

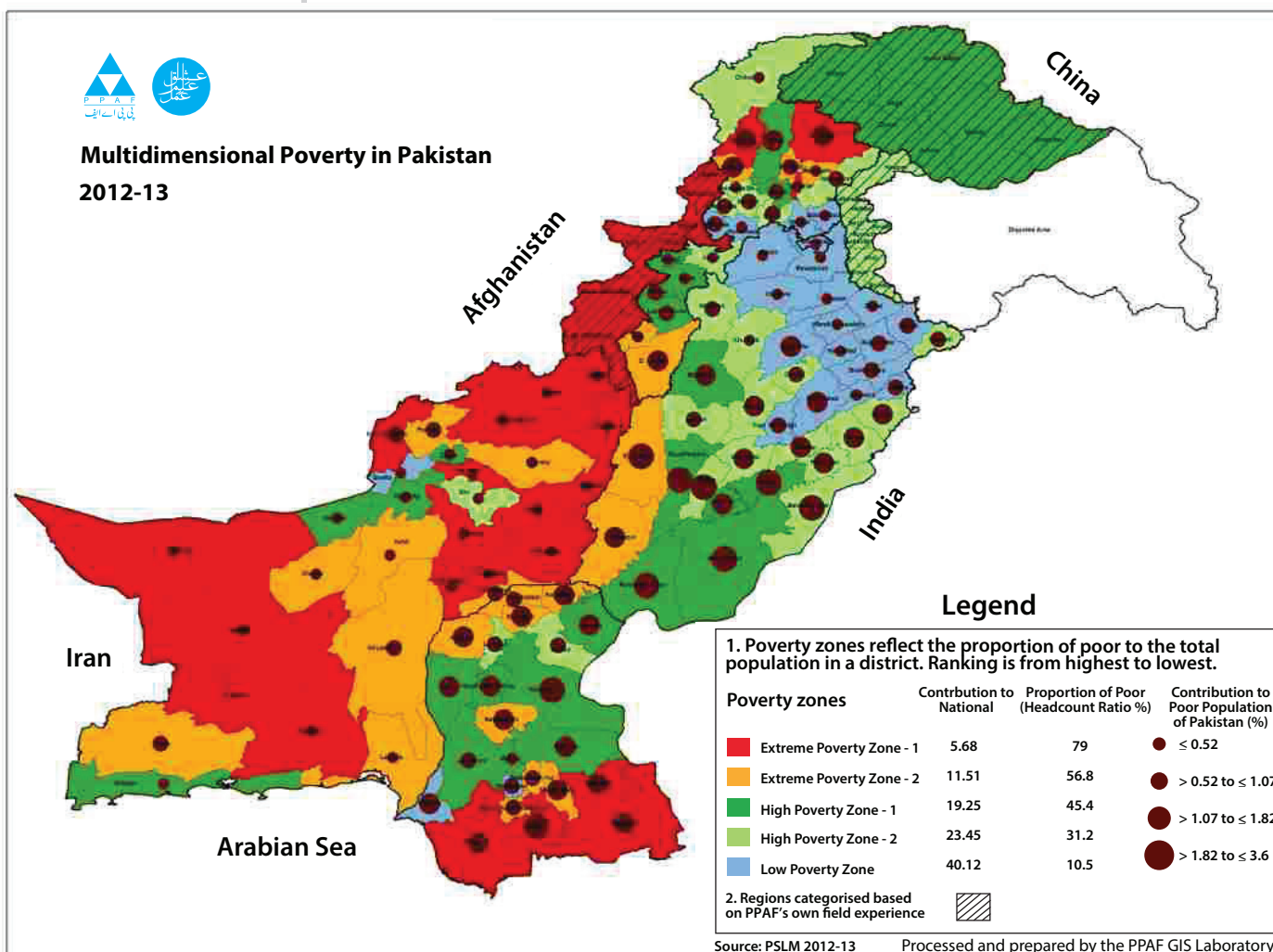
RESEARCH BRIEF

April, 2018

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The Overlapping Geography of Poverty and Natural Disasters in Pakistan

This research brief provides a broad picture of the overlapping geography of natural disasters and multidimensional poverty in Pakistan. The key argument advanced here is that the relevant public policies need to go beyond their current focus of relief and recovery in the wake of recurring natural disasters, and to focus on long term development of the extreme poor and disaster prone regions strengthening their infrastructural capacities to prevent these disasters in the first place. The emerging analysis of poverty shows stark urban-rural and regional disparities in the incidence of poverty in the country. Such an analysis argues that a wide range of economic, political and natural factors including the occurrence of natural disasters continue to entrench these disparities. It suggests that the poorest districts in each province are not only characterized by recurring natural disasters such as floods, earthquakes, and droughts, but also have limited infrastructural capacity to deal with these disasters given their underdevelopment.



Source: Naveed et al. (2016)

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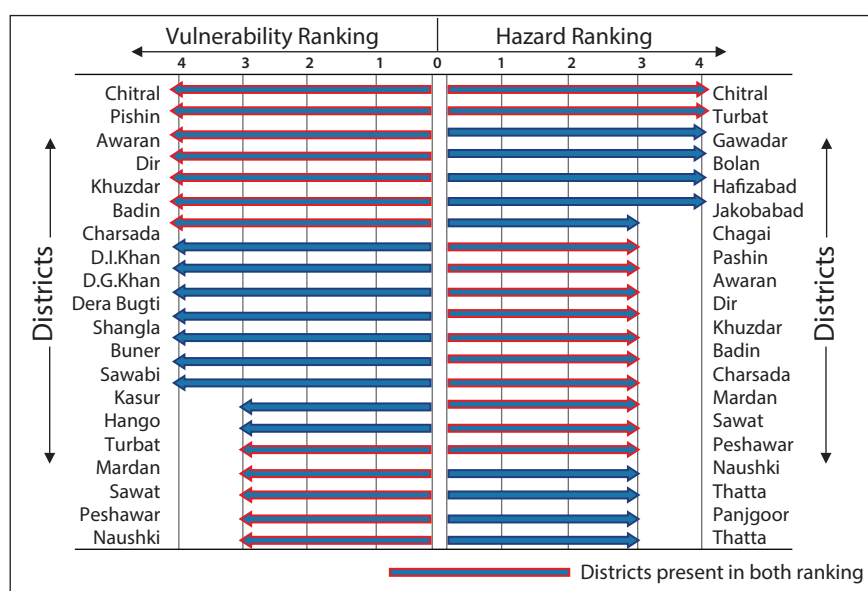
Based on the data from the provincial disaster management authorities and the analysis offered by various studies, this brief provides a broad overview of the relationship between natural disasters and multidimensional poverty across districts in Pakistan. An overview of the country's geography indicates that poorer regions have a high natural hazard classification. This can be seen in Map 1, which shows a map depicting a division of the country into extreme poverty zones, along with the natural hazard classification of these zones.

Map 1: Geography of poverty in Pakistan 2012-13

Districts in the Extreme Poverty Zone 1 (the poorest quintile of the districts in the country) fall in the northeast and southwest of Balochistan, south of Sindh and north of KP. The co-incidence of high poverty and natural disasters is evident from the simple fact that out of the 23 districts that fall in the Extreme Poverty Zone 1, 18 have a high natural hazard classification of the National Disaster Management Authority.³ Out of these, 11 districts with high hazard classification for multiple natural disasters include; Kill a Abdulllah, Hamai, Barkhan, Washuk, Dera Bugti, Nasirabad, Jaffarabad, Kohistan, Upper Dir, and Thatta. This is in sharp contrast with the patterns of natural disasters in the Low Poverty Zone where only 5 out of 22 districts have a high natural hazard classification, and include; Peshawar, Nowshera, Chiniot, and Toba Tek Singh. Further, unlike other districts in higher poverty zones, no district in the Low Poverty Zone has a high hazard classification for multiple natural disasters.

Furthermore, a review of disaster risks and vulnerabilities in Pakistan provides the ranking of districts with the highest levels of disaster vulnerability and hazards. It triangulates socio-economic, environmental, and physical dimensions to assess vulnerabilities to natural disasters, using a range of indicators. Based on this analysis, Figure 1 presents the top 20 districts with the highest vulnerability and hazards, which are also the districts with the highest incidence of poverty as shown in Map 1. Based on their analysis, Rafiq & Blaschke show that districts at high natural disaster risk are underdeveloped, predominantly in the southwest of the country, whereas districts with low risk are established economic hubs such as Karachi, Lahore and Faisalabad.

Figure 1: Districts with the highest natural disasters vulnerability and hazards



The relationship between poverty levels and vulnerability to natural disasters can be seen more closely within each province. Poor districts have repeatedly faced some of the worst natural disasters, heavily bearing losses and damages as they continue to have limited capacity to deal with these recurring disasters.

In Balochistan, heavy rainfall in 2010 affected over 50,000 people. Among the districts affected were Barkhan, Sibi, Kohlo, Bolan, Naseerabad, where collectively up to 10000 families were affected. Jhal Magsi and Jafferabad were also considered to be under threat (reference). The following year, flash floods and torrential rains brought life to a standstill in Ziarat,

Source: (Rafiq & Blaschke, 2012)

Loralai, Nushki and parts of Chagai and Mastung. In 2013, Jaffarabad, Naseerabad, Jhal Magsi, Sibi, Khuzdar, Lasbela and Loralai, along with Killa Saifullah were again hit by floods (ref). The same year, a 7.8 Richter scale earthquake hit and devastated parts of Washuk, and another earthquake hit the southwestern part of the province, where some of the poorest districts of the country were declared the most affected. These included Awaran, Kech, Kharan, Panjgur, Washuk, Gwadar (Provincial Disaster Management Authority, Balochistan). Table 1 presents the poverty headcount ratio of the most disaster affected districts in the province highlighting the fact that the poorest populations are greatly and disproportionately affected by these recurring disasters.

³District in the Extreme Poverty Zone - 1 are mainly in the northeast and southwest of Balochistan, south of Sindh and north of KP. These includes Awaran, Badin, Barkhan, Bolan/Kachhi, Chaghi, Dera Bugti, Harnai, Jhal Magsi, Kohistan, Kohlu, Musakhel, Nasirabad, Panjgur, Killa Abdullah, Killa Saifullah, Tharparkar, Thatta, Torgarh, Umer Kot, Upper Dir, Washuk, Sherani, Zhob

Table 1: The most disaster affected districts in Balochistan with their poverty levels

Districts most frequently affected by disasters 2009-13	Population below poverty line 2013
Washuk	85.7%
Naseerabad	81.1%
Jhal Magsi	74.6%
Jafferabad	71.9%

Source: Naveed, Wood, & Ghaus, 2016;PDMA, Balochistan

In KP, there have been common occurrences offlash floods in several districts that have high poverty include: Swat, Upper Dir, Lower Dir, Chitral, Shangla, Kohistan, Mardan, Koh at, and DI Khan. The 201 0flood was the most devastating in the province's recent history, affecting over 3.8 million people. The most affected districts included Nowshera, Swat, Charsadda, Kohistan, Upper Dir, Lower Dir, Shangla, DI Khan, Tank, Mansehra, Haripur, and Chitral. The highest losses were recorded in Swat, Nowshera, Charsadda, Kohistan, and DI Khan. The following year, Charsadda, DI Khan, Kohistan, Lower Dir, Upper Dir, Nowshera, Peshawar, Shangla, Swat, and Tank were again among the most flood affected districts. In 2012, flash flooding during the monsoon season again affected several villages and localities in Upper and Lower Dir, Nowshera, Charsadda, Malakand, Shangla Mansehra, and Swat (Provincial Disaster Management Authority, KPK). Table 2 lists the most disaster affected districts along with their poverty levels.

Table 2: The most disaster affected districts in KP with their poverty levels

Districts most frequently affected by disasters 2009-13	Population below poverty line 2013
Kohistan	96.2%
Upper Dir	76.5%
Shangla	68.5%
DI Khan	53.5%
Lower Dir	51.6%
Swat	41.7%
Kohat	35.9%
Mardan	31.8%
Chitral	25.9%
Peshawar	18.5%

Source: Naveed, Wood, & Ghaus, 2016;PDMA, KP

In Punjab, the 2010 floods severely devastated many parts of the province, but the most affected districts not only had a very high incidence of poverty but also hosted the largest populations of the poor given population density. These most affected districts included; Mianwali, Khushab, Bhakkar, Layyah, Muzaffargarh, DG Khan, Rajanpur, Rahimyar Kham, Jhang, Multan, and Sargodha. Muzaffargarh and Rajanpur had the highest number of people affected during the 2010 floods. Similarly, floods during 2011 continued to swipe across many of the same regions. The worst affected districts during the year included Bahawalpur, Kasur, Khushab, Lodhran, Mianwali, Nankana Sahib, Okara, Pakpattan, Rajanpur, Sahiwal, Toba Tek Singh, and Vehari. Many of these districts, as can be seen in the table, also had exceptionally high rates of poverty. 2012 again saw floods sweeping across the province, once again affecting Rahimyar Khan, Rajanpur, DG Khan, Mianwali, Toba Tek Singh, Layyah, Bahawalnagar, and Muzaffargarh. Other districts affected during the year included Hafizabad, Khanewal, and Sahiwal. The highest number of affected persons was in DG Khan, followed by

Rajanpur and Rahimyar Khan that year. Among the most affected districts from floods the following year were Rajanpur, Muzaffargarh, Narowal, Jhang, Mianwali, DG Khan, Bahawalpur, Gujranwala, Sialkot, Khanewal, Rahimyar Khan, Multan, Sheikhpura, Sahiwal, Vehari and Toba Tek Singh (Provincial Disaster Management Authority, Punjab). Table 3 shows the poverty rates in some of the districts that have repeatedly been affected by disasters during the years 2009-2013.

Table 3: The most disaster affected districts in Punjab with their poverty levels

Districts most frequently affected by disasters 2009-13	Population below poverty line 2013
Rajanpur	63.4%
DG Khan	55.8%
Muzaffargarh	48.2%
Vehari	44.9%
Rahimyar Khan	44.0%
Mianwali	29.9%
Layyah	28.9%
Sahiwal	27.8%
Khushab	21.1%
Toba Tek Singh	15.9%

Source: Naveed, Wood, & Ghaus, 2016; PDMA, Punjab

In Sindh, several poor districts have also seen recurring natural disasters, mostly in the form of floods over the past several years. Most damage has occurred during the monsoon season, which has resulted in frequent heavy raining and flash flooding that inundates many rural districts and have left hundreds of villages affected. The 2010 floods hit hard on Thatta, Hyderabad, Jamshoro, Shaheed Benazirabad, Naushahro Feroze, Dadu, Larkana, Sukkur, Ghotki, Khairpur, Shikarpur, Kashmore, Jacobabad, Qambar Shahdadkot, and Tando Mohammad Khan. The following year, floods visited again the same districts, along with Badin, Umerkot, Matiari, Ghotki and Tharparkar. Among the worst affected have been Jacobabad, Qambar Shahdadkot, Kashmore, Shikarpur, Dadu, Thatta and Jamshoro. The other affected districts included Ghotki, Khairpur and Larkana. Some of the poorest districts in the province have also been marked by droughts. These include, most notably Tharparkar, Umerkot and Sanghar. In 2013, floods revisited, mostly affecting Shaheed Benazirabad, Dadu, Matiari, Jamshoro, Hyderabad and Thatta (Provincial Disaster Management Authority, Sindh). Table 4 shows districts frequently affected by disasters and the poverty headcount ratios.

Table 4: The most disaster affected districts in Sindh with their poverty levels

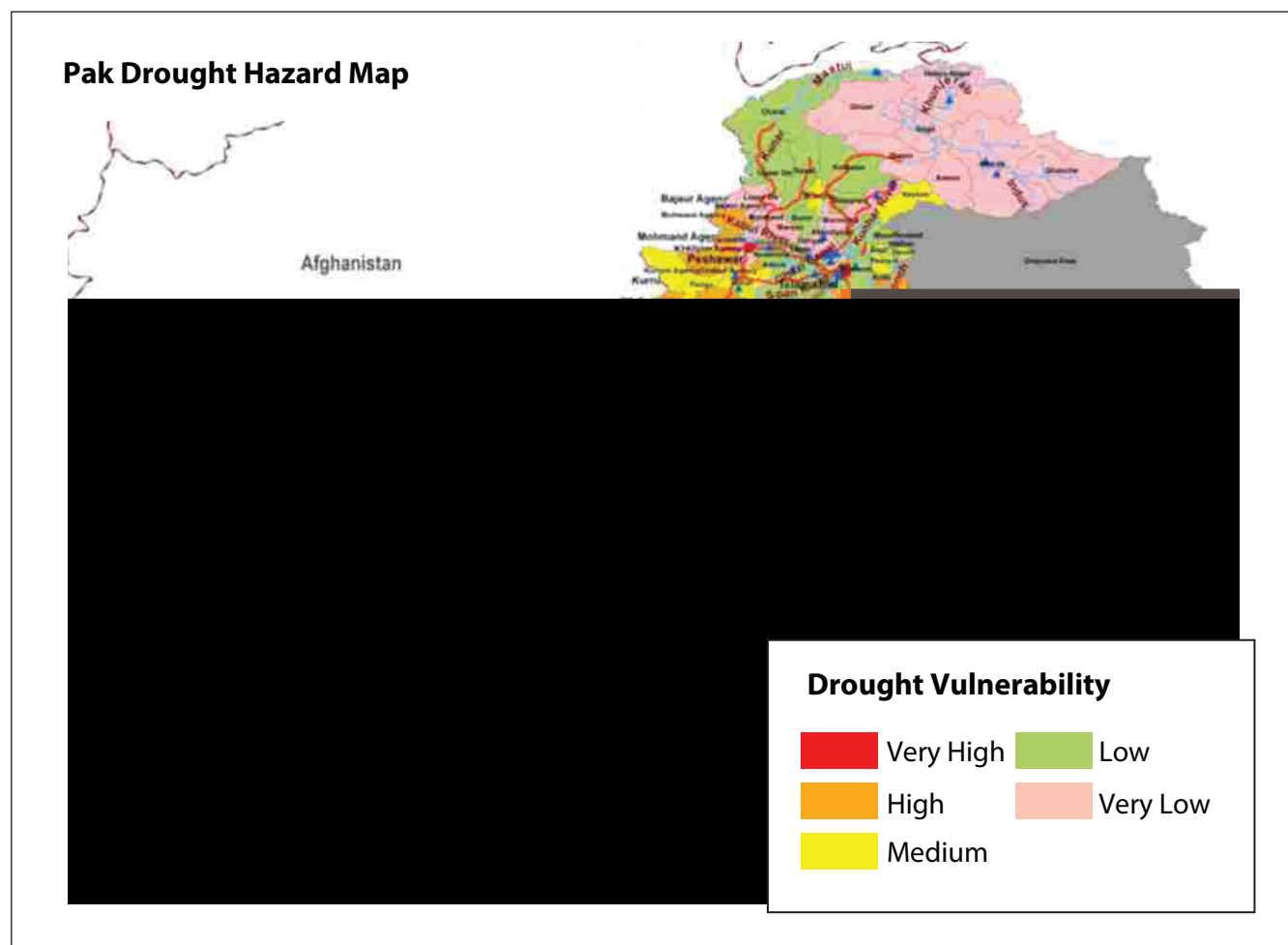
Districts most frequently affected by disasters 2009-13	Population below poverty line 2013
Tharparkar	78.6%
Thatta	73.0%
Umerkot	73.0%
Kashmore	63.8%
Tando Mohammad Khan	60.7%
Jacobabad	58.2%
Shaheed Benazirabad	52.9%
Qambar Shahdadkot	52.2%
Shikarpur	51.2%
Khairpur	49.4%

Ghotki	48.0%
Dadu	47.0%
Naushahro Feroze	46.8%
Jamshoro	45.9%
Matiali	40.2%
Sukkur	34.8%
Larkana	32.7%

Source: Naveed, Wood, & Ghaus, 2016; PDMA, Sindh

Like floods, droughts have also become a common occurrence, particularly in regions of Balochistan, Sindh, and southern Punjab. Vulnerable regions have experienced prolonged periods of drought, intensifying the deprivations faced by people there. The main arid regions vulnerable to droughts include some of the poorest districts in the country, including Cholistan, DG Khan, DI Khan, Kohistan, Tharparkar, and many districts in western Balochistan. From 1997-2001, a persistent drought had severely affected Balochistan and Sindh. Nushki in Balochistan and Tharparkar in Sindh were among the worst affected districts at the time. Map 2 gives a vivid reflection of the confluence of poverty and vulnerability to droughts in the country. Half of Balochistan is said to be drought prone, with the districts Nushki, Chaghi, Kha ran and Makran more affected than others

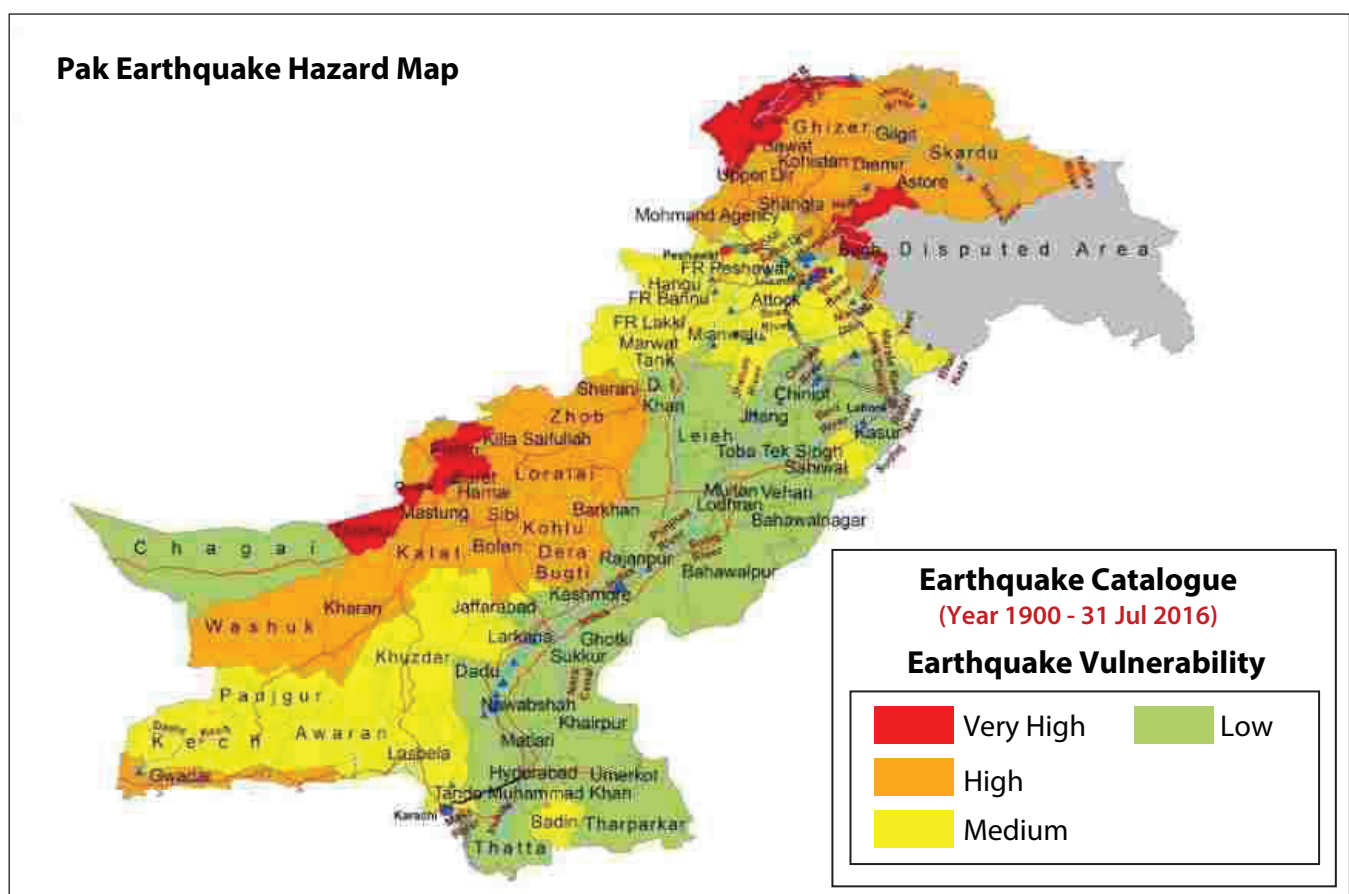
Map 2: Droughts hazard across districts



Source: (National Disaster Management Authority of Pakistan, 2017)

The northern areas of Pakistan surrounded by Suleiman, Hindu Kush and Karakoram ranges have also witnessed deadly earthquakes. Districts adjoining these have been highly prone to earthquakes and include Chitral, Muzaffarabad, Quetta, Chaman, Sibi, Zhob, Khuzdar, Dalbandin, Ziarat, Gwadar, and Pishin. Over the past several years, there have been multiple occurrences of earthquake, the most notable of which was in 2005, leaving over 80,000 fatalities, 200,000 people injured and over four million people homeless in its aftermath. The worst affected districts included Abbottabad, Battagram, Kohistan, Poonch, Mansehra, Muzaffarabad, Bagh, and Shangla. As Naveed et al. (2016) show, most of these districts have high levels of multidimensional poverty. Map 3 shows Pakistan's earthquake hazard map, reflecting some of the poorest districts' vulnerability to earthquakes.

Map 3: Earthquake hazard across districts



Source: (Rafiq & Blaschke, 2012)

Conclusion

This brief illustrates that in each province, the districts with the largest proportion of population facing the co-incidence of multiple deprivations such as that of education, health, living conditions and asset ownership are also the ones that have recurring natural disasters. The impact of these recurring natural disasters is exacerbated by the limited infrastructural capacity of several of these districts, which are already characterized by the weak performance of the institutions of delivery of public services at the local level. The overall impact is high levels of displacement of the poor households and loss of lives and livelihoods perpetuating their initial poverty levels. In the given conditions, poverty reduction alone cannot achieve its goals unless the wider development strategies of the country and provinces improve the overall and provinces improve the resilience of the communities in these disaster-prone areas.

A development plan that prioritizes the poorest regions' vulnerabilities, including those related to natural disasters has rarely come into policy discussion, much less into action. It is therefore imperative to frame disaster reduction within the development agendas in ways that integrate poverty and disaster struck communities and regions with the rest of the country through improved infrastructure. Regional development through local governments that allow and enable the populations of the country's most deprived districts to strengthen their physical infrastructure, improve their connectivity, and develop local capacities will help tackle the mutually reinforcing incidence of multiple deprivations and recurring disasters.

In the post 18th amendment policy framework with provinces at the forefront of setting development priorities and executing policy action, the provincial governments have to be more open to devolving both administrative and financial powers to districts to allow them to address their unique development needs, including context specific disaster preparedness and resilience programmes. At the same time, the provincial governments have to pay greater attention towards developing disaster resilient infrastructure in areas characterized by high natural disaster risk which evidently contribute to already prevailing levels of poverty.

While many organisational structures to deal with disasters including Natural Disaster Management Authority have been put in place over time, several studies point out that disaster management in Pakistan has been extremely narrow in its scope, focusing mainly on emergency humanitarian relief during and immediately following disasters.⁴ Humanitarian approach to relief and recovery after disasters have occurred is costly and does not prevent the loss of lives, livelihoods, properties and infrastructures. However, disaster risk reduction (DRR) to prevent the damages that natural disasters bring has been conspicuously absent in Pakistan's disaster management apparatus and practice. DRR can in fact trigger the overall development of the disasters prone districts including the improvement of service delivery and the reduction of multidimensional poverty. The Disaster Management Act (2010) too remains insufficient to mandate necessary action in preventing disasters (ibid.). Even with disaster risk resilience strategies, execution reportedly remains weak, particularly at the district level where the need is clearly the most. A host of factors mar policy execution, including institutional fragmentation, lack of coordination, and limited resources available at the district level. The role of local communities and their inclusion in DRR mechanisms is of prime importance in strategic planning for the purpose. This is where non-governmental organisations such as Pakistan Poverty Alleviation Fund and other stakeholders can play an effective and enabling role for the government, allowing the latter to better understand the risks that the local communities face, the grievances they have to endure, and the solutions they can best contribute to for themselves. There are successful examples of such community-based disaster risk management efforts, and there is a need for more work in this direction, especially with increasing climate vulnerability that has already caused wide displacements of local populations.⁵

Lastly, the overall breadth of and the limited space available in this brief do not allow us for a detailed analysis of the coincidence of natural disasters and high levels multidimensional poverty at district level. By establishing the intertwined nature of poverty and natural disasters in Pakistan, this brief makes the case for a deeper and systematic understanding of the varying practices of institutional actors and their policies across provinces and regions to generate specific policy options that can simultaneously reduce poverty and disaster risks.

⁴See for example, Ahmed, 2012 and Abdur, Abid, & Muhammad, 2016

⁵See for example Oxfam GB, 2012



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- Rafiq, L., & Blaschke, T. (2012). Disaster risk and vulnerability in Pakistan at a district level. *Geomatics, Natural Hazards and Risk*, 324-341. both administrative and financial powers to districts

Pakistan Poverty Alleviation Fund

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