

Institutional Mapping and Political Economy of DRR: A Case Study of Azad Jammu and Kashmir (AJK)

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Abstract

This paper aims to analyze the institutional framework in Pakistan for disaster management and specific disaster management policies. This paper is also designed to develop an in-depth understanding of the key challenges that the communities of Azad Jammu & Kashmir, Pakistan face in the wake of constantly reoccurring disasters. House-hold survey, observations and key informant interviews were conducted to analyze the preparedness, both at community and organizational levels. The findings point out that disaster management policies and mechanisms regarding preparedness are not implemented by both federal and state authorities at local level. Further, the local communities of AJK, Pakistan are susceptible to different kind of hazards related to disasters. The paper reveals that available federal/state mechanism of disasters do not meet the needs of community. All of the stakeholders including federal government institutions, state government institutions and local communities are not prepared. Thus, communities are continuously getting affected by natural disasters. The paper suggests that there is a dire need to improve the coordination between state and national agencies. Further, there is need to enhance community preparedness specifically in AJK, Pakistan to upgrade community's defensive and awareness mechanism to safeguard citizens' lives in response to seismic emergency.

Key Words:

Disaster Management, Natural Disasters, Community Preparedness, Community Planning, Pakistan, Azad Jammu & Kashmir

Introduction

Disaster is the adverse event that causes damage to humans, plants and animals. Disasters happen indiscriminately, rapidly and instantaneously (Blaikie, Cannon, Davis & Wisner, 2004). Disasters can both be man induced and natural. These events usually exceed bearable magnitude that results in loss of lives, properties and wealth resulting in paralyzing the life (Quarantelli, 2005). According to UN, disaster can be defined as the serious and somber disruption of the

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society/community that cause widespread environmental, economic, material and human losses that surpass the abilities of affected society or community to cope its resources. The disasters happen from the amalgamation of vulnerabilities, inadequate capacities and hazards (Fuchs, Birkmann & Glade, 2012). The disasters occur when hazards impact the vulnerable population resulting into disruption, casualties and damage. Pakistan is exposed to multiple forms of natural and manmade disasters; that ranges from heavy rainfalls, sea based hazards, rainfalls, cyclones and droughts to floods and earthquakes. Pakistan has been experiencing severe hydro-meteorological disasters reason being the climate change and its uneven topography and in consequence received tremendous loss in almost all sectors.

To cope with the above mentioned challenges, Pakistan, after 2005, has moved from response oriented approaches towards more comprehensive DRM approach informed by the lessons learnt from Earthquake 2005 and by adopting Hyogo Framework for Action (HFA). Hitherto, the major achievements are enactment of NDMA act of 2010, Disaster Management Plans formulation, Draft National Disaster Risk Reduction (DRR) Policy, and establishment of institutional arrangements in the shape of District Disaster Management Authority (DDMA), Provincial Disaster Management Authorities (PDMA) and finally National Disaster Management Authority (NDMA). Nevertheless, the practical implementation of these institutional arrangements and devised policies is compromised. There is enough evidence that these arrangements have not yielded the envisaged dividends for effective disaster risk reduction or management. This is a case across all types of disasters whether they are natural, man-made or security induced. Pakistan has experienced the deficiencies of existing legal and institutional arrangement during the floods of 2010, huge internal displacement in 2009-10, and urban/industrial fires in Karachi during 2012, to name a few (Mustafa & Wrathall, 2011).

Further, Disaster management relies on communities' knowledge or local population as they are the first available sources to tackle with disaster (Paton, 2007). To involve local citizens and communities in Disaster Risk Reduction (DRR) and Disaster Risk Management (DRM) is a laborious task in most of the countries (Mercer, 2010; Hosseini, de la Fuente & Pons, 2016). Many interventions by the authorities ignore local inputs in reducing vulnerabilities (Guha-Sapir, Regina & Hoyois, 2015; Mercer, 2010). For Pakistan, enhancing local knowledge is crucial because of existing gaps in the disaster agencies response to the sudden onset of disasters.

In this wake, looking at the challenges and deficiencies of the system there appears certain issues and questions that are very deep seated in the political and economic structures and institutions and cannot be attributed to mere capacity deficits. They rather point to some very intriguing questions that are grounded in the political economy and governance milieu of the sector. The objective of this

paper is two folds, macro and micro level. Firstly, at the macro level, the paper has analyzed all the available Disaster Risk Reduction (DRR) mechanism in Pakistan using Political Economy Analysis of DRR. Further at the micro level, this paper, taking Azad Jammu & Kashmir, Pakistan as its case-study, was designed to develop an in-depth understandings about the main challenges that communities face in the wake of constantly reoccurring disasters. Finally, this paper explores the reasons behind these challenges, existing coping mechanisms and particular needs that can be identified for further external support through different organizations. The next section explains the phenomenon of natural hazards in Pakistan.

Literature Review

The literature review for this paper has been dissected into

Natural Hazards in Pakistan

Pakistan is located in one of the most hazard prone areas of the world (Rafiq & Blaschke, 2012). Different disasters such as epidemics, tsunamis, landslides, droughts, glacier outbursts, floods, earthquakes and cyclones occur in Pakistan. Since 1954, Pakistan has suffered mostly from floods followed by earthquakes and storms.

The undermentioned Table gives an over-view of the hazards in Pakistan.

Hazard Type	Year	No. of events	Persons killed	Affected		Damage in million rupees
				People Villages		
Earthquakes	1990 (magnitude 6.1)	1	15	N/A	N/A	N/A
	2000 (magnitude 6)	1	20	456	N/A	N/A
	2005 (magnitude 7.6)	1	86,000	108,000+	N/A	N/A
	2008 (magnitude 6.4)	1	166	68,200	N/A	N/A
	1999-2001	1	143	2,200,000	N/A	N/A

Drought Flood	1992	1	1,008	N/A	13,207	69,580
	1995	1	591	N/A	6,852	8,698
	2001	1	219	N/A	50	450
	2003	1	484	N/A	4,376	5,175
	2004	1	85	N/A	47	15
	2005	1	59	N/A	1,931	N/A
	2006	1	541	N/A	2,477	N/A
	2007	1	586	N/A	6,498	N/A
Storms	1999	2	258	657,566	N/A	N/A
	2001	1	4	500	N/A	N/A
	2003	1	51	2,557	N/A	N/A
	2005	1	57	N/A	N/A	N/A

Table 1. Major Geophysical and Hydro-Meteorological Hazards in Pakistan

Note: N/A, data not available

How Pakistan is responding to the natural hazards and if the communities have the ability to resist against the disaster management is still subject to a long debate.

Methodology

This paper is exploratory based on primary and secondary sources of information and data. The paper is divided into two sections. The first section analyses Institutional Mapping and Political Economy of DRR in Pakistan at macro-level while the second section analyze the Institutional Mapping of DRR at Micro-Level by taking the case of AJK

Methods Applied for Macro-Level

The primary evidence on the sector from the standpoint of PEA is very scant and therefore it was supplemented through qualitative research using seven (7) key informant interviews with stakeholders. Moreover, Primary sources that includes National Calamities (Prevention & Relief) Act 1958, NDM Act 2010, Punjab Emergency Service Act 2006 and Civil Defence Act 1952 (As amended upto 1993). Secondary sources including literature on drivers of change, governance, PEA of DRR and DRM were thoroughly reviewed to cull out inferences and develop the framework of analysis for this study. All the data collected were triangulated to arrive at the inferences and identify entry points that lead to effective interventions for more resilient society and effective performance of DRM related policy and institutional arrangements.

Methods Applied for Institutional Mapping of DRR (Micro-Level): The Case of AJK

In order to conduct this study, fundamental steps of development research were applied. First off, the district selection was carried out. Out of the ten districts in AJK, five were chosen due to time and resource constraints. These districts have historically been hit by disasters such as flash floods, earthquakes, landslides and avalanche. Heavy rains and flash flooding has hit AJK in 1992, 2010 and 2014; heavy floods have caused extreme damage in these districts, particularly in 2010 and 2014 where most of the population, both urban and rural, was majorly affected. Additionally, the devastating earthquake of 2005 that led to a loss of approximately 80,000 people across Pakistan, also caused severe damages in these districts. For each of these 5 districts, the following Union Councils were selected.

Table 3. List of Selected Districts and Union Councils for the Study

	District	Selected UCs
1	Muzaffarabad	Muzaffarabad UC + Town
		Hattian Dupatta
		Machiara
2	Hattian	Leepa
		Chakhama
		Salmiah
3	Bagh	UC Bagh plus Urban
		Islam Nagar
		Nar Sher Ali Khan
4	Bhimber	Patni
		Khamba
		Dhandar Kot
5	Neelum	Kundal Shahi
		Gurez
		Dudhnail

In total, 450 households were interviewed for the purpose of this study. Before heading out the field, a detailed assessment of the area was undertaken for the site selection, questionnaire preparation and the undertaking of existing institutional systems in place. Once the final draft of the tools was prepared, a round of pre-testing was carried out in the nearby communities of the 5 districts. This helped in removing any issues, and hence the questionnaire was finalized. For quantitative data analysis, SPSS was used. The data validation features were applied through development of drop down menus to ensure accurate data entry. The information

was then analyzed that refined the findings, and identified key DRM needs of AJK, presented in this study.

The data was analyzed to understand the DM institutional framework and to investigate the issues related to community resilience, preparedness, mitigation and management by applying the case study of AJK, Pakistan. In order to conduct this study, fundamental steps of development research were applied. First off, the district selection was carried out. Out of the ten districts in AJK, five were chosen due to time and resource constraints. The most vulnerable and poor districts were selected through a thorough understanding of the region: topology leading to particular disasters, and the socio-economic conditions. This was done through historical data analysis and consultations in AJK. Through the process, the following districts were selected to carry out this study: Bagh, Bhimber, Hattian, Muzaffarabad, and Neelum. These districts have historically been hit by disasters such as flash floods, earthquakes, landslides and avalanche. Heavy rains and flash flooding has hit AJK in 1992, 2010 and 2014; heavy floods have caused extreme damage in these districts, particularly in 2010 and 2014 where most of the population, both urban and rural, was majorly affected. Additionally, the devastating earthquake of 2005 that led to a loss of approximately 80,000 people across Pakistan, also caused severe damages in these districts. For each of these 5 districts, the following Union Councils were selected.

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Data Collection Tools and Application

Both qualitative and quantitative approaches were employed for data collection purposes of this study. First, a detailed questionnaire was prepared to carry out the quantitative household survey. In total, 450 households were interviewed for the purpose of this study. In order to triangulate the results, qualitative tools were applied to identify the themes, subthemes and nodes. Focus Group Discussions (FGDs) were carried out with different community groups such as teachers, shopkeepers, small traders, farmers, councilors and traders. A total of 12 FGDs (6 each with male and female) were conducted, in 6 union councils of each of the 5 districts. In addition, 7 Key Informant Interviews (KIIs) were also conducted with district authorities, including the Local Government, municipality, health, agriculture, livestock, PHED and SDMA.

Fieldwork

Before heading out the field, a detailed assessment of the area was undertaken for the site selection, questionnaire preparation and the undertaking of existing institutional systems in place. Desk review of the following was carried out: National Disaster Risk Reduction (DRR) Policy, National Disaster Management Plan (NDMP), District Disaster Risk Management Plans, international Sendai Framework on Disaster Risk Reduction (SFDRR), assessment studies, baseline reports prepared by other agencies AJK. Following the desk review, the tools for data collection were developed. This included a high-quality questionnaire for the household survey and semi structured questions for the FGDs and the KIIs. Once a final draft of the tools was prepared, a round of pre-testing was carried out in the nearby communities of the 5 districts. This helped in removing any issues, and hence the questionnaire was finalized. Through the orientation, the enumerators were also taught the process of village selection and systematic random sampling for selecting household for each district. Once the field work was completed, data entry was processed through the SPSS and Nvivo. For quantitative data analysis, SPSS was used while nVivo was used for qualitative data analysis. The data validation features were applied through development of drop down menus to ensure accurate data entry. The information was then analyzed that refined the findings, and identified key DRM needs of AJK, presented in this study.

Findings

Institutional Mapping and Political Economy of DRR (Macro-Level)

Framework of analysis of this study is informed by an eclectic approach using insights and tools available in the Drivers of Change (DoC) studies and Political

Economy Analysis (PEA). The critical drivers that determine the outcome and effectiveness of DRR policies are important to be clearly understood in case of Pakistan. These drivers may facilitate or retard the adoption of DRR policies and their effective implementation. In the literature on PEA, these drivers are generally grouped under three categories: structures, institutions and political processes. For the analysis of DRR in Pakistan, structures are understood as basic and relatively stable features of the political economy of the state and sector under study. The institutions here are defined as both informal and formal rules, laws and regulations that influence the political behavior, influence and relationship among different actors. The political process, for the purpose of this framework of analysis, includes various actors and groups to advance their respective agendas and interests.

Institutional Framework in Pakistan (For Disaster Management)

The NDM commission was established after the earthquake of 2005 in Pakistan. The Commission is the apex and higher most decision-making body of Pakistan. Basically, NDMA was designed to act as central body to implement disaster strategies. Further, Provincial authorities had their own autonomous bodies for disaster management head by respective heads of provinces. Union councils and local governments are the lowest tiers. This third tier of government has the most important role to allocate the resources for the developmental work. They can play a vital role to advocate the needs and demands of communities from disaster risk reduction authorities and other related bodies. Up till 2014, Pakistan has faced the losses more than US\$39bn only from floods.

In addition to this, analysis of post 2005 policies on disaster show that the available approaches that are being implementing are based on short term relief and response efforts (Ahmed, 2013). There is very minute focus on capacity building, disaster preparedness and prevention. Legislative and regulatory gaps and weaknesses of disaster related institutions persist in term of mitigating susceptibilities and improvement livelihood (Deen, 2015).. Keep in view these loopholes, this paper has assessed the impacts of natural disasters (flash floods, earthquakes) on vulnerable groups, especially local rural and urban communities by taking the case study of AJK, Pakistan. More specifically, this paper finds out the preparedness and adaptation approaches at the community and institutional level in rural and urban settings of AJK, Pakistan. In particular, the paper has analyzed vulnerability of local communities and the local institutions. Further, the government policies on DRR, laws and strategies on Resilience, preparedness responses and climate adaptation have been analyzed to understand where the gaps lie. The next section explains the research methodology of the paper.

DRR in Pakistan: A Political Economy Analysis

From the standpoint of PEA, we need to place the interaction of various institutions and actors and their respective incentives or disincentives. Within the context of Federal Structure of Pakistan, DRR/DRM has been defined as provincial subject under the constitution of Pakistan. This defines the center-province relations and their dynamics (Cheema, Mehmood & Imran, 2016). This federal structure and constitutional stipulations of different roles provide a space for political negotiations, competitions and incentives and disincentives to the political actors both at the provincial and federal levels. KPK is the first province which has made changes in the NDM Act 2010 and has introduced National Disaster Management (Khyber Pakhtunkhwa) Act, 2012. After the 2010 floods there were delays in the mobilization of funds for the affected by the international development partners (Wasim, 2015; Deen, 2015). The delays can be attributed to two key reasons; first the enormity of disaster was unfolding gradually, and secondly international humanitarian and development agencies were already committed heavily in responding to the Haiti earthquake. But this all raised doubts over the credibility of Federal government in wake of media reports for alleged corruption.

Further, it was learnt that political parties attach greater value to the high visibility infrastructure development projects as compared to investing in DRR. The situation exacerbates due to lack of demand from their electorates and political leadership draws more mileage from showcasing work for public good which is best demonstrated by infrastructure projects. The absence of political incentive for undertaking DRR related initiatives for the public representatives gives them ample space to focus on all other areas but DRR (Cheema et al., 2014).

Adequate financing on DRR/DRM poses serious political challenges and speaks for the political will of the government to match its policy announcements (Fair, Kuhn, Malhotra & Shapiro, 2017). There are two major issues which were identified in this regard. First, allocations are not adequate and whatever is allocated not spent well. Balance of allocations is skewed in favor of response and relief and very less is invested on preparedness. Secondly, finances allocated and spent on DRR lose their desired impact due to extensive corruption and rent seeking. A study carried out by NDMA on public-sector financial investments for mitigation and preparedness suggests that between 1998-99 to 2008-09, the Federal government's spending on disaster response was nine times higher than preparedness and mitigation. The pattern of spending does not help build DRR systems in Pakistan. Moreover, the analysis of expenditure trends indicates underutilization of the allocated resources.

Moreover, it was found that local governments are totally ignored. Local governments run at the whims of the provincial government by civil servants as their administrators can advance the provincial agenda more easily as compared to the local governments led by provincial representatives. The available literature

suggest that local governments offer broader opportunities for DRR as compared to other governments. The relationship between poor governance and disaster has also been established as a 'risk driver'. Thus, it is understandable that effective local government can lead to effective DRR. However, in case of Pakistan, communities still have the incentive to engage for disaster resilient measures without having representative governments at local level. Hence the local governments in Pakistan may be run by civil servants appointed as administrators by provincial government instead of public representatives; people still find incentives in engaging with them for building sustainable partnership for DRR/M.

Further, this was found that in Pakistan, most vulnerable people to disasters are the poor and women. Whether they are the peasants of different provinces or industrial workers trying to earn their living under shabby governance of industrial sector; all are exposed to disasters of different kinds. This exposure warrants effective DRR response from government but political considerations of the leadership entail quite distant responses from the ones actually required. Special needs of women and children with respect to lodging and health in the wake of disasters do not receive serious consideration while planning relief efforts. The floods of 2010 rendered millions homeless and all the relief efforts planned and carried out were blind to different needs of women.

In align, this was established that DRR, as a relatively newer field of knowledge is quite under-research specifically in case of Pakistan. Most of the available research literature in Pakistan deals with post disaster responses and issues regarding rehabilitation and recovery. The knowledge base that deals with the issues of preparedness, mitigation leading to more resilient development and communities is somewhat missing. Information failure in case of DRR in Pakistan arises because of disconnect between research and policy. Since policy is not informed by research at any stage of its formulation and implementation, the process stays isolated from people.

On the other hand, notwithstanding a number of political and economic constraints, the DRM system has been able to make some progress such as establishment of DRM institutions at all tiers, formulation of draft National DRR policy, initiation of Hazard Vulnerability Assessments, and introduction of the concept of Disaster Risk Reduction (DRR) and generating debate on its merits and challenges. However, in order to have effective DRR system in place, the policy space needs to be cleared of legal and institutional duplications, unclear mandates and jurisdiction and lack of coordination and communication among various actors and institutions. Disaster Risk Reduction is a cross-cutting undertaking that needs close coordination from diverse agencies, line departments, civil society, private sector and government departments and it has to happen at all tiers of governance.

Within the context defined above, to analyze the DM institutional framework and exploring issues related to DM institutional framework linked with community

resilience and preparedness at micro-level, a survey was conducted in AJK, Pakistan.

Major Findings: Institutional Mapping of DRR (Micro-Level)

Out of the total respondents who filled the questionnaire, 56% were males and 44% were females. Most of the sample size was aged between 18 to 45. It was found that illiteracy rate amongst women was at 42.3%. Almost 75% of the women population had just completed until middle school, whereas about 7% of the men had masters' degrees as well. Most of the respondents asserted that heavy rains are the most common and constantly occurring hazard. Secondly, earthquake was the most frequent disaster while thirdly, land sliding was pointed out as a constant threat. Table 3 gives an over-view of the frequency of the disaster and the level of impact.

Table 3. Frequency of the Disaster and the Level of Impact

Hazards	Frequency			Impacts			Hazard index
	High %	Medium %	Low %	High %	Medium %	Low %	
Flood	11.5	24.2	1.3	20.8	12.8	4.9	21.9
Heavy Rain	69.4	22.6	0.7	37.5	49	4.7	88.15
Hailstorm	21.5	27.5	0.4	9.8	30.6	9.3	26.4
Earthquakes	18.8	53.9	0.4	41	25.9	5.5	39.3
Land Sliding	36.1	35.8	0	24.6	31.5	14	48.4
Avalanches	8.4	10.2	3.8	6.7	12	5.8	11.75
River Bank Soil erosion	6	8.2	5.8	2.7	9.5	6.2	7.35
Forest Fire	5.8	8.6	4.7	4	6.9	3.8	7.8
Cross Border Firing	2.2	1.1	1.1	3.1	0.7	0.7	3.75

Every year, millions of people around globe are affected by both natural and human caused disasters. In AJK, Pakistan, it also impacts the lives of communities drastically. Out of total respondents, 21% of the respondents highlighted house damage as a major impact, followed by 18% of crops damage, and 15% resulted in loss of life from disasters. The major issues found during the disasters were the non-availability of transportation, mobile facility, Water Sanitation, Health and Hygiene (WASH). This was found that inaccessibility of the remote areas and non-availability of transport facilities are the major issues for the vulnerability to

disasters. The survey data also pointed out the same. Further, respondents were asked about the presence of telephone and mobile facilities for communication.

To check out the readiness of local communities of AJK, Pakistan against the disasters and if the local, state and national government have prepared and trained the communities to minimize the disaster risk. Almost 95% of the respondents answered that their areas did not have the requisite facility of ambulance or rescue services. Further, it was found that nearly 76% of the respondents do not have any first aid kit at home. When asked about the lack of information and resources during the disasters, 22.1% felt there was an absence of a reliable source of Early Warning System (EWS), 19% shared that there is no safe place to move into, 14.3% considered lack of knowledge about evacuation routes as a hindrance to reducing losses in times of disasters. Further, 60% of the total respondents stated that they had taken some measures to make their houses resilient against disasters.

Discussions & Conclusion

As identified from the analysis presented in the earlier section, presently Pakistan is host to a number of institutions working for DRR which at times have overlapping mandates and conflicting jurisdictions. The policy space needs to be cleared to allow DRR to take root in the system of Pakistan. At the moment, Pakistan does have a proper DRR policy but its effectiveness is still compromised. PEA analysis informs us that close coordination and working with provincial and district governments is likely to yield good results. However, government of Pakistan is required to work concurrently at all the three tiers of government by helping to bridge the knowledge and capacity deficit of the public sector. This should be understanding that DRR is not a standalone initiative. Disaster and development are originally connected. Therefore, mainstreaming of DRR in all development process is of central importance as it mitigates risk and vulnerabilities and contributes to make communities more resilient to natural and manmade disasters.

Further Political leadership and its potential role in DRR can hardly be over emphasized. In order to create meaningful policy changes and effective implementation, it is imperative to have close engagement with political leadership. In the backdrop of Pakistan's political landscape, some quick wins can be netted by focusing on the public representatives from the disaster-prone districts of Pakistan. Further, this has been analyzed that citizens are not aware of the significance of preparedness and mitigation, so they make no demand from their public representatives. High value of infrastructure projects will continue to maintain its place in Pakistan's polity till the citizens raise their voice. In align, the available evidence suggests that financing of disaster is skewed in favor of response and relief as compared to preparedness and mitigation. More resources need to be allocated and used effectively for improving resilience and disaster risk

reduction. Allocation of more resources on one hand require political will and on the other hand needs strong demand by citizens to mobilize this will. Meanwhile, it is also important to build capacity of citizens in such a manner that they are able to advocate for allocation of more resources and they are able to monitor and track the budgetary allocations on regular basis.

The last 50 years developmental plans regarding Disasters shows that there was found to be specific inertia in the structures of disaster management (Fair *et al.*, 2017). Further, the findings at micro-level suggest that local communities in AJK, Pakistan are highly susceptible and vulnerable to the disasters. The role of government for disaster risk reduction and training the local communities to cope disasters is very minute. The implementation of government Policies both at state and national level is at loggerheads. The researchers have found some specific reasons. Firstly, before 2005, Pakistan had not faced the disaster like 2005 earthquake. Secondly, Pakistan is developing country facing severe issues such as poverty, education, health and defence which made it very difficult to invest in Disaster Risk Reduction and related planning. In addition to all these, the available institutions didn't have capacity to implement or recommend needed policy changes and infrastructure. Pre-2005 analysis of disaster management in Pakistan shows that management structures and policies related to DRR were occupied by upper strata of government and involvement of local community, civil society and private sectors were minimal. Though, they always provided the relief activities independently. In align to this, during policy making regarding DRR and DRM, local community was not involved. Therefore, to empower communities, civil societies and privates sector to cope disasters was over looked. If analyzed with Wisner *et al.*'s DRR objectives (Wisner, Blaikie, Cannon & Davis, 2004), this can be found that institutional mechanisms and government policies were not successful to address the specific issues involving the local community and civil society. While, this has also been found that post-2005 setup of provincial and national disaster management structure have severe economic, political and social issues such as increasing urbanization, environmental degradation, increase in population and institutional hierarchy. The National Disaster Management Commission (NDMC), the top body, have not hold a meeting since 2015. From this, we can analyze the seriousness of the situation. On top of that, government of Pakistan has not established a coherent and transparent mechanism of disaster risk financing.

To conclude, the researchers are of the view that more sophisticated and result oriented techniques and tools are needed equally at district, provincial and national level to sufficiently represent the all dimensions of DRR and supporting decision making.

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