Community Based Disaster Risk Management:
Towards Risk-informed DEVELOPMENT

CBDRM Learning Document
Foreword

Disasters and climate change disproportionately affect the poor and vulnerable communities, not just in terms of loss of lives but also in term of damages to social, physical and financial assets. Communities are now increasingly challenged to live with uncertainty, ambiguity and unpredictability, especially due to climate change.

Given the altering nature of disaster risk, we need to complement national and sub-national efforts with localized preparedness and response capacities if we are to prevent or minimise losses and damages. The Sendai Framework for Disaster Risk Reduction and the Sustainable Development Goals also emphasise on the integration of traditional and new practices to reduce disaster risk.

A key pillar of UNDP’s approach to DRM focusses on supporting the national and provincial authorities (NDMA and PDMAs) to empower and strengthen local communities to further risk-informed development. In my recent visits to Chitral, which was worst hit by the double disasters of floods and earthquake this year, it struck me how important it is to enable the communities' to adapt to the various hazards and risks facing them and be prepared to manage the impact of various disasters and crises.

Despite the devastating impacts of the recent disasters, the communities in Chitral were able to use their traditional knowledge and wisdom as well as the scientific knowledge and methods to withstand the impact of the disasters and quickly begin the recovery process.

Our work on Community Based Disaster Risk Reduction supports the communities to identify disaster risks and hazards and deploy low-cost adaptation solutions, undertake risk-informed development and be better prepared for disasters.

This publication presents the lessons learnt from the pilot phase of our work on CBDRM and fills a gap in the discourse and practice of CBDRM which remains a critical pillar of our approach to community resilience and risk-informed development. The Learning Report on CBDRM: Towards Risk-informed development is timely and promising as it aims to link the global discourse on disaster risk and development with the local context of Pakistan. We hope that it will be a useful tool to promote coherence and maintain the momentum of our commitment to building the resilience of the Pakistani society. We acknowledge the commitment and support of our CBDRM partners including the NDMA, PDMAs, NGO partners, communities and the Embassy of Norway. We look forward to building upon the lessons learnt presented in the report and would welcome your comments and feedback.
Preface

The social and environmental interface is rapidly changing over the globe; and the socio-ecological changes are characterised by uncertainty, threshold and cascading effects and non-linear dynamics. In addition, the difficulty of translating scientific information of the changes into social knowledge challenges local communities at multiple risk. Along with structural changes such as globalisation, urbanisation, migration and demographic change, climate change will add further complexity to the already intricate pattern of environmental hazards.

Amidst growing concern over the complex risk of environmental hazards, the Sendai Framework for Disaster Risk Reduction and other cognate global policies such as SDGs have emphasised the critical need of a paradigm shift towards risk-informed development. Pointing out the importance of the paradigm shift may appear redundant; but the modus operandi, policy tools and initiatives to achieve the vision should go hand in hand with rigorous analyses of political landscapes and existing institutional arrangements at a national level and below.

In the last decade, the impact of disasters in Pakistan has been devastating; 59 disasters, triggered by different types of natural hazard have affected over 50 million people with damages and loses estimated at 25.5 billion US$ and 80708 fatalities respectively. Some had been notably catastrophic, such as the 2005 earthquake that killed 73338 people and caused 5 million homeless and the floods in 2010 and 2011 with losses estimated at US$ 9.5 billion and 2.5 billion respectively. Thus the disasters have destroyed much of the development gains Pakistani society had attained; not to mention many other non-episodic hazards that have thwarted various local development initiatives.

UNDP has been at pains of breaking the vicious cycle through which the devastating impact of disaster and delayed development mutually exacerbate the vulnerability of Pakistan. As part of this endeavor, UNDP has launched a three year CBDRM project (2014 to 2017). This project regards CBDRM as one of critical entry points of risk-informed development, as opposed to other CBDRM works with a pure technical focus. Differently put, the UNDP CBDRM work identify changes are characterised by uncertainty, threshold vulnerability of Pakistan. As part of this endeavor, and cascading effects and non-linear dynamics. In UNDP has launched a three year CBDRM project (2014 addition, the difficulty of translating scientific to 2017). This project regards CBDRM as one of critical information of the changes into social knowledge entry points of risk-informed development, as opposed to other CBDRM works with a pure technical focus. Differently put, the UNDP CBDRM work identify challenges local communities at multiple risk. Along opposed to other CBDRM works with a pure technical with structural changes such as globalisation, urbanisation, migration and demographic change, climate change will add further complexity to the already intricate pattern of environmental hazards.

This learning report on CBDRM presents key lessons learnt from the pilot CBDRM phase undertaken from October 2014 to January 2015. Informed by critical conceptualisation of CBDRM, the report develops analytical frameworks (i.e. CBDRM cycle and discursive change) to shed light on the process by which various ideas and practices coevolve to reclaim the space of DRR in the public sphere. In the end, active participation of a wider group of stakeholders and strong partnerships will have to be ensured to translate the concept of risk-informed development into concrete action and initiatives in local contexts of Pakistan.

This report is intended for students and practitioners of DRM, policy makers, other UN agencies and local leaders. The development of this report is part of a learning process for ongoing UNDP’s CBDRM initiative in Pakistan. Key lessons were learnt from continuous dialogues with partners and other UN agencies, without which this report would not have been produced. The author thanks to these partners including, but not limited to, 30 partner communities, implementing partners, NDMA and PDMA as well as UN Women. Last but not least, without support and guidance of colleagues at DRR in Pakistan team, this learning report would not have been completed.

Hyungguen Park, PhD
DRR Research officer
Key Messages

- CBDRM can be taken as one of entry points of risk-informed development.

- CBDRM initiative ought to take into consideration a local political landscape and power relations within communities in which core decisions are made in the presence of inequality of different types.

- Participation of groups and communities from different backgrounds itself can be a first step towards enhancing social cohesion for addressing a wider range of structural issues of development.

- Local needs on CBDRM cannot be properly grasped without consideration of how they are socially, politically and culturally expressed as well as why they continue to fail to be dealt with within the existing social settings.

- The local production of tailored risk information through CBDRM processes can be conducted in light of wider participation and contribution of local people as well as their local memories and traditional knowledge.

- Findings of the pilot project suggest that CBDRM can trigger a wider societal change as it originally aims to encourage critical consciousness and self-confidence of the local people in coping with disaster risk.

- Ideational and behavioral changes brought about by CBDRM become more visible when actual disasters occur to question the nature of local resilience against known and unfamiliar hazards.

- Women are core stakeholders with critical agency to take action on their behalf in different phases of DRM and development governance. Nonetheless, their participation tends to be limited to participation in training. Women tend to be generally excluded from core activities of CBDRM, for example, the decision making process of identifying and implementing mitigation structures. Quite evidently, however, failure of addressing gendered impacts of environmental hazard has negative effects on well-being of wider community members.
1. Introduction

Over the last decade, Islamic Republic of Pakistan (hereafter, Pakistan) has severely suffered from a series of recurring disasters triggered by multiple hazards such as flood, drought, earthquake, and landslide. According to the UNDP Human Development Report (2014), Pakistan also faces a myriad of development challenges: the lack of basic public services and social protection, gender inequality, maternal mortality, environmental degradation and so forth. These development challenges are also linked to non-episodic, yet severe hazards to cause day-to-day disasters (e.g. the lack of drinking water, poor hygiene and epidemics). In addition, research institutes such as Germanwatch consider Pakistan as one of most vulnerable countries to the impacts of climate change. Indeed, the above three pillars of practice and discourse (natural hazards, climate change risk and sustainable development) should go together if each pillar is to succeed; and evidently Pakistan is no exception. In response to the complex challenges of disaster risk, and based on the vast experience of undertaking risk-informed development across 60 countries since 2005, UNDP has supported the establishment of the Sendai Framework for Disaster Risk Reduction (DRR). Informed by this corporate-wise endeavor, UNDP DRR in Pakistan team formulated 2014-2017 UNDP DRR Support Strategy. In pursuit of a holistic approach to building disaster resilience of Pakistan, three focal support areas were programmed in the strategy as follows.

- Institutional development support to DRM authorities at national, provincial and district level
- Support to community resilience building for at-risk communities through CBDRM initiatives
- Technical support to the development and application of building codes for (non-)engineered construction in Pakistan in light of multiple disaster risk

Implementation of the activities in these key areas has ensured to create a synergy effect, alongside multiple stakeholder approach and thematic integration of practices. Accordingly, UNDP Pakistan launched a CBDRM pilot phase in 30 villages in three provinces (KPK, Balochistan and Sindh) from September 2014 through 2015. This report presents key reflections and lessons on the findings of the pilot project.

That said, spreading lessons and good practices of CBDRM across different systems and scales is not without challenges. This is so because the ways that disasters are triggered, experienced, politicized and memorized greatly differ relying on local history and contexts. Simply put, it is worth questioning how far lessons drawn from particular cases with contextual specificity can inform CBDRM for wider at-risk communities. The success of learning for CBDRM also depends on the type of governance system in place. The success of learning for CBDRM also depends on the type of governance system in place. The success of learning for CBDRM also depends on the type of governance system in place. This learning report begins by discussing key ideas, contexts and the NDMP framework of CBDRM in Pakistan. Then the objectives of the CBDRM pilot project will be briefly discussed to underline the necessity of more specific and measurable objectives. In Section 4, the report presents key findings of the pilot phase. In Section 5, the report presents several suggestions by which future CBDRM projects can gain more accountability and effectiveness in Pakistan.

4. A community can be defined by geographical proximity, shared experience, and sector. This learning report adopts ADPC’s definition of a community as referring to individuals and groups who are exposed to common hazards due to their proximate living location. For more understanding of a community in terms of CBDRM, see http://www.adpc.net/pdr-sea/publications/12handbk.pdf.
2. **CBDRM in Pakistan**

2.1. **Key ideas of CBDRM**

In global negotiations and implementation of Disaster Risk Management (DRM), CBDRM has been considered as a crucial process by which to address (local) realities of disaster risk. It is an alternative paradigm, approach and strategy to the previously dominant, technocratic DRM approach. The latter often failed to factor local needs and priorities on DRR/DRM into a wider process of development. Even if it has ceased to be openly and exclusively supported, however, the top-down approach is still preferred – either intentionally or inevitably – for governments with few experience of deliberative democracy and stable economy. At issue is if society in question has a functioning institutional infrastructure for the planning and implementation of CBDRM.

CBDRM has originally emerged as differing reflections on the orthodox, top-down, technocratic, and engineering-oriented DRM policy, as well as the sociopolitical structures in which the latter approach is favored to focus on addressing symptoms (i.e. damages and losses), not underlying drivers of disasters (see, for example, O’Brien et al., 2006).6

Heijmans (2009) ably deconstructs hitherto CBDRM traditions to trace their origins since the 1970s: homegrown versus international community-led (or UN-led).7 Importantly, CBDRM is premised on such core values as participation and inclusiveness that even the most underrepresented groups are assured to make contribution to the whole process; rather than remained as mere recipients of external aids. Thus, it aims to make sure of local concerns and ideas to be voiced at different phases and scales of DRM as well as development governance.8

Yet, CBDRM is often deceptively seen as construing another type of external humanitarian aid to communities post-disaster. Moreover, it often ends up to be planned and implemented in the absence of considering ongoing and expected changes of wider and deeper social and political structures. This said, the necessity and modus operandi of CBDRM differ relying on the nature of society (e.g. conservative, progressive, liberal or authoritarian), under which communities co-evolve with environmental changes. Thus there is a continuing possibility that CBDRM can be semantically and empirically misleading and misinformed. The pilot project finds this to be the case in many of the target communities for the pilot phase; it is necessary to clarify the basic rationale for CBDRM.

The need for external intervention to communities often arises when the risk of natural and manufactured hazards overwhelms their existing adaptive capacity and local institutional and physical resources. In this learning report, CBDRM is not narrowly defined as a one-off training event; rather, vertical and horizontal cooperation to secure a discursive space in which potential stakeholders altogether make material and institutional contribution to enhancing local resilience against multiple hazards. Evidently local governments (particularly Lower Dir, Tharpakar, and Chitral) are attuned to the issue of DRM, albeit with a lack of resources and expertise to fulfill it.

Figure 2.1 below illustrates that a CBDRM process is analogous to a disaster in a way that transforms a pre-disaster discursive space. Within the pre-disaster space, it is assumed that: 1) Discourse on livelihoods and economic growth predominates the public discourse while the issue of disaster is rarely addressed; and 2) There is a strong tendency for the issue of disaster risk to be dealt with in isolation. Differently put, links between different themes and practices from which structural mechanisms of risk construction can be grasped are less visible, if existent, in the pre-disaster public sphere.

In the newly shaped space, however, not only existing but also newly emerging values as well as their relationships are reconfigured altogether presenting new realities. In practice, exchange of ideas, interpretation of rights and responsibilities, needs for structural and people-centered interventions interact in a much more complex way. Yet, the diagram sheds light on the important role of CBDRM in formulating essential insights and critical consciousness necessary for innovative interventions “without” causing huge losses and damages; cf., when disasters transform a discursive space. Equally important, in the newly formulated space previously invisible structures and processes, and their empirical relationships (e.g. power relations, inequality of many different types) become more observable, if not guaranteed to be defined as a “problem.”

In the newly formed discursive space, for example, the vulnerability of females and migrants to the impacts of environmental hazards and their underrepresented rights and insufficient access to resources might become more visible requiring policy priority and support at the level of project and programme.9 Additional needs for collaboration between different programs and discourses might also continue at higher levels. In fact, One United Nations Programme I and II10 can be seen as a deliberate effort whereby disaster risk can be dealt with in a more integrated and effective manner. Also, the IPCC Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX) exemplifies this point well in terms of global levels. After a series of continuing failures of DRM and CCA in segmented approaches, different epistemic communities (UNFCCC, UNISDR and schools of thought) have started to work together since 2009, surely following many academics’ calls for such an integration (for example, see Disasters, 2006, Volume 30, Issue 1). At issue is to what extent the CBDRM pilot phase led to discursive change, if any, in each target village as well as higher political realms of Pakistan (see Table 4.1. and Section Five).

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7. The pilot’s phase has placed particular attention to the vulnerability of women, the elderly and the disabled. The validity of findings related to the issue of gender was further crosschecked through an informal meeting with UN Women (4, May, 2015).
8. Often, this can happen when taken-for-granted ideas, orthodox causal beliefs and vested interests are strongly upheld by existing discourse alliances in place.
9. There is no assumption of who will raise critical consciousness first and whether it would happen of or against one’s will. Of importance is the roles played by a CBDRM process that trigger change in risk perception and ways of grasping realities of risk construction.
10. One United Nations Programme (phase one – 2009-2012, phase two – 2013-2017) is part of global UN reforms by which different UN agencies with their strengths and expertise work together to bring about more effective and efficient development outcomes. See http://www.un.org.pk/?page_id=194
2.2. NDMP framework of CBDRM

Then how can CBDRM as cooperative endeavor be conducted in practice to bring about the above discursive transformation? The below diagram illustrates the NDMP framework of CBDRM: note however that this CBDRM cycle has been taken as a heuristic, and additional steps (12-15) were added based on the findings of the pilot project. This is to secure the sustainability and wider impacts of future CBDRM interventions. In actual implementation, CBDRM might not always follow the below linear process; for example, it can unfold in a different order, different steps can coincide at the same time or already undertaken steps need be revisited when necessary.

Figure 2.2. CBDRM framework

Source: Modified from NDMP (2012)¹¹

Note: The original NDMP framework defines CBDRM framework only up to Step 11. The steps 12 to 15 are suggested adds to the existing framework, which are derived from the lessons learned from the pilot CBDRM project. The recommended steps are added to ensure the sustainability, wider impacts and up-scalability of future CBDRM.

Detail analysis on how the pilot projects were conducted is presented systematically based on the NDMP framework on CBDRM, i.e. corresponding to Steps 1-11. Accordingly, lessons learnt of each corresponding step is presented (Table 4.1). Section Five discusses steps 12 to 15 through which up-scaling of the pilot project can be secured.

2.3. UNDP initiatives of CBDRM in Pakistan

In the last ten years Pakistan has seen an increasing number of CBDRM initiatives (or projects labelled as CBDRM). At the same time, however, the initiatives are claimed to have been short of systematic assessments, detailed documentation, and rigorous evaluations. Also, they tend to have focused on particular types of vulnerable groups (e.g. women) and geographical areas (rural areas) to pay far less attention to other marginalised groups (e.g. ethnic, religious, castes and PWDs) and urban areas. The pilot CBDRM project of UNDP Pakistan (2014-15) is UNDP’s first response – within the period of United Nations Programme II (2013-2017) – to the above-mentioned partiality and biases of the previous CBDRM initiatives.

With this point in mind, UNDP initiatives of CBDRM should not only research and document the root-causes and processes of disaster risk construction, and local priority needs on DRR, but also explore “underlying mechanisms” that either enable or constrain the findings (i.e. uttered local priority needs) to take place in a newly shaped public sphere. Before dealing with this issue, however, it is essential to have a closer look at the original objectives of the pilot project.


¹³ Ibid.
3. Objectives of the pilot project

The overall rationale for DRR in Pakistan project is to consolidate an institutional and technical arrangement for different levels of DRR in Pakistan to gain momentum and support from stakeholders of multiple scales. In the light of DRR in Pakistan Project Strategy (2013-2017), the CBDRM pilot project aimed to attain the following objectives:

- To enhance Disaster Risk Management (DRM) knowledge, build capacities and increase DRR awareness of stakeholders in 30 hazard prone villages of five districts across Balochistan, Sindh and KPK by implementing a CBDRM Program; and
- To enhance the capacity of the communities through knowledge transfer, awareness raising and skills building including identification and prioritization of adaptation or mitigation measures and by developing Community Rapid Response Teams (CRRT) while providing them with basic equipment.

These objectives can be construed as requiring the target communities along with other stakeholders to identify, express and even "renegotiate" local priority needs on DRR (see Figure 2.1). Also, the local communities were expected to realise and demonstrate their own capacities, commitments, resources so that they can make their own contribution to CBDRM. After the completion of the pilot project, however, it was found that the objectives need to be more specific and measurable.

For instance, the enhancement of knowledge, capacities and awareness regarding DRR cannot be directly assessed. Knowledge itself is a very broad concept and different from information or knowing of "things". Also, a way it is delivered also matters; for example, one of reasons for failure of CBDRM is misled translation of science of hazards and climate to local communities. More detailed account of this point should be made, but suffice it to say that the original objectives should be made more specific, in light of aspects, level of difficulty, and the extent of integration between traditional and outside knowledge, applicability and the nature of required evidence.

In order to fulfil the objectives, UNDP has undertaken CBDRM pilot project for 30 communities in 5 districts. Throughout the pilot project, the total number of direct and indirect beneficiaries was estimated to be 66873, including those directly trained throughout the pilot project, 771 males and 432 females.

As part of DRR in Pakistan Project Strategy (2013-2017), a fuller scale CBDRM is intended to be implemented across 400 communities in 2016 to 2017.
4. Lessons, emergent challenges and missing opportunities

This section closely looks at not only actual steps undertaken during the CBDRM pilot project but also emergent challenges and missed opportunities thereof. In particular, it is crucial to probe into core factors and contexts that have either enabled or hindered the implementation of the CBDRM pilot project in the target communities. Based on the learning, Section Five discusses ways in which the lessons can be directed towards advancing future CBDRM projects, particularly in terms of the added steps of CBDRM framework.

Table 4.1. Learnings from the application of the NDMP framework of CBDRM

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<tr>
<th>Steps of CBDRM framework</th>
<th>Key points made during the application of each step (UNDP)</th>
<th>Learning drawn (challenges and opportunities)</th>
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<tr>
<td><strong>1. Identifying participants:</strong> Identifying appropriate participants is vital for understanding the social and institutional context. From the beginning, it is important to consider who will be affected, who can influence others, which individuals, groups, and organizations need to be involved, and how and whose capacities should be enhanced. At the first meeting, clarifying whose plan it will be and setting the planning goals can be discussed. Stakeholders of the planning exercise include community leaders, health and medical representatives, social workers, health workers, schools, mosques, community-based organizations, local private enterprises, officials from the district, tehsils, union councils etc.</td>
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<td>1.1. In all target communities, UNDP had a series of consultation with PDMAs and district governments to develop a set of criteria by which to select target communities as well as most vulnerable groups in light of vulnerability, security and accessibility and avoidance of repetition of CBDRM in the same place.</td>
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<td>A. Political landscape and power relations: Learning point: CBDRM ought to take into consideration a local political landscape and power relations of communities in which different kinds of inequality prevail. Field evidence: Within some communities, partial power relations are found to have excluded certain groups to partake in communal activities. For example in Tharparker, a caste system in Thakur and Meghwars has prevented certain low caste groups from participating in joint community sessions, but during the CBDRM process joint community organizations were formed to enable fair participation of men and women from each caste. In Ziarat and Lower Dir, local political elites influence the process of CBDRM.</td>
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<td>B. Participation as a trigger of social cohesion Learning point: Participation of groups and communities with different backgrounds itself can be a first step towards enhancing social cohesion for addressing a wide range of development issues. Field evidence: Social cohesion has been developed and strengthened thanks to a participatory approach of CBDRM facilitation projects. In Tharparker, relatively weak sects (low castes) such as Thakurs, Bheels, Menghars and Fakeers have also attended CBDRM sessions together at one place as one team, along with physically disabled people, widows and the elderley. According to the local people, the gathering was the first of its kind in the area. Even if this does not mean an immediate reinforcement of social network, it can be seen as a first step towards addressing the issue of vulnerability to hazards in a collective manner. Collective learning has been observed throughout all the target villages.</td>
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<td>1.2. NGOs already working in the district were invited at the early stage to map out the existing work on DRR. A joint session of departmental representatives and development agencies helped to understand local contexts (Tharparker).</td>
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<td>C. CBDRM process was implemented with preexisting local organisations that helped to launch the project as community was already aware of the significance of a partnership (Lower Dir and Chitral districts). Where no such formal structures</td>
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<td>1.3. NDMA, National Disaster Management Plan Volume-III. Instructor’s Guideline on Community Based Disaster Management, August 2012, pp 12-5.</td>
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<td>14. General CBDRM observation applicable to all districts, unless specifically mentioned.</td>
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Learning drawn (challenges and opportunities)

- **1.4.** Project facilitators were hired from the local areas because they were believed to have a better understanding of local norms and practices so that they can better communicate with local communities. It has been assumed that locally hired field staff have more acceptability to local communities than strangers. Participation of the elderly was ensured throughout a risk assessment process as their memories and indigenous knowledge of disaster history helps to assess hazards and community coping capacities (risk perception).
- **1.6.** In each district, line department representatives (e.g. Agriculture, Public Health Engineering, Social Welfare and Livestock) were invited to participate in a one-day learning session.
- **1.7.** The involvement of line department representatives in a risk assessment process is also very important to ensure the quality and sustainability of CBDRM. Line department representatives were selected in consultation with local authority and they were trained on CBDRM and a risk assessment process.
- **1.8.** Line department representatives also provided expert opinions in CBDRM and DRR planning. They agreed to make identified mitigation activities as part of backgrounds itself can be a first step towards enhancing social cohesion for addressing a wide range of development issues. Field evidence: Social cohesion has been developed and strengthened thanks to a participatory approach of CBDRM facilitation projects. In Tharparker, relatively weak sects (low castes) such as Thakurs, Bheels, Menghars and Fakeers have also attended CBDRM sessions together at one place as one team, along with physically disabled people, widows and the elderley. According to the local people, the gathering was the first of its kind in the area. Even if this does not mean an immediate reinforcement of social network, it can be seen as a first step towards addressing the issue of vulnerability to hazards in a collective manner. Collective learning has been observed throughout all the target villages.
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<td>their annual development plans (Tharparker, Lower Dir and Chitral). Yet, local officials in charge of DRR are often assigned with another responsibility (also note a frequent turnover). This makes it difficult to sustain consistent partnerships between governments and local communities in CBDRM.</td>
<td><strong>D. Research capacity of stakeholders</strong>&lt;br&gt;Learning point: CBDRM is a practical process, yet it requires stakeholders to possess basic research skills and reporting ability in light of the social production of risk knowledge. Evidence: The pilot project focused on identifying the nature of risk problems facing the local communities. In this regard, of significance is to encourage discursive interactions between local values and external ideas of DRR though which better options for (non-)structural interventions can also be suggested in a more feasible and realistic manner. Not only introduction of new concepts and ideas to local people but also systematic approach to probing into multidimensional aspects of at-risk community is extremely important. So is a way of organizing and reporting research findings. This is a first step towards the social production of risk knowledge and tailored risk information.</td>
<td>Each sect and vulnerable groups were identified in close coordination with local community members (Tharparker, Lower Dir and Chitral) to engage them in the whole CBDRM pilot process. Instead of engaging few committee members, the entire village population was intended to engage in expressing their views of risks and prioritizing mitigation measures.</td>
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<td><strong>2. Establishing Planning Committee</strong>&lt;br&gt;A planning committee consisting of core members is a practical way to begin formulating community plans. This committee will act as the secretariat of planning activities and its roles will be identified. Be sure that representatives from the community and key persons from local organizations are involved.</td>
<td><strong>2.1. Before forming Village Disaster Management Committee (VDMC), tools such as a map of community indicating all sects/castes residing in the village were prepared.</strong>&lt;br&gt;<strong>2.2. It was important to understand other existing communal structures, be they traditional (e.g. Jirga) or emerging (e.g. youth community groups), that can either substitute or support the building of a planning committee.</strong>&lt;br&gt;<strong>2.3. Community representatives from each sect and vulnerable groups were identified in close coordination with local community members (Tharparker, Lower Dir and Chitral) to engage them in the whole CBDRM pilot process.</strong>&lt;br&gt;<strong>2.4. During the formation of VDMCs, female participation was also secured. To make sure that community structures take lead in the overall risk assessment process, VDMCs were capacitated to employ Participatory Rural Appraisal (PRA) tools during the CBDRM processes.</strong>&lt;br&gt;<strong>2.5. These committees were also made responsible for lobbying to get the findings of CBDRM (local needs and priorities) to be reflected in annual development plans of local governments.</strong>&lt;br&gt;<strong>2.6. Establishing Community Response Force (CRF) at the village level was another important component of the piloting phase. In all 30 communities, mostly young men and women were identified and engaged in First Aid and Search &amp; Rescue trainings. These committees are part of the VDMCs.</strong>&lt;br&gt;<strong>E. Rigid structure of local politics</strong>&lt;br&gt;Learning point: CBDRM DRR Planning takes into consideration that the presence of political leaders and governments in post-disaster situations can rather hamper the implementation of planned DRR activities altogether. Field evidence: This point is also supported by finding of another academic work that explores structural causes of vulnerability to natural hazards. It is common to find in Pakistan that local political leaders are prosperous landlords with a strong influence on the local people (e.g. feudalism). Future project should place more attention to the issue of power relations and patterns of land use that have the potential to shrink the discursive space in which CBDRM can otherwise be more openly discussed. In Chitral, it was found that over-grazing is perceived as one of causes of floods and often the domestic animals are owned by those outside the flood-affected communities.<strong>&lt;br&gt;<strong>F. Appropriate level of forming a CBDRM committee</strong>&lt;br&gt;Learning point: To form a CBDRM committee at a higher administrative level than a village might be more effective in terms of the availability of human and physical resources and expertise. Field evidence: According to the social welfare department (Tharparkar) it does not suit their cause to register VDMCs at grass root levels (e.g. hamlet or village), and UNDP was asked to support in registration of VDMCs at the UC level. It is also evident in other districts that villages at UC levels face the same type of environmental hazards and other challenges.</strong>&lt;br&gt;<strong>G. Forming a group for advocacy and lobbying as part of VDMC</strong>&lt;br&gt;Learning point: It was learnt that a smaller sub-group as part of VDMC, comprised of those relatively educated and socially active can better propagate the significance of local needs and priorities on DRR. Field evidence: In Lower Dir, Tharparker and Chitral, communities reported their limited...</td>
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<td><strong>Mapping Out Stakeholders’ Commitment:</strong></td>
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<td>Once the participants are identified, it is useful to categorize the degree of participation and roles and responsibilities for the entire planning effort.</td>
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<tr>
<td><strong>Community structures with line departments led the whole process with technical facilitation from CBDRM facilitators.</strong> During the whole process, community volunteers with line department representatives conducted hazard, vulnerability, and capacity assessments with local community members. Local community members with community volunteers and line department representatives developed DRR plans by identifying causes of problems and their potential solutions as well as required technical support from the line departments. Their findings were later shared with other civil society organizations during DRF forum meetings.</td>
<td>Access and insufficient networks to communicate with district departments. Also, many of them were completely unaware of the structure, functions, and responsibilities of governments, and the basic public service that the government is obligated to provide. It is critical for UNDP to set up channels through which translation and communication of knowledge and institutions are accelerated. There is huge room for collaboration between DRR in Pakistan project and other ongoing UNDP programmes and initiatives (e.g., governance reform, social cohesion, and climate change risk).</td>
<td></td>
</tr>
<tr>
<td><strong>To gain support from local governments, there were willing to participate and contribute to events of CBDRM organized by UNDP. In some districts, however, to get support was not straightforward (Jaffarabad). It is also true that DRM is not among policy priorities for local governments.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Evidence:</strong> An increasing number of research have been at pains of examining the relationship between social capital (e.g., bonding, bridging, trust, and reciprocity) and resilience against hazards. Despite their different themes, focuses, and approaches, it should be noted that trust building is a precondition of any successful participatory projects such as CBDRM. To assign roles and responsibilities can be done on the existing or revised social contracts between governments and communities. It has been found that some district governments have withheld some valuable items such as first aid kits and Search and Rescue (SAR) tools for emergency response that the target villages were offered. This exemplifies a lack of partnership and trust of local governments with local communities. In fact, local communities in Chitral made full use of the tools, if limited, and mobilized to volunteer to help the affected groups when the floods in July, 2015 hit the district. It was found that local governments tend to lack a coordinating capacity to utilize volunteering commitment and available resources.</td>
<td></td>
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</table>


<table>
<thead>
<tr>
<th>Steps of CBDRM framework</th>
<th>Key points made during the application of each step (UNDP)</th>
<th>Learning drawn (challenges and opportunities)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>have a grasp of basic ideas regarding DRR. Equally importantly, multiple ways of translating difficult scientific knowledge (e.g. science of climate change and environmental hazards) should be developed.</td>
</tr>
</tbody>
</table>

4. Needs Analysis:

To know the local stakeholders’ needs is an essential factor. To prepare for disasters requires not only disaster risk management, but also attaining overall development. For sustainable development, local needs and priorities should be researched and analyzed. Development needs, problem identification, constraints and driving forces for each problem need to be identified.

4.1. UNDP initiated a risk analysis process with district authorities, departmental representatives and NGOs working in selected districts. The needs analysis was linked with previous exercises (e.g. Districts DRR plans (Ziarat and Tharparker) developed in 2009 to 2011 at districts level under UNDP’s One UN DRM interventions). Since then, however, district authorities have neither updated these plans nor allocated resources to implement them.

4.2. UNDP explored key factors that make local communities vulnerable to hazards through gender-sensitive risk perception assessments. Females’ needs on DRR and development are quite different, yet the existing social structures in local communities are not always inclusive of females as decision makers.

4.3. Research tools such as hazard timelines, hazard ranking charts, seasonal calendars, vulnerability and capacity matrices were employed bearing in mind the differences between genders, education levels, ages and cultures. During the implementation of the pilot project, representatives from line departments (e.g. agriculture, livestock, social welfare and public health engineering) participated in order to encourage the whole process. They also assisted communities in DRR planning by providing expertise, particularly in terms of structural mitigation interventions. Almost every community was found to lack essential infrastructures. In some communities, public infrastructures such as schools or health facilities were planned to be built on floodplains.

4.4. The need for building resilience of main livelihood systems in target areas arose, for example research on the management of agriculture and livestock and an early warning system specialized for securing livelihoods. For example, in one of the target communities an animal disease was ranked as the 2nd most serious hazard (Tharparker). This implies that not only episodic but also everyday hazards need to be taken seriously for implementing CBDRM.

4.5. Different time scales of disaster impacts were considered to shed light on the importance of preparing for abrupt weather changes and climate change risk.

4.6. Needs for (non-)structural interventions are enumerated and further detailed with the rationale for each need: who will get most benefits; how much it will cost; any potential constraints for each intervention; and any room for alternatives with less costs. Considering the socio-political nature of the target communities, this allows CBDRM stakeholders holding realistic insights for developing ways in which expressed needs can be addressed with consideration of key questions as to why they cannot be solved within the existing milieu and what can be done by whose participation.

For example, the UNDP team met with the DDUM in charge of DRM (Assistant Commissioner HQ who assigned with an additional charge of District Management Unit –DDMU) and discussed the process of CBDRM (Lower Dir). The AC was fully aware of the process and the details of prioritized structural measures identified by the target communities. During the meeting, the AC asked for UNDP assistance for a list of required equipment (IT equipment for GIS information, vehicle for mobility and requisite human resource etc.) for making DDMU functional. He was made clear about the scope of current work and expected roles of the district government to complete the entire CBDRM process in selected communities. He assured his full support and indicated areas under the threats of flash flood on the bank of River Panjora. It was also identified that Members of national and provincial assemblies have discretionary power to allocate funds for the development plans. That said, the funds are mostly allocated towards strengthening the status quo rather than satisfying people’s prioritized needs. As a final point, the AC assured his commitment towards extending district government support in completing the CBDRM process in identified areas.
### Steps of CBDRM framework

<table>
<thead>
<tr>
<th>Key points made during the application of each step (UNDP)</th>
<th>Learning drawn (challenges and opportunities)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Disseminating Damage Estimation:</td>
<td>- Identification of the possible local hazards and the possible effects from them on each and every community is essential. This process provides the basis for risk management planning. This enables local people to set planning objectives and identify problems in planning.</td>
</tr>
<tr>
<td>5.1. The indirect participants and beneficiaries of CBDRM in these communities were estimated to be 9,020 households.</td>
<td>- The purpose of this phase was to demonstrate the usefulness of risk reduction measures and to document cost benefits of such measures as a pathway to advocate for increased investment in DRR.</td>
</tr>
<tr>
<td>5.2. The target communities took part in the identification of:</td>
<td>- The priority structural and non-structural DRR measures;</td>
</tr>
<tr>
<td>a) The priority structural and non-structural DRR measures;</td>
<td>- The estimated total cost of these measures;</td>
</tr>
<tr>
<td>b) The estimated total cost of these measures;</td>
<td>- Available resources; and</td>
</tr>
<tr>
<td>c) Available resources; and</td>
<td>- External support.</td>
</tr>
<tr>
<td>d) External support.</td>
<td>- Estimated costs vary depending on the type and severity of risks that the communities are exposed to as well as the availability of local resources.</td>
</tr>
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<td>- The priority structural and non-structural DRR measures;</td>
</tr>
<tr>
<td>L. Cost estimation of Interventions</td>
<td>- Learning Point: Cost-benefit analyses of identified mitigation measures and other interventions help to understand the actual benefits of risk reduction. A toolkit for a cost-benefit analysis should be developed to allow not only efficiency but also effectiveness of CBDRM interventions. This can also help to lobby to get DRR more prioritised in policyarena.</td>
</tr>
<tr>
<td>Field evidence:</td>
<td>- UNDP Pakistan prepared participatory village DRR plans. These plans also have more details of proposed mitigation measures; both structural and non-structural. The details include the nature of hazards, population and assets at risk, frequency, nature of interventions, required resources and cost estimates.</td>
</tr>
<tr>
<td>6. Identifying Vulnerability and Capacity:</td>
<td>- Findings of vulnerability and capacity assessments need to be further analysed in light of both ongoing social changes (e.g. weakening Jirga system, unplanned urbanization processes, and increasing extremism) and expected social changes (e.g. possible investment on infrastructures and its future impacts, improved standard of living and new marriage institutions).</td>
</tr>
<tr>
<td>6.1. Assessments of vulnerability and capacity were carried out along with those of priority needs on CBDRM (see Step four).</td>
<td>- The future of disaster risk management in the UNISDR assessment report (2015) ably shows that to enhance resilience is not enough for dealing with social construction of increasingly complex disaster risk. The conventional emphasis on risk reduction needs to be substituted by a more progressive approach that explores fundamental mechanisms of risk construction. Simply put, prospective rather than reactive approaches to exploring how disaster risk can be socially produced are recommended for CBDRM as well.</td>
</tr>
</tbody>
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7. **Locating the Vulnerabilities and Capacities:**

After identifying the vulnerabilities and capacities, locating them on a map will help participants to visualize local situations more clearly. The location of the vulnerability and capacity will make it easier to discuss how to manage the disaster situation and make a plan for it. To accomplish this, “Town Watching” and “Risk and Resource Mapping” are two useful tools.

8. **Setting Planning Objectives:**

After gathering all the necessary information about hazards, vulnerabilities, and capacities, the areas for special attention and support will become clear. Setting planning objectives is recommended in the earlier stage of the planning session. If it is difficult to agree on certain objectives, a practical approach is setting provisional objectives and in the course of the planning process they can be revised and finalized upon the consensus of each stakeholder.

9. **Allocation of Responsibilities:**

Responsibilities for each task will be decided. Functions of control, command and coordination will be cross-checked to avoid overlap between teams / task forces and other actors.

**Steps of CBDRM framework**

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>7.1. Maps of hazards and local needs on DRR were prepared in each community that illustrate the exposure of important infrastructures such as houses, schools and wells to hazards, as well as root-causes of disaster that are embedded in the failure of development.</td>
<td>N. To search for potential sites of infrastructures Learning point: On the hazard maps, the participants can express their opinions about where to locate required mitigation structures. Is it a safe location or is there any side effect from them? Moreover, it is that along the description of physical vulnerability, the participants can discuss social aspects of vulnerability, for example if there is any disagreement in terms of location for structural interventions to take in place (see also learning point O below). In local areas of Pakistan, it is not rare to find that a village consists of more than one hamlet or sect that there can always be conflict and differing ideas.</td>
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</tbody>
</table>

8. In terms of setting up preparedness plans, UNDP explained the entire process of CBDRM to concerned district governments and the selected communities, and made them clear about the rationale of the pilot project. For example, in Lower Dir, the primary purpose of risk assessment was to employ a diagnostic tool to provide reliable data to support better informed decisions on the planning and implementation of risk reduction measures. In Tharparkar, communities were given opportunities to identify probable hazards and possible methods of reducing the impact of these hazards. Local community capacities and available resources were also considered in order to effectively mitigate impending disasters. In addition to the hazard-specific solutions described in all mitigation plans at the (sub)village levels, preparedness trainings, evacuation planning and early warning systems were provided.

9.1. In order to assign responsibilities for each task and measure of CBDRM, the stakeholders looked into capabilities, mandates and resources that different groups can present. Governments were found to have more financial and political resources; and local NGOs and CBOs are relatively better connected with the local people. For planned tasks and measures, particular groups were assigned with certain responsibilities, for example, departments of local governments, local NGOs and owners of land and livestock.

9.2. UNDP have been aware of the issue that there is dilemma of how local communities and governments acquire and share greater ownership of DRM when insufficient local resources and expertise, other competing priorities, lack of trust and supportive institutions, and particularly places to remain the status quo and power relations of the communities either deliberately or unintentionally. There also exist reverse kinds of social capital that dominant groups in a community can have more access to the leadership and political channels through which to present their interests. In Chitral, local knowledge and memories of disaster tend not to be considered for urban planning and construction. Additional research needs to be done to explore the potential of which traditional knowledge and science of hazards can have a synergy.

10. The origin of tension latent within the socio-political landscape Learning point: Tension latent within the local political landscape was taken into consideration; quite often the origin of tension needs to be traced back to local history and culture. If there exist different sects and religious groups or any minority groups such as migrants and sexual minority groups, particular attention should be paid to them when objectives of CBDRM are set up. Field evidence: In Tharparkar, for example, Thakur sect is more dominant than other sects such as Menghwar, Bheel and Faqirs, thanks to their wealth and social status; the former tends to possess more livestock and lands. In this case, it is likely that particularly structural interventions (e.g., irrigation system, dykes, gabion walls, etc.) can be primarily planned in areas of exposure of important infrastructures. In addition to the hazard-specific solutions described in all mitigation plans at the (sub)village levels, preparedness trainings, evacuation planning and early warning systems were provided.

8.3. DRR plans were developed in coordination with local communities and line department representatives with clear roles and responsibilities of different stakeholders.

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5. Findings and recommendations

UNDP Pakistan considers the pilot project as an opportunity to see the feasibility and potential of CBDRM to open up multi-sectoral and multi-stakeholder dialogues on local DRR and DRM. Considering the latter in a newly shaped discursive space, the pilot project has produced a great learning opportunity. Coupled with the traditional risk perception (e.g. seeing a natural disaster as God’s work), disasters have often ended up to be considered as individuals’ tragedy or a separate sector leaving less room for social innovation in Pakistan. Against this orthodoxy, the pilot project brought about some ideational and behavioral changes.

In Lower Dir in KPK, for example, the village leaders talked to the district government as part of advocacy for relocating a construction site for a public school – claimed to be a flood plain according to the local memories and within informal arrangements needs to be found out in the other phases of CBDRM.

Evidently, the pilot CBDRM project has brought about change in consciousness and behavior of the local people; and it is worth presenting local expressions of CBDRM experience in light of the local response to the recent floods in Chitral in july 2015 (see Box 5.1).

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20. This point should not be understood as arguing that flood plains cannot be used for construction of any infrastructure at all. More importantly, the transition of critical concern is the transition from narrow, sectoral to cross-sectoral advocacy for disaster risk. In addition to establishing a formal VDMC and CO, a way forwards developing adaptive capacity latent within informal arrangements needs to be found out in the upcoming phases of CBDRM.

21. Jirga refers to a traditional institution in which a group of village leaders make decisions, informed by the teachings of Islam, in order to prevent conflict between community members. Hashar means the collective form of harvesting and any other farming related joint actions. Mauza is a local organization that has regular meetings to discuss local issues (e.g. social, agriculture) (ora is a local practice for seedbed preparation for wheat planting). More detailed accounts of these institutions can be found at http://waterinfo.net.pk/?q=node/1107.

Box 5.1. 2015 Floods in Chitral: local voices of the impacts of CBDRM

Case One: Safety versus competing priority

Naseem Akhtar (a 45 year old female, health worker, CBDRM volunteer) says:
“When a group of people were collecting logs floating down the swollen river, I was on the way to my work place at around 12:00 pm on 23, July 2015. To collect floating logs is an ordinary practice of our village during flood seasons as they can be used for construction, and cooking and heating during winter seasons.”

Thus, it is part of the local mechanism through which to cope with their vulnerability to different types of hazards. Yet, Naseem adds that “It kills people every year. During the CBDRM project, we learnt about important roles individuals can play when perceiving potential risk. I immediately talked to the people about the risk facing them. Of course, not all of them wholly listened to me, but some people then tried to keep a distance.” It is not straightforward to see the impacts of CBDRM, but it is pinpointing how competing priorities can be renegotiated as a result of CBDRM.

Case Two: Communal work amid altering social structures

Sajjad Ahmed (47 year old male, resident of Village Jughoor, UC chairman) recalls:
“In the past we had a much stronger culture of communal work, for example, people volunteered in maintenance of roads, recovery of drinking water supplies and irrigation channels. This used to be a usual expectation people had of each other. Over the past twenty years, however, this culture has diminished.”

Accounting of the changing culture of communal work (embedded in traditional norms and culture), however, he finds an emerging group of young VDMC members for CBDRM as alternative to the past counterpart. “Their efforts and enthusiasm also attracted other villagers to take part in communal works, and I think CBDRM has encouraged young people to reinforce their identity of place as well as confidence in their own potential to bring about change.” Indeed, this comment proved right when the recent floods hit the village. “When the recent floods hit our village, the small group of young VDMC members, after consultation with the elderly, came to me to seek my support. I was so happy to see their voluntary efforts, and supported them with provision of equipment. I also encouraged other people to join their work to restore the damaged irrigation channel...this example shows that old and emerging structures of local villages can cooperate to have a synergy of knowledge/experience and energy.”

Case Three: Women as decision makers and catalysts of change

Fauzia Tabbaum, 35 year old female, housewife, deputy chairman of VDMC Singhoor:
“Since the 2010 floods and CBDRM trainings, I have become more aware of the importance of timely decision making on emergency response and evacuation...when the recent floods occurred, I realized that some families who recently migrated from Upper Chitral were living in the nearby hill torrent at flood risk. I was then conscious about the rapidity of water influx, so I decided to warn the people about floods and help evacuate them. I brought them to my home and we had stayed together for a couple of hours until the flood situation got settled down.”

The damages to the migrants’ houses were minor, but her timely decision making and action pinpoint that women can play key decision makers in different emergency situations; this used to be not the case in the past. It is also crucial to acknowledge an emerging view in Pakistan that women are stakeholders who have agency to take action on their behalf. It is normal to see in Pakistan many male heads of household are absent from their homes for migrant labor, and then it is not optional but mandatory for women to prepare for and act against external shocks and uncertain events.

Sources: Analysed from case studies, conducted by Naeem Iqbal (UNDP Pakistan).
Participation and sustainability (Steps 13)

Past CBDRM projects have focused merely on encouraging more active participation of the local people. Yet, it might possibly cause harm to the local people to trespass on their time and labor that can otherwise be secured for their livelihood.

A way of sustaining the impacts of CBDRM particularly in terms of the development of risk knowledge can be suggested: the identification and engagement of active and educated participants. Further opportunities and compensation can be made for the local participants so that they can regard CBDRM not as a bothersome intervention but as a new opportunity for their communities. There is an example from the case of early recovery work such as cash-for-work programmes that can play assets for long-term development.

It is also important to point out that gender-sensitive CBDRM means much more than securing an equal number of male and female participants in training and examining differing gender perspectives. What should be done together with these is to explore underlying mechanisms in which females are deprived of an opportunity to address their differential needs in their everyday life. There is a compelling need for UNDP to work together with other agencies specialized in gender such as UN Women and UNICEF, for example.

In Pakistan, the major issue of gender inequality is not only that voices and ideas of women are not fully integrated to policy making processes, but also that women are merely considered as victims or aid recipients. In fact, however, this conventional perspective has been found contradictory to an emerging view in Pakistan that women are stakeholders who have agency to take action on their behalf. For example, in certain provinces (FATA and KPK) in which many male heads of household are absent from their homes for migrant labor, it is not optional but mandatory for women to prepare for and act against external shocks and uncertain events.

To take a challenge as an opportunity (Step 14)

It was discovered that some communities had to have migrated to another place due in mainly to severe weather conditions in the middle of the CBDRM project. Two points stand out. On one hand, migration – a challenge for the CBDRM process to be wholly implemented – due to severe weather conditions was found to be a regular, annual coping strategy for adapting to the changing environment. On the other hand, for this same reason the challenge could have been an excellent opportunity to probe into the relationship between the regular migration pattern and potential risk of climate change. It is expectable that nomadic communities’ needs and required follow-ups are somewhat different from other communities. UNDP Pakistan will seriously take into consideration the above point that a challenge can be regarded as an opportunity to open a new prospect in the field of DRR research and project.

A more comprehensive framework and ambitious, yet plausible objectives (Step 12, 15)

In addition to gearing up for a future CBDRM with consideration of the above points, UNDP Pakistan will continue to strike a balance between nurturing ambition and securing feasibility in terms of transforming the social production of CBDRM knowledge in Pakistan. More efforts should be made to have a closer look at local realities of risk and succeed in bringing about grater and loner-term effects in years to come.

In the piloting phase, there emerged an opportunity to have local and district development planning be informed by the analysis of hazards, vulnerabilities, risks, capacities and assessment of mitigation/prevention measures. Yet, CBDRM is a long-term process. One-off CBDRM training cannot immediately bring about substantial changes such as renegotiation of local development priorities (e.g. allocation of a more budget to local DRR, and this remains to be seen in upcoming phased of CBDRM when the new budget plan of districts will have been passed).

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24. Personal communication with UNWOMEN Pakistan, on 4 May 2015.
### Appendix one

**Summary of disasters triggered by natural forces in Pakistan (2005-2013)**

<table>
<thead>
<tr>
<th>Disaster type</th>
<th>Subtype</th>
<th>Events count</th>
<th>Total deaths</th>
<th>Total affected</th>
<th>Total damage ('000 US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drought</td>
<td>Drought</td>
<td>1</td>
<td>248</td>
<td>0</td>
<td>18,000</td>
</tr>
<tr>
<td>Earthquake</td>
<td>Ground movement</td>
<td>6</td>
<td>73,968</td>
<td>5,405,603</td>
<td>5,310,000</td>
</tr>
<tr>
<td>Epidemic</td>
<td>Bacterial disease</td>
<td>1</td>
<td>22</td>
<td>111</td>
<td>0</td>
</tr>
<tr>
<td>Extreme temperature</td>
<td>Heat wave</td>
<td>2</td>
<td>190</td>
<td>300</td>
<td>0</td>
</tr>
<tr>
<td>Flood</td>
<td>Flash flood</td>
<td>9</td>
<td>2,213</td>
<td>20,442,526</td>
<td>9,827,118</td>
</tr>
<tr>
<td></td>
<td>Riverine flood</td>
<td>24</td>
<td>3,209</td>
<td>22,244,462</td>
<td>8,633,000</td>
</tr>
<tr>
<td></td>
<td>Landslide</td>
<td>5</td>
<td>166</td>
<td>26707</td>
<td>16,000</td>
</tr>
<tr>
<td></td>
<td>Avalanche</td>
<td>4</td>
<td>233</td>
<td>3708</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Tropical cyclone</td>
<td>2</td>
<td>265</td>
<td>1,654,000</td>
<td>1,700,000</td>
</tr>
<tr>
<td></td>
<td>n/a</td>
<td>4</td>
<td>178</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Convective storm</td>
<td>1</td>
<td>16</td>
<td>82</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>59</td>
<td>80,708</td>
<td>49,777,499</td>
<td>25,506,118</td>
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</tbody>
</table>