensions between the Punjab Information Technology Board (PITB) and The Urban Unit, with the former focused on developing dashboards for better visualization of information while the latter is conducting a massive mapping of vulnerable areas.

In short, given the frequency and intensity of recent events and the government’s institutionalized response, disaster management can certainly be considered a national and local priority. However, when it comes to disaster risk reduction, there remains a strong need for a coherent plan that would delineate the division of functions between the national and local level.

**Priority 2. Identify, assess, and monitor disaster risks and enhance early warning.**

Almost all the interviewees were in unanimous agreement that the government institutions’ ability to assess and monitor the risk of floods has considerably improved. NDMA plays the coordination role while provincial disaster management authorities (PDMAs) are effective in tracking water inflows and mobilizing resources accordingly. Technical support to these institutions is provided by other government and donor agencies. SUPARCO and its Space Application Center for Response in Emergency and Disaster (SACRED), affiliated with UN SPIDER, provides flood warnings. The disaster-related institutions are also helped by the military who are called by the government to serve as an aid to civil defense.

Early warning systems also exist for different disasters. The Department of Meteorology and the Flood Forecasting Division monitor satellite imagery and conduct rainfall modeling for floods and provide early warnings for other disasters like heat waves. For earthquakes, the Geological Survey of Pakistan has conducted macro zonation of vulnerable areas to identify at-risk buildings and areas. However, micro zonation needs to be done to make the information actionable, especially to account for the risk of landslides, termed secondary disasters. Pakistan Engineering Council, a technical advisory body, has been attempting to formulate building codes that would help assess disaster risk but there is considerable disagreement on the extent to which they should be defined and how they will be enforced.

The government’s ability to identify, assess and monitor risks associated with floods has certainly improved considerably over the last decade. However, the understanding and ability to act on other disasters like heat waves that can potentially affect a much larger segment of the population is still primitive. Moreover, it is often lack of coordination and friction in information flow among different organizations that causes delays in government response.

**Priority 3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.**

The government regularly uses mainstream media to raise awareness about disasters like floods and heatwaves and steps that citizens can take to mitigate risks. However, most of those awareness campaigns are reactive in their timing and limited in content. For instance, the NDMA organized a National Disaster Awareness Day in 2007, in which government representatives led a public walk in major cities. Disasters like floods tend to affect smaller cities and villages more directly but there is no focus on those areas. There is also very limited content about disaster preparedness and risk reduction in educational material taught in public and private schools.

NGOs operate both in conjunction with the government and independently. For instance, Sindh Rural Support Organization did considerable disaster relief work in partnership with the government after the 2010 floods in Sindh. In some cases, the government engages them to implement projects and run awareness campaigns at the community level. They are also engaged by donors and think tanks to conduct vulnerability assessments and conduct trainings for resilience building. Yet, despite the active presence of NGOs, there is a clear lack of coordination or consistency of messaging. The media plays a central role in policing state
institutions and their partners. A number of interviewees mentioned that media reports drive a lot of post-disaster relief work. They also play a huge role in educating people and making them aware, for instance, of how to protect themselves when there is a heat wave. With a massive segment of population that has not been to school, one interviewee observed that it is the media’s de facto role to educate them.

Together, the government, NGOs, and media are attempting to educate citizens about safety and resilience at all levels but there is need for a comprehensive plan, especially targeted at the smaller cities and villages that are most vulnerable.

Priority 4. Reduce the underlying risk factors.

Financial resources remain the primary bone of contention with regard to reducing the risks posed by natural hazards. Multiple relief funds previously existed at the federal level but they are now being consolidated under National Disaster Management Fund managed by the National Disaster Management Authority. At the provincial level, PDMAs are allocated large sums of funds every year by their respective provincial government, an indication of the government’s commitment. For instance, the Government of Punjab allocated PKR 1.5 billion in the 2015-16 budget to the Punjab Disaster Management Authority. However, the figure is usually lower, especially in other provinces that have much fewer economic resources.

The National Disaster Management Plan has been formulated and it broadly outlines how the government, donors, and NGOs should work together for disaster management and risk reduction. Donors give a lot of targeted support that is directly channeled, both at times of disaster and for disaster risk reduction programs. These donors include various UN agencies as well as USAID, EU, JICA and ADB. The NDMA was setup to be the coordinating agency, but these donors work directly with NGOs. The NDMA is also pushing insurance companies to setup a risk insurance fund that would help mitigate the risk of disasters a bold, progressive attempt to involve the private sector.

As a share of the annual budget, disaster management and risk reduction received PKR 160 million in the 2015-16 federal budget, representative of a slow but steady increase over recent years. This does not include funding for other schemes like dams and irrigation canals, but it is still not enough. Financial constraints and lack of human resources capacity were commonly repeated problems in interviews. As a result, government can’t do large comprehensive projects.

In addition, there are many institutional challenges that either arise from the current arrangement or are ingrained and not being directly addressed. Firstly, some interviewees criticized the overreliance on the military as counterproductive for building state institutions. Given the effectiveness of the army’s response at the time of disasters, there seems to be a tacit acceptance of the status quo and failure to invest in building civilian capacity to respond and preempt disasters. Secondly, in some cases, laws and policies aimed at mitigating the risk of disasters already exist, but are not effectively implemented. For example, the Canal and Drainage Act prohibits any construction on flood plains but the government has no capacity to go after illegal settlements and implement the law.

In order to reduce the underlying risk factors, existing funds need to be diverted towards risk reduction and more funds need to be raised. Additional ways to involve the private sector to share the risk should also be considered. Finally, institutional issues need to be addressed so that the same mistakes are not repeated every time a disaster occurs.

Priority 5. Strengthen disaster preparedness for response at all levels.

Capacity for disaster preparedness and response at the national and, after the 18th Amendment to the constitution, at the provincial level, has been consistently improving. For instance, the Punjab Disaster Management Authority has setup a state-of-the-art Command and Control Center as well as 24/7 disaster response helpline. In principle, there is also agreement that in addition to the national and provincial level, capacity for disaster preparedness and response needs to be built at the local level. Elected or appointed representatives of the government at the local level are best placed to identify, assess and manage risks as well as respond to disasters.
However, despite the explicit devolution of disaster management to the local level, de facto control is still centralized at the provincial level. This is partly because the District Coordination Officer, the executive officer in charge of all functions at the local level, is a bureaucrat appointed by the provincial government. In the absence of elected local governments, there is no incentive for a civil servant on a temporary posting to build capacity of the district disaster management authority (DDMA). Due to pressure from donors, each district has formulated a Disaster Risk Mitigation (DRM) Plan, but they lack resources to implement those plans. They are expected to raise resources locally from the common district budget but most districts cannot focus on DRM given other competing needs. Moreover, although the PDMAs control substantial resources, they in turn have no direct district capacity of their own and, by design, rely on local government staff to deliver. One interviewee reminisced that districts used to have much larger disaster management inventories in the 1990s and the attempt to devolve the function to the local level actually backfired in this regard.

In order to have effective disaster preparedness for response at all levels, capacity for disaster management has to be built at the local level so that the function and its accountability can be effectively devolved.

**Conclusion**

As a result of all these interconnected initiatives, the government’s ability to prepare for and respond to disasters has considerably improved, especially over the last decade. However, there is still much to be done. Authority, incentives and resources will have to be localized for the pieces to fit. Town and city municipal authorities should be held responsible for enforcing building codes with heavy penalties. Illegal settlements should also be dealt with locally. Fights over money will continue, especially since donors give money directly. This will continue to limit the government’s ability to develop a comprehensive, coherent, actionable policy that is owned by all concerned stakeholders.

**Hypotheses**

In this section, we consider a set of hypotheses for why governments may or may not invest in disaster preparedness. With the background of Pakistan's disaster-related institutional capacity offered in the previous section, we consider what characteristics of the country may have contributed to these outcomes.

**Moral Hazard**

Hypothesis: If governments anticipate that other actors will spend on preparedness or response, then they will spend less on preparedness.

Pakistan has been a major recipient of support from donors such as USAID, EU, JICA and ADB, especially for immediate disaster response. For disaster preparedness and risk reduction, the type of support ranges from the World Bank commissioning disaster risk assessments to ADB funding NGOs to work on community level resilience capacity building. Many other smaller bilateral donors also step forward at the time of a disaster to support relief efforts. Most donors prefer working with the NDMA for better coordination with state efforts. Some international NGOs choose to work directly with local NGOs for targeted programs and to avoid delays caused by government bureaucracy. In recent years, the NDMA has become wary of their efforts and, in an effort to improve coordination and minimize unaccounted aid inflows, it has even banned some organizations from operating independently.

Despite this strong donor presence, none of the interviewees felt that the government was at risk of the moral hazard associated with donors spending on disaster response. The government continues to outspend all donors and international NGOs on disaster response and risk reduction programs. In addition, it is important to mention that none of the interviewees felt the prevailing security situation, with the aftermath of the War on Terror, deterred external donors and, therefore, the government is not spending to compensate for any such inhibition on the part of the donors.

Two interviewees mentioned a moral hazard of a related, but different, nature. They noted the overreliance of the government on the military for disaster response. This dependence has been observed across a number of disasters over the last decade. As a result, the
government fails to shift its focus from celebrating the military’s successes in responding to disasters to building the capacity of civil institutions to prevent and reduce the risk of disasters.

In conclusion, apart from the implicit dependence on the military’s capacity to aid in disaster relief, there is insufficient evidence that the moral hazard of reliance on donor support is influencing the government’s decision making process.

Perceived Risk

Hypothesis: If governments perceive that the risk of a natural hazard is high, then they will invest more in preparedness.

Respondents interviewed for this project repeatedly cited perceived risk as a key determinant of why the government only choses to prepare for certain disasters. In response to frequency of floods in the recent past, the damage caused and forecasts predicting more floods in the coming years, the government has spent considerable funds to prepare and mitigate future risk. Floods can be described as slow, obvious disasters because of our ability to predict rainfall patterns through modeling, monitoring cloud patterns and gauging storage capacity as well as water flow at all times. Given this, the government knows that floods will continue to afflict damage in the coming years so they are actively spending on preparedness activities.

In contrast, even though the 2005 earthquake in Kashmir caused considerable damage, the government did not respond in the same manner because of the unpredictable nature of earthquakes. One respondent stated that in 2006, a few months after the earthquake, people claimed it was a one-off incident and rejected the need to prepare for future earthquakes. All respondents seemed well aware of this bias towards preparing for floods or more imminent disasters and not for earthquakes.

Similar to floods, heat waves are another slow, obvious disaster but they do not command the same level of attention as floods. The heat wave in Karachi in 2015 killed over 1,200 people. Yet, despite the ability to forecast weather, the government seemed to be taken by surprise. More importantly, due to global warming, heat waves are going to become a regular phenomenon but their perceived risk is not considered as large as floods as yet.

The case of the heat wave in Karachi, the economic capital of the country, also demonstrated that the constrained size of the affected area or its economic importance has no bearing on the timeliness and effectiveness of government response. Moreover, despite the large number of lives lost, the government has still not ramped up preparedness and early warning activities to prevent future heat waves from causing such rampant damage. Given the government’s track record with floods, the response may improve over time, as heat waves become a recurring phenomenon due to global warming.

On the other hand, the hypothesis that if the magnitude of the disaster itself is large, then the government is more likely to focus on preparedness, does not hold. After the massive earthquake in 2005, there was certainly a lot of talk but it was not until the floods in 2010 that the National Disaster Management Act was passed and the conversation on disaster risk reduction began. The government has acted more consistently against floods because, in addition to causing large scale damage, they occur with predictable frequency and can be predicted through forecasts.

Finally, the risk of smaller disasters is perceived to be higher if it affects more affluent segments of the population. Cyclones regularly affect poor groups of fishermen that reside mostly in coastal areas in Sindh but there is no mention of their plight in conversations about disaster preparedness. In contrast, in 2011, there was a huge dengue fever outbreak in major cities that killed hundreds of people and incapacitated thousands more, resulting in a significant drop in productivity of the workforce. In response, the government launched major campaigns to control the spread of the vector-borne disease, in addition to educating citizens about how to prevent further breeding of the virus. As a result of their activities, the spread of the dengue virus was curtailed in subsequent years.

In conclusion, most variations of the perceived risk hypothesis find support in Pakistan. Where this is not
the case, it is because the frequency of the disaster is unpredictable or the affected segment of population is marginalized.

**Electoral Incentives and Democracy**

Hypothesis: If a government perceives disaster preparedness to be electorally beneficial, then it will spend more on preparedness.

The general elections in 2013 were the first time in Pakistan’s history that a democratically elected government handed over control to another democratically elected government after having served its full term of five years. In addition, there are no democratically elected local or municipal governments. Provincially appointed bureaucrats perform local functions with oversight by provincial and federal legislators. Despite these indicators of relatively weak democratic institutions, electoral incentives play a central role in disaster management.

Instead of spending on disaster preparedness because it could be electorally beneficial, representatives of the government appear to be drawing major political mileage from providing disaster relief. Many stakeholders interviewed mentioned that distributing disaster relief packages served as opportune moments for “photo ops” for politicians in their constituency. In fact, the Prime Minister, Nawaz Sharif, apparently started this tradition in 1990 as the Chief Minister of Punjab.

There is also great margin for manipulation of natural disasters for political benefit. One respondent noted that after the flooding in 2013, District Layyah in Punjab was inaccurately declared flood-affected so that the local representatives could distribute relief packages. Given the nature of the status quo, it could be argued that government representatives have a perverse incentive not to advocate for disaster preparedness measures. On top of that, if the events in question are rare and unpredictable like earthquakes, there is even more limited incentive to invest. It was considered an established fact among interviewees that citizens respond more to disaster response than preparedness, so there is no apparent electoral incentive to spend on preparedness. Moreover, the stakeholders interviewed felt that citizens did not expect the government to do much, either in terms of response and preparedness, regardless of whether the disaster is an acute natural shock like an earthquake or it is a slow on-set disaster like a heat wave.

Although disaster response is considered highly politicized, there was no evidence of marginalization based on ethnic grounds. The government is spending more in Punjab than other provinces, but the primary driver of that investment is frequent flooding and Punjab’s contribution to the national GDP. The media plays a major role in policing disaster response activities and their effectiveness but, like citizens, appears to not be concerned about preparedness. There are certain preparedness activities that the government is keen to fund like setting up a Command and Control Center and a helpline because they have spillover perception building benefits.

In conclusion, it can be observed that electoral incentives play a key role, but in perverse ways. The primary focus of the government remains on improving disaster response mechanisms that can be showcased to draw political mileage. If competitive elections continue to be held, the performance of one political government will eventually be compared to another and disaster preparedness efforts may begin to be rewarded.

**Political Development**

Hypothesis: If a government is more developed in terms of the quality of its politicians and the quality and independence of bureaucrats, then it will prepare better for natural hazards.

Pakistan has a long tradition of strong politicians yet most current politicians lack significant governance experience because democracy is regularly derailed by the military. Often, this intervention involves local governance reforms, but these programs are not necessarily implemented in a consistent manner, nor do they typically align with broader political objectives of actors within the main political parties. As a result, there is a pattern of inconsistent democratically elected local government structures. This means that political actors at higher levels have often not had a chance to develop their governing skills as municipal councilors.
or mayors. In this manner, military intervention may have historically introduced more instability in government processes, even via attempts to improve local-level political institutions, than might be beneficial for long-term governance. Thus, it can be argued that if Pakistan had better trained politicians who understood how to run systems and realized the need to prevent disasters, there would be more spending on disaster preparedness.

Another related issue is that of devolution of the disaster management function. The potential benefits of decentralization were somewhat evident during the recent heat wave in Karachi where city officials were more effective in their response compared to the provincial government of Sindh. However, in most cases, cities do not have the requisite budget required to respond to disasters on their own, let alone invest in disaster risk reduction initiatives.

The experience of bureaucrats suggests that local-level experience with natural disasters and preparedness activities can be highly beneficial as administrators advance through the ranks of the bureaucracy. Interviewees who had managed disasters as bureaucrats at the local level frequently reported that this helped immensely later on when they served at the provincial level. The lack of similar opportunities for elected officials may then hinder the government’s overall ability to plan and prepare for natural hazards.

The most alarming finding related to the intersection between political development and disaster preparedness relates to the corruption and rent seeking activities associated with disaster-related funds. For instance, interviewees mentioned that disasters were considered a windfall because procurement rules were typically relaxed to make it easier to procure supplies for relief. In the process, elements within the government can profit by, for instance, awarding contracts to favorable companies. This evidence provides support for the sub-hypothesis that if a country’s politicians and bureaucrats are corrupt, they will invest less in disaster preparedness as they stand to gain from the response activities.

Technical government agencies that are largely insulated from politics do seem to be more likely to be working on preparedness, forecasting and early warning initiatives. However, being insulated from politics also means that these organizations are largely irrelevant when it comes to driving the overall conversation on disaster preparedness. For instance, there are a number of agencies that engage in various weather forecasting activities but interviewees noted that they were usually not involved in the decision-making process until the onset of the disaster.
This discussion of decentralization all suggests that, given Pakistan’s previous history of implicit devolution of preparedness to local levels, the formal decentralization of the disaster management function is not likely to result in any significant improvements in response, at least in the short term. This finding is not due to a critique of decentralization in disaster management programs in general, but rather with regard to this specific case in which formal devolution resulted, at least in part, in effective recentralization of certain preparedness processes.

In conclusion, the general hypothesis that better politicians and bureaucrats, a less corrupt establishment, and decentralized control of budgets and projects will all result in better disaster preparedness finds supportive evidence in Pakistan.

**Civil Society**

Hypothesis: Levels of disaster preparedness may be higher with a stronger civil society presence in general and, in particular, when there are more disaster-oriented NGOs on the ground.

It is expected that a strong civil society will be effective at holding the government accountable and, as a result, pressure it into spending on disaster preparedness. In Pakistan, the civil society is perhaps not strong enough to play this role effectively, especially when it comes to disaster-oriented NGOs on the ground. A large number of NGOs are active in the disaster management space, but most of them only work on providing relief.

A small number of NGOs engage with local communities on building capacity for resilience, but the efforts are not coordinated and amplified. In fact, most respondents felt that Pakistan’s civil society had no real ability to develop local capacity or to advocate for a major shift in policy. This is surprising since the civil society, especially in conjunction with the media, seems to have a strong voice in other issues like human rights and corruption. In the absence of strong civil society actors, there have been some attempts by locals to invest in resilience initiatives themselves but they have not had any major impact.

Generally, it would fair to argue that the hypothesis that the civil society can drive disaster preparedness holds, at least in the negative, in Pakistan’s case. Civil society pressure on the government is weak and, hence, disaster preparedness efforts of the government are weak.

**External Actors**

Hypothesis: If a government has greater exposure to disaster preparedness from the actions of external actors, then it will invest more in preparedness.

The disaster management space in Pakistan is quite crowded with a number of active external actors that include multilateral donors like the World Bank and UN, bilateral donors like USAID and JICA, and international NGOs like Red Crescent (Red Cross). While the bulk of their efforts are focused on providing relief, some donors like the World Bank are actively pushing disaster preparedness through activities such as disaster risk assessments and capacity building workshops for local NGOs. Yet, the presence of all these external actors has not pushed the government to ramp up their own preparedness activities in a significant manner. The NDMA, the federal coordination body, has responded by commissioning their own vulnerability assessment and consolidating all the different disaster relief funds under a common National Disaster Management Fund.

The related hypothesis that a state will invest in disaster preparedness if it is proximate to other states that are doing the same does not hold at all. The eastern neighbor, India, has spent considerably on building a number of dams that prevent flooding in the half of Punjab that became part of India after the partition in 1947. On the other hand, Pakistan has not built any major dams in the recent past and, hence, is unable to regulate the flow of its rivers that cause major flooding every year.

**Economic Strength**

Hypothesis: If a country has greater economic resources overall, then it will spend more on disaster preparedness. Interviewees cited the lack of economic resources as the primary reason for Pakistan’s limited investment in disaster preparedness. Despite a decent growth rate, Pakistan’s GDP is still quite low, especially given
its large, rapidly growing population. All respondents stated that in the face of immediate crises like extremism and even disaster relief and rehabilitation, spending on disaster preparedness is always considered less important. Even the large aid inflows every year for development projects have had no significant impact on disaster preparedness spending. There is a general understanding that other, more basic issues like improving healthcare and education service delivery and reducing the electricity shortfall have to be addressed before the country can afford to invest in prevention and preparedness activities.

In the absence of government spending, it is expected that the private sector in a vibrant economy would step up to plug the gap. However, the private sector severely lacks capacity and awareness of what needs to be done to prepare for or prevent disasters. In fact, respondents claimed that the private sector actively ignores disaster-related policies, not realizing the implications for their own economic wellbeing. For instance, laws about building codes developed by the Pakistan Engineering Council exist, but there is lack of enforcement because of resistance from the private sector. The penalty for violation is considered too low so the government is now trying to have it declared a criminal offense. Even in the case of the heat wave in Karachi, it was observed that businesses and shops stayed open in blatant disregard for the government’s directions.

In conclusion, the hypothesis that governments with low GDPs will spend less on disaster preparedness holds true in the case of Pakistan and the private sector is not playing a positive role in plugging that gap.

Conclusion

Policy Recommendations

Based on this examination of disaster risk management and capacity in Pakistan, a number of policy recommendations can be put forth.

First, there is an urgent need to revisit disaster management structures, both in principle and in practice, and evaluate whether they serve their intended purposes. In order to provide effective disaster preparedness, there is need for a drastic improvement of local level capacity as well incorporation of local level knowledge in larger plans. By building local capacity and empowering local officials and communities, people should be better prepared to withstand flooding and other natural disasters. Decentralization of expertise and administration of emergency response will enable quicker, more efficient aid and decision-making. The centralization of power and budgeting around disaster management creates ineffective and inefficient processes, which can delay aid and exacerbate challenges during disasters. More importantly, centralization impedes the political development of politicians and training of bureaucrats who require the hands-on experience of governance at the grassroots level before they can effectively perform in a policy making or management function at the provincial level.

Second, in addition to spending on mitigating the effects of floods, the government also needs to give

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<tr>
<td>Moral Hazard</td>
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<td>Electoral Incentives &amp; Democracy</td>
<td>?</td>
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<tr>
<td>Political Development</td>
<td>+</td>
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<td>Civil Society</td>
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<td>External Actors</td>
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<td>Economic Strength</td>
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Note: + = evidence to support mechanism, ? = mixed evidence, - = evidence to contradict mechanism
more attention to other disasters with lower perceived risk, including earthquakes and heat waves. The government in Pakistan has virtually not spent any effort in enforcing building codes or even pushing the conversation on earthquake-proof buildings in earthquake prone zones. The earthquake in 2015 exposed the wide gaps in capacity but could not catalyze a change in narrative. Similarly, there is realization that the intensity of other disasters like heat waves is only going to increase over time but there is still no work being done on fundamentally changing the conversation so that people realize the severity of the situation. In addition to these disasters, many parts of Sindh province experience drought every year whereas many parts of Balochistan are vulnerable to cyclones.

Thirdly, the government should partner with the private sector and external actors in creative ways to overcome the challenge of poor economic strength. For instance, the NDMA is pushing insurance companies to setup a risk insurance fund that would help mitigate the risk of disasters. Similarly, other operational functions like logistics can be outsourced to the private sector with results-based contracts that could be jointly funded and monitored by external actors. Private enterprises can also develop and run early warning systems, sourcing data from public sector technical agencies as well as public data streams, to generate alerts that are broadcasted to mobile phones in the affected region. Telecom companies already have the capacity to facilitate such messages.

Finally, the disaster preparedness function itself and associated institutions, especially in the civil society, need to be given more importance both in letter and spirit. Likewise, the importance of institutions that only focus on provision of disaster relief and rehabilitation needs to be reduced. This could be done by redrafting the mission of the NDMA to highlight disaster preparedness and risk reduction as opposed to the current focus on disaster management. This notion also has to spill over into other domains such as construction of hospitals in earthquake prone areas or climate compatible construction of schools in areas with high temperatures. It is important that the incentives of focusing on such initiatives be recognized and acknowledged so that progressive politicians and policy makers feel that they stand to benefit electorally.

The media can play an important role in enabling this transition and celebrating the progressive champions.

Future Research
This research study attempted to explain some of the factors that determine Pakistan’s investment in disaster management and preparedness. One area for further research involves a more thorough examination of variations in those factors at the local level, especially from a political angle. The role of NGOs at the local level also requires further investigation, as does the relationship between urbanization and disasters. As large numbers of people move to urban areas and even in rural areas the daily practices of people become more urbanized, there may be an influence on the effects of – and responses to – natural shocks. Finally, more research on the link between disaster risk management and urban planning, especially in disaster prone regions, and how this intersects with labor movements, would contribute to a better understanding of sustainable development in a rapidly evolving world.

The media can play an important role in enabling this transition and celebrating the progressive champions.
Endnotes


INTRODUCTION

Due in large part to high population densities along rivers and low-elevation coastal zones, Asian countries have among the highest numbers of people exposed to the impacts of climate-related hazards and, thus, at greatest risk of mass death. Floods, droughts, and storms have always tested civilian governments and international humanitarian aid agencies. However, climate change threatens to make the problem worse by increasing the intensity and possibly the frequency of climate-related hazards.