NATIONAL DISASTER RISK REDUCTION POLICY

GOVERNMENT OF PAKISTAN

Ministry of Climate Change

National Disaster Management Authority

2013

Foreword

Disasters have an enormous and significant negative impact on development of key sectors of economy like agriculture, infrastructure, housing, health, and education and above all the environment, they result in a serious social and economic set-back to the sustainable development. Disasters also pose threat to increasing poverty and resultantly backslide the national development targets set to achieve the Millennium Development Goals. Climate change-induced disasters pose even greater threat to sustainable development in developing country like Pakistan which is ranked quite amongst the most vulnerable countries. Continuous floods of 2010, 2011 and 2012 are seen as an indication of more intense and frequent extreme events in the future.

Disaster risk reduction interventions were being carried out in the country till date by different departments / agencies in isolation at national, province and district levels. There was a strong need to give them directions and sound guidelines to align their activities in line with the true spirit of National Disaster Management Act, 2010 to counter the threats of disasters faced by the country. NDMA, being the lead focal agency for disaster preparedness and management, has therefore, embarked upon formulation of a comprehensive National Disaster Risk Reduction Policy through wider consultations with all stakeholders including all provinces, state of AJ&K and regions. This policy covers disasters risk reduction in a more holistic way and introduces a proactive and anticipatory approach by laying special emphasis on risk assessment, prevention, mitigation and preparedness.

The policy shall promote priority measures to ameliorate existing vulnerabilities to hazards and ensure that future development initiatives add resilience. The policy also seeks to provide guideline for timely, dedicated and adequate investment on hazard mitigation and preparedness interventions at all levels which will not only substantially reduce the disaster risk but also the consequential damages & economic cost associated with response, recovery and rehabilitation.

The approval of the policy by the National Disaster Management Commission on 21st February 2013, headed by the Prime Minister of Pakistan, is a landmark achievement and milestone of institutional strengthening of NDMA toward creation of a vibrant disaster management structure across all the public governance tiers. Effective implementation of the policy would in fact mean beginning of new era where the nation could feel resilient from the shocks of frequent disasters.

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Contents

Acronyms

CBDRM	Community Based Disaster Risk Management
CBO	Community Based Organization
CS	Civil Society
CSO	Civil Society Organization
DDMA	District Disaster Management Authority
DDP	District Development Programme
DM	Disaster Management
DRC	Disaster Resource Centre
DRFI	Disaster Risk Financing and Insurance
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EWS	Early Warning System
F/G/S/PDMAs	FATA/GB/State/Provincial Disaster Management Authorities
GDP	Gross Domestic Product
GIS	Geographic Information System
GLOF	Glacial Lake Outburst Floods
HFA	Hyogo Framework of Action 2005-2015
M&E	Monitoring and Evaluation
NDMA	National Disaster Management Authority
NDMC	National Disaster Management Commission
NDMO	National Disaster Management Ordinance (2006)
NIDM	National Institute of Disaster Management
NIM	National Institute of Management
PDMC	Provincial Disaster Management Commission
R&D	Research and Development
SOP	Standard Operating Procedure
UC	Union Council

Chapter 1

Preamble

1. Preamble

1.1 Context

Due to geo-physical conditions, climatic extremes, and high degrees of exposure and vulnerability, Pakistan is a disaster-prone country. A range of hydro-meteorological, geo-physical and biological hazards including avalanches, cyclones and storms, droughts, floods, glacial lake outburst floods (GLOF), earthquakes, landslides, tsunamis and epidemic pose risks to Pakistani society. Some of these hazards (e.g. floods, landslides etc.) are predominantly seasonal and occur on an annual basis, whereas other hazards such as earthquakes and tsunamis are rare events but potentially highly destructive. In addition to natural hazards a variety of human-induced hazards threaten Pakistani society, economy and environment. They include industrial and transport disasters including oil spills, nuclear hazards, urban and forest fires as well as civil unrest.

Pakistan is undergoing rapid changes turning from a predominantly rural and agrarian to an industrial, service-based and urban economy. Communities that have been living in hazard-prone areas for centuries often have mechanisms that allow them to recognize and mitigate the threats that surround them. As people migrate or are forced to migrate within the country increasing numbers of - predominantly poor - people live in areas that are exposed to hazards they have little familiarity with. A high rate of population growth further feeds into this trend, and leads to environmentally damaging practices such as uncontrolled logging or overgrazing, that may intensify and modify existing hazards. Climate Change threatens to alter monsoon and rainfall patterns further and is predicted to lead to more severe and less predictable flooding and drought episodes. Rapid urbanization with little attention to spatial planning and construction norms exposes higher numbers of people to highly damaging events such as cyclones and earthquakes.

Both the 2005 earthquake and the 2010 and 2011 floods have revealed the vulnerability of Pakistani society and economy to disasters. Damages and losses have been massive but could have been largely reduced if disaster risk reduction measures had been incorporated into physical, social and economic development. The 2005 earthquake illustrated the fact that disasters are not natural; they are closely related to human knowledge, skills and action or inaction. The 2005 earthquake provided a wake-up call to move away from an emergency response paradigm, and to devote more attention to prevention, mitigation and preparedness.

The 2010 and 2011 floods resulted in unprecedented and unsustainable losses to the national GDP[1]. A reliance on "ex post" or reactive public financing sources and donor assistance led to liquidity shortfalls in the immediate aftermath of floods and proved insufficient to cover important recovery and reconstruction needs, leaving some key infrastructure in disrepair and communities less resilient. The 2010 floods further exposed the government to fiscal imbalances and threatened the national economy. The floods demonstrated that much more energetic and multi-sectoral efforts are needed to deal with increasing levels of exposure and vulnerability. Capacity to act upon disaster risks needs to be created where it matters – at the local level, in high risk areas – and geared towards strengthening the resilience of communities. At the national and provincial levels a robust capacity to coordinate, monitor and resource Disaster Risk Reduction (DRR) activities require priority attention.

1.2 Scope and Building Blocks of the Policy

The National DRR Policy provides an overall guiding framework for addressing the high levels of disaster risk permeating Pakistani Society. It covers both natural and man-made hazards. The policy seeks to promote priority measures to ameliorate already existing vulnerability to hazards, and equally important measures to ensure future development processes and programs strengthen resilience. The policy serves as a guiding framework both for DRR and relevant development plans and programs to focus attention upon priority issues.

Pakistan is one of the signatories of the UN Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. At the core of the HFA lies the integration of risk reduction as an essential component of national development policies and programs. The earthquake in 2005 highlighted Pakistan's vulnerability to disaster risks and motivated a shift from the erstwhile response-focused to the current, more proactive approach. This shift found its first expression in the National Disaster Management Ordinance (NDMO, 2006, replaced in 2010 by the current National Disaster Management - NDM Act), followed up by the National Disaster Risk Management Framework (NDRMF) (2007-2012) that outlined a comprehensive national DRR agenda.

The policy is based upon an extensive review of existing background documentation including assessments, relevant frameworks, policies and plans. The building blocks of the current DRR policy reflect the priority actions of the HFA and are within the NDM Act 2010 that decentralized responsibilities for the

[1] 2010 Floods caused losses and damage amounted to 5.8% of the Pakistani 2009/10 GDP according to the WB/ADB Disaster Needs Assessment making it considerably more costly – in relative terms – than the 2011 Japanese Tsunami (4.6%).

implementation of DRR to the provincial and district level. The policy is based upon consultations with district, provincial and national government stakeholders as well as civil society actors and development partners.

1.3 Policy Challenges

The overarching policy challenges the policy deals with are as follows:

1.3.1 Low levels of risk awareness and knowledge

The risk to be affected by disasters is basically a function of the degree of vulnerability[2], exposure to damaging hazard events and the frequency, and severity of hazards. Risk atlases and indices help to establish a comparative picture within a country identifying geographical "hot spots" or areas that are at relatively higher levels of risk from one or multiple hazards. Risk assessments are needed to establish the probability and possible impact of hazard events on people, livelihoods and sectors. At a lower scale risk assessments are used to diagnose causes and identify technically, environmentally and socially sound options for risk prevention and mitigation.

Risk knowledge is as of yet low in Pakistan. This applies both to the mapping and understanding of a number of key hazards and the underlying dynamics and causes (including climate change), and to the lack of sound data and analysis of vulnerability. Only a small number of risk assessments have been undertaken covering limited territory and hazards. There is no national standard methodology or institutionalized capacity to conduct multi-hazard risk or vulnerability analysis. This includes the absence of a standard for geo-spatial mapping which is an essential prerequisite for a national risk atlas. Hazard-data is spread out over several institutions at national and provincial levels. The same applies to data on disaster losses and damages that is not yet systematically brought together and analyzed to monitor vulnerability and hazard trends. At the community level risk awareness is usually higher in those areas that have been recently affected by disasters and involved in subsequent Community Based Disaster Risk Management (CBDRM) activities. In other disaster-prone areas communities have often extremely

[2] Vulnerability can be distinguished as follows (a) **social/ organizational** vulnerability i.e. displacement, lack of awareness and social cohesion; (b) **economic** i.e. lack of access to services and resources and (c) **physical or environmental** vulnerability i.e. health status; sub-standard buildings; physically isolated communities. These factors often overlap.

limited information and understanding of the hazards that surround them. Access to information can be especially difficult for women and children.

1.3.2 Development not "risk conscious" and DRR not yet effectively integrated

The integration of DRR into development is at its initial stage. This applies to all levels of development planning i.e. a) national development plans and poverty reduction strategy papers; b) development programs and sector-specific projects and c) the application of building codes for construction and land-use and zoning regulations for settlement planning. This can be attributed to a mix of both technical and institutional factors; namely the need to raise awareness and commitment at policy- and decision-making levels; the need to build dedicated capacity and resources; a lack of institutional and legal mechanisms to promote enforcement; and a lack of monitoring, evaluation and accountability. As a consequence development currently exacerbates rather than reduces disaster risks.

1.3.3 Insufficient DRR capacity at all levels of society.

An important aspect of the current DRR legislation is the decentralization of core responsibilities to provincial and district levels. However this decentralization is not yet matched by institutionalized capacity, in particular at the district level that is closest to high-risk communities under its jurisdiction. Capacities at community, union council and tehsil levels are overall low. At the national level the National Disaster Management Authority (NDMA) needs to acquire the capacity to act as the main facilitator of DRR in the country and provide overall support and technical guidance to line agencies, FATA/GB/State/Provincial Disaster Management Authorities (F/G/S/PDMAs) and District Disaster Management Authorities (DDMAs). In many other national-level ministries and agencies as well as provincial-level departments capacity is also lacking to apply DRR to specific sector policies, plans and interventions. Outside government Civil Society Organizations (CSOs) have played an important role in promoting DRR at the community level, however these efforts have largely depended upon external funding and are patchy. The involvement of the private sector in DRR is as of yet negligible.

In view of these challenges the policy suggests a number of key objectives targeting risk awareness and knowledge, DRR mainstreaming and capacity building within the context of preparedness, prevention and mitigation.

Chapter 2

Vision, Principles and Objectives

2. Vision, Principles and Objectives

The vision statement emphasizes the urgency of strengthening adaptive and coping capacity against the dynamic nature of hazards, vulnerabilities and risks within the wider context of a changing society and a changing climate.

2.1 Vision:

"A Pakistan that build up its resilience to shocks from natural and man-made hazards with a sense of urgency, creating a solid base to address disaster risk reduction in vulnerable areas, while involving an increasingly wider range of stakeholders from government, civil society and private sector."

2.2 DRR Approach

A fundamental purpose of the policy is to advocate an approach to disaster management that focuses on reducing risks – the probability of losing one's life or health, assets and livelihoods. Disasters – both large and small - have become a regular phenomenon in vulnerable communities across Pakistan. However, the adaptive capacity to withstand or cope with these events is low, and future disasters and climate change threaten to erode it further. In the past decade disaster events have caused unprecedented levels of loss and damage, wreaking havoc on communities, the local and national economy, exacerbating poverty and hampering development. These losses could have been largely reduced through preparedness, prevention and mitigation.

The DRR approach promotes risk reduction as part and parcel of development. Risk reduction strategies need to be mainstreamed to increase Pakistan's resilience to natural hazards and to ensure that development efforts do not increase vulnerability. It is imperative that the reduction of vulnerability and risks is viewed as a continuous set of activities across social, economic, governmental and professional sectors. Activities within these sectors need to be integrated into planning and development strategies that facilitate widespread exchange of information. A shared awareness, commitment and responsibility need to be created at all levels of Pakistani society to reduce risk in disaster-prone areas and communities.

2.3 Principles

2.3.1 Multi-hazard approach

Developing institutions, mechanisms and capacities that are capable of addressing multiple hazards raises the resilience, efficiency and effectiveness of the whole system.

2.3.2 Vulnerability and risk analysis as the basis of DRR

DRR plans and initiatives need to be based upon assessments that identify the nature and degree of vulnerability or risk (including the identification of particularly vulnerable groups), that allow prioritizing problems or geographical areas on a rational basis and that inform the design of appropriate and technically sound DRR interventions. Hazard and Vulnerability Assessments, Risk Assessments and Indices are core tools and processes to identify, diagnose and prioritize risk but also to create awareness and a common perception of how risks can be addressed.

2.3.3 Strengthening community participation and resilience

When they are hit by disaster, vulnerable communities in Pakistan are often on their own for hours or even days before external assistance arrives. DRR cannot be effective without strengthening the capacities of those who are most vulnerable and who need to have the information and skills to reduce the impact of hazards on their lives and livelihoods. DRR initiatives need to build upon existing community organizations and relevant coping mechanisms to be sustainable. Engaging communities in vulnerability and capacity assessments provide entry points to build awareness, commitment and resilience in the face of disasters.

2.3.4 Strengthening the resilience of vulnerable groups

The specific DRR needs of women and children, in particular the poor, are often overlooked perpetuating patterns that lie at the heart of their current vulnerability and lead to greater disaster losses in Pakistan. While mechanisms need to be culturally appropriate, DRR requires the involvement of women as stakeholders to build resilient communities. Needs and damage as well as vulnerability and risk assessments, and DRR programs (such as CBDRM, recovery and reconstruction or sector-specific mitigation initiatives) need to demonstrate gender-sensitivity.

Other groups requiring specific attention from risk assessment, over implementation of DRR measures to monitoring and evaluation include persons with disabilities, older people, marginalized and remote communities as well as different religious groups.

2.3.5 Compatibility with local customs and norms

DRR interventions need to take into account local customs and norms and build upon local institutions.

2.3.6 Clearly defined division of roles and responsibilities between different layers of government

DRR is first and foremost a provincial and district-level subject. National policies provide an over-arching framework for risk reduction but provincial, district and municipal governments, together with civil society groups, are best placed to promote and support risk-reduction behavior among vulnerable communities. This requires a clear definition of roles and responsibilities between different layers of governance and actors. For DRR to effectively reduce vulnerability amongst those most at risk, partnerships with and between provincial, district-, tehsil/ union council governments should be promoted.

2.3.7 Promoting inter-organizational partnerships (Govt. /CS; Govt./Govt./; Govt./Private)

DRR covers a complex set of problems demanding a response that no single organization can provide. This requires not just strong vertical linkages but also horizontal connections between different types of organizations (public, private and civil society organizations including academia) and different sectors.

2.3.8 Transparency and accountability in all DRR interventions

Resources for DRR need to be allocated on a transparent basis based upon verifiable assessments. Information on resource allocation should be in the public domain and be subjected to third party scrutiny. DRR programs and activities are ultimately accountable towards those who are vulnerable to or affected by disasters. Their input and feedback needs to be sought proactively through the establishment of communication channels, monitoring and beneficiary feedback mechanisms.

2.4 Policy Objectives

In line with the outlined principles the DRR policy has the following objectives:

2.4.1 Creating an integrated national capacity to identify and monitor vulnerability and hazard trends including potential climate change impact

2.4.2 Creating Multi-Hazard Early Warning capacity while building upon existing systems and emphasizing the information and warning needs of vulnerable end-users

2.4.3 Strengthening an integrated disaster preparedness and response capacity from the local to the national level

2.4.4 Promoting development planning that considers and addresses disaster risks alongside environmental and climate change concerns

2.4.5 Strengthening the structural and non-structural resilience of key infrastructure and lifelines in Pakistan

2.4.6 Strengthening capacity at national and provincial levels to facilitate and provide support to the implementation of DRR policies, plans and programs across sectors and in high-risk areas

2.4.7 Strengthening Local Level Risk Reduction capacity focusing upon communities, and supportive linkages with Union Councils, tehsils and districts

2.4.8 Ensuring DRR is systematically integrated into recovery and reconstruction programming, "building better, safer and stronger" and informing DRR mainstreaming in general

Chapter 3

Policy Interventions

3 Policy Interventions

3.1 Risk Knowledge

3.1.1 Risk or vulnerability atlas and index at national level

DRR strategies and initiatives need to be based upon clear assessments of disaster risks i.e. a quantitative and qualitative understanding of the underlying causes and vulnerabilities, geographical distribution of vulnerability and hazards , the probability of hazard occurrence and predicted losses. The establishment of a nation-wide vulnerability and multi-hazard vulnerability atlas and index for Pakistan requires the involvement of a range of Pakistani scientific and government institutions that can provide or generate data for analysis[3]. In addition multiple line departments that have data on elements at risk i.e. infrastructure and key life-lines need to be involved in the exercise. Furthermore government institutions such as the National Disaster Management Commission (NDMC), NDMA, Provincial Disaster Management Commissions (PDMCs) and F/G/S/PDMAs, selected DDMAs, and planning commission and departments need to participate in the design process to promote a common understanding of disaster risks, build ownership and ensure that the ultimate product meets relevant information requirements. Only a highly credible assessment will help to promote the resulting index as a basis for planning.

A risk assessment is not a one-off exercise but provides the base-line for future disaster risk monitoring. This includes adding information layers and increasing the resolution of the exercise to allow for more meaningful analysis at the provincial and district level. Continuity of efforts is all the more important as climate change may affect the severity, frequency and geographical distribution of known hydro-meteorological hazards in Pakistan. The vulnerability and risk atlas therefore needs to result in the establishment of an inter-active and integrated national capacity and spatially referenced data-base that can be accessed, manipulated and updated utilizing Geographic Information Systems. This requires a risk assessment and data-base construction process that not only involves Pakistani scientists but also strengthens their capacity as well as the capacity of future data-base operators and users. Such an objective

[3] Including the Meteorological Department, Geological Survey of Pakistan, SUPARCO, Federal Flood Commission and Federal Bureau of Statistics.

involves the harmonization and standardization of geo-spatial mapping tools and soft-ware. The national GIS-powered data-base should have its institutional home within the NDMA providing access to relevant line departments as well as provinces and districts. Based on the national GIS more work will be undertaken to refine and down-scale the system to fit the needs of PDMAs and DDMAs. Ultimately the results of risk assessments should be in the public domain and be easily accessible.

3.1.2 Local/ district level risk assessments

National risk assessment would identify highly vulnerable districts and be complemented by higher resolution work at local level to diagnose the underlying causes of risk, explore concrete risk reduction options and inform development planning and prioritization exercises and/ or disaster preparedness planning. Assessments should be conducted using a uniform methodology and process for multi-hazard vulnerability and risk assessment so they can help to refine the national/ provincial data-bases. This requires the development of a national Hazard, Vulnerability and Risk Assessment standard providing for differentiation between urban and rural areas. Such a standard would cover the need to engage in participatory research to address citizens' and communities' risk perception and build their ownership in DRR strategies and measures.

Outputs of local/ district level risk assessments will include hazard and risk maps. Technical assessments should be performed by appropriate specialists and scientists. The role of F/G/S/PDMAs and DDMAs in these assessments should be one of monitoring and coordination. PDMCs should provide overall guidance on expected outputs of risk assessments and review the results against their utility for the intended purpose.

Assessments undertaken at the community level can add more qualitative information and data to technical risk assessments, and technical assessments can provide communities with necessary outside expertise. This requires building closer partnerships between F/G/S/PDMAs, DDMAs and civil society organizations that are most active in conducting these exercises. The sharing of information needs to be agreed with communities and ultimately community based organizations should be encouraged to raise their vulnerability concerns with local government actors directly.

3.1.3 Damage and loss data-base and climate change-focused research

Data from damage and loss assessments provide insights into patterns of vulnerability, hazard occurrence, magnitude and severity. The creation of an integrated multi-hazard damage loss data-base is therefore a prerequisite for systematic vulnerability and risk monitoring. Against this objective a multi-hazard damage and loss data-base, uniting data that is currently scattered across various organizations, needs to be created.

While damage-loss data-bases help to identify trends based on past events, research into the impact of climate change on glaciers and ice caps in the North need to be carried out to inform scenarios for DRR planning that consider further changes to existing patterns of hydro-meteorological hazards.

3.2 Prevention and Mitigation

3.2.1 Creating more resilient communities

DRR needs to address and involve local level actors in high-risk communities to be effective and produce sustainable results. Disasters are by definition local events since vulnerability and disaster risk are context-specific and communities are not only first hit by disasters but also the first to respond. Resilient communities adapt to hazards, avoid or mitigate negative consequences and are able to recover more quickly from shocks. Linkages and synergies need to be created between high-risk communities, civil society and voluntary organizations and local government at village, union council, tehsil and district levels to make the best use of limited resources. Local DRR activities need to focus upon high risk areas and communities that experience disasters frequently.

Local-level DRR requires the strengthening of community organization/ capacity building and preparation of plans at village- and Union Council (UC) level that are based upon participatory assessments of vulnerabilities and hazards. Plans require the identification of especially vulnerable groups and how to protect them and provisions to involve women in DRR forums and activities. Plans need to identify mitigation options and cover adequate preparedness measures[4]. Village and UC-level plans need to link up with higher-level, supportive plans at district levels including

[4] I.e. early warning and evacuation procedures; management of local shelters; search and rescue; first aid; basic response; communication and requesting or accessing support from government/ agencies.

development plans. Plans require rehearsals and simulations to deepen awareness and skills and test their effectiveness.

While local and community-based DRR needs to address the specifics of local risk and vulnerabilities as well as variations in social and cultural norms a national standard on local-level DRR should identify process and critical components based upon best practices and accumulated experience in Pakistan. This includes the need to build linkages, information exchange and communication channels between community-based actors, local governments and DDMAs/ PDMAs. The national standard would identify the core characteristics of a resilient community in Pakistan and could be further adapted and refined at provincial and district levels. The creation of the standard should be based upon consultations between government, CSOs and communities.

3.2.2 Promoting "risk conscious" and resilient development

a. Integrate DRR into development planning (macro-level: national-level plans and strategies; mega-projects)

The relationship between disasters and development is twofold: disasters have the potential to offset development gains while development can increase exposure and vulnerability to hazards. For the poor this often means that disasters feed into a vicious cycle of worsening vulnerability and ultimately destitution. DRR therefore needs to be treated as an integral component of major strategic frameworks for development i.e. national-level development plans and Poverty Reduction Strategy Papers. DRR focusing on hydro-meteorological hazards by addressing already existing climate change variability should also be promoted as a major component of Climate Change Adaptation Plans. Last but not least DRR needs to inform the design of projects of national significance and be factored into project cycle management.

b. Put into place adequate regulatory regimes to promote DRR

Against a background of rapid urban growth and potential urban disasters, the promotion of DRR through land-use plans and building codes needs to be given high priority in urban settlements. There is an urgent need to revisit municipal regulations in relation to building by-laws and structural and non-structural safety-features to identify a) major safety issues in relation to major hazards including earthquakes, landslides, fires and flooding and b) proper and realistic measures to strengthen the enforcement regime and compliance mechanisms. Building codes need to

be updated every three years in relation to observed hazard and vulnerability trends and be disseminated to both concerned agencies and departments at all levels as well as the wider public. Strategically the focus should be on ensuring that new buildings comply with building codes, while retrofitting is applied to lifeline buildings.

There is need to address the issue of land-use planning and zoning in sprawling urban areas taking into account anticipated future growth. Master plans need to be reviewed against findings from risk and vulnerability assessments and current land-use patterns. Where master plans do not exist they need to be developed to promote sustainable and risk conscious strategies for urban development. This requires the engagement of concerned national and provincial ministries/ departments as well as scientific institutions to develop alternative and realistic land-use models for selected high-risk areas covering various priority hazards, variations in geography and socio-economic development. Particular attention needs to be given to finding sustainable solutions for poor communities inhabiting areas that are deemed unsafe. Relocation can be an option, however it requires community participation and the design of holistic solutions that effectively lower existing levels of risk[5] taking into account not only physical aspects but also social and economic dimensions of vulnerability.

In rural areas with mostly non-engineered buildings and different land-use patterns and needs, an approach needs to be pursued that centers on the promotion of safer building techniques through awareness-raising and training of local construction workers building upon experience gathered from previous "risk-conscious" recovery and reconstruction efforts . The promotion of safer and environmentally sustainable patterns of land-use needs to be backed up by specific, local regulations while consulting and agreeing their design with communities and strengthening community organizations to assist with monitoring rules once they are established. District development plans need to address the settlement of unsafe areas in a holistic manner looking at "living with hazards" models (through CBDRM) and/ or working with communities to develop safer livelihoods and settlement alternatives.

[5] Resettlement can replicate risk or even increase risk especially in areas where "safe" land is scarce, risk knowledge is low and moving people may only lead to the exchange of one hazard against another.

c. Integrate DRR into development planning (micro-level projects)

At the project level efforts have been completed to develop a DRR checklist for basic development project formats PC 1 & 2 at national, provincial and district levels. Future efforts should concentrate on building capacity within national, provincial and district Planning and Development departments to manage and monitor the proper use of these checklists while ensuring proper technical support from NDMA and PDMAs. This includes capacity to analyze development alternatives against their potential impact on risk. In addition integration of DRR into development needs to be gradually expanded to cover all stages of the project management cycle including monitoring and evaluation with clear criteria and guidelines. This also requires sector-specific guidelines for a number of priority sectors.

Ultimately checks performed during the project appraisal phase must be able to flag projects that require more in-depth assessments to a) identify risks, b) formulate recommendations to address these risks. Risk Assessment elements may be incorporated into Environmental and Social Impact Analysis.

d. Integrate DRR into the whole spectrum of post-disaster interventions

The time following a disaster provides a unique window of opportunity to address DRR by promoting equitable and effective recovery that addresses vulnerability within a multi-hazard context. Such efforts need to be initiated in the response and early recovery phase while continuing throughout the rehabilitation and reconstruction phase. They include capacity building of local governments and development planners. DRR activities in areas affected by disasters need to be eventually harmonized with longer-term development objectives.

Systematic integration of DRR into rehabilitation, recovery and reconstruction needs to be guided by a national rehabilitation, recovery/ reconstruction framework and multi-hazard and sector-specific guidelines.

3.2.3 Resilient key-infrastructure and life-lines

In the light of competing demands upon limited resources the resilience of critical infrastructure and key life-lines demands particular attention both at the macro-level (plans and strategies) as well as at the micro-level of development (projects and regulations). Key infrastructure and lifelines include those facilities, structures and services whose disruption or

destruction would seriously affect peoples' lives and livelihoods including those whose functioning is crucial in a post disaster situation i.e.

- Educational and Health Facilities; Key Government Buildings
- Water Supply and Sanitation, Electricity, Transport and Communication
- Irrigation and Flood Protection

In order to guide the design of resilience-strengthening measures, the vulnerability of various infrastructure systems and services needs to be evaluated against multiple priority hazards. Against findings from these sector-specific assessments, DRR strategies and plans need to define a program to promote and enforce appropriate construction norms and location requirements, suggest eventual retrofitting activities and measures to mitigate non-structural damage[6] as well as appropriate preparedness, operation and maintenance procedures. Sector-specific DRR plans or strategies should also guide safer reconstruction through better-quality and risk-informed planning, engineering and building following destructive events.

Flood protection is a cross-cutting and trans-boundary challenge and any improvements to existing infrastructure need to be guided by overall strategies for water and flood-management taking into account environmental, social and economic considerations. This is particularly important in the light of climate change concerns and scenarios that predict both more erratic and severe flooding in the future.

3.2.4 Promoting risk awareness and knowledge through DRR education

Addressing DRR awareness-raising and education needs to happen at various levels of society to ensure DRR enjoys adequate political, technical, professional and public support. An important role in human resource development is to be played by the NIDM as the nodal training, research and education institution.

a. Promoting DRR through public awareness campaigns

Reaching the wider public with DRR messages requires clearly targeted awareness campaigns with clear objectives, core target groups and

[6] This applies in particular to buildings with high levels of occupancy i.e. schools, colleges and health-centers. Non-structural measures refer to building contents and components that are not part of the physical structure i.e. doors, electrical and heating systems etc.

appropriate methodologies that ensure messages reach men and women. The NIDM has an important role to play in advising on the design of such campaigns but also in creating capacity within NDMA, PDMAs and DDMAs to design, conduct and evaluate public awareness campaigns in the appropriate regional languages.

b. Promoting DRR education in schools and colleges

The integration of DRR into the education syllabus at all levels should focus upon creating awareness of priority hazards, mitigation or prevention options and building basic self-help and mutual-help capacities through school-based preparedness or safety plans (covering recovery of functionality in a post-disaster situation). School preparedness needs to be linked into wider community-based DRR plans and mechanisms as schools may serve as shelters and safe havens in disaster situations. For better coverage it is important that DRR education is also promoted in private and religious schools. Peer mechanisms are effective in reaching out of school children and youth.

c. Promoting professional and technical education

Professional and technical education in DRR needs to be enhanced through a range of activities including:

The development of DRR as a professional discipline needs to be further promoted at national and provincial levels through high-quality academic programs while agreeing on common curricula standards.

The curricula of graduate and postgraduate courses in architecture, engineering, medicine, earth-, environmental and social sciences need to be further updated to incorporate the latest DRR knowledge and practices.

Everyday emergency responders (ambulance services, police, fire-services) require enhancement of their training and skills through dedicated DRR training

Integrate DRR into curriculum of Civil Defense Training Institutions

At the local level training initiatives require support that target artisans such as builders and masons, and train them in hazard-resistant construction, focusing upon non-engineered buildings.

d. Strengthening DRR capacity amongst key stakeholders and decision-makers

Through the NIDM curricula and training opportunities will be developed targeting national and provincial key stakeholders. Furthermore specific training opportunities and courses will address the professional development needs of NDMA and PDMA staff. The NIDM will also develop short courses targeting decision- and policy-makers striving to increase both understanding of DRR and commitment to identify and act upon DRR needs. At the provincial level capacity needs to be strengthened to address the training needs of district level stakeholders.

DRR will be integrated into the syllabus of Civil Services Academy, NIMs, Administrative Staff College, National Defense College and Staff College.

3.3 PREPAREDNESS

3.3.1 Multi-hazard EWS

The fact that Pakistan experiences a range of regularly occurring hazards provides a strong rationale for investing in multi-hazard Early Warning Systems (EWS) that provide advance warnings to both decision-makers and communities. Effective EWS depend upon risk knowledge, an effective hazard monitoring and threat assessment, warning system, dissemination and communication of warning messages and communities that respond to warnings. Ultimately EWS are only as good as the life-, livelihood- and property-saving action that they manage to induce. EWS therefore require attention to people centered and gender sensitive approaches in establishing warning and dissemination mechanisms.

The concepts, mechanisms and activities of multi-hazard Early Warning need to be embedded in wider DRR strategies and preparedness or response plans at national, provincial and district/local/community levels. At the same time gaps and deficiencies in staffing and equipment of technical agencies responsible for monitoring individual hazards need to be addressed and protocols for the provision and exchange of information need to be established. Key actors in government agencies require legitimate mandates (following a mutually agreed plan) to coordinate, monitor and issue warnings on a variety of hazards. This requires the

establishment of clear centers of responsibility at all levels and for all key steps of warning[7].

For highly localized, destructive hazards that are difficult to monitor and predict using remote technology and systems, community-based monitoring and alert systems need to be developed within the wider framework of CBDRM building upon traditional warning mechanisms.

3.3.2 Integrated disaster preparedness and response capacity

An effective disaster preparedness and response system rests upon clearly defined roles including leadership roles, an effective flow of information between stakeholders and heightened response capacity in areas that are most likely to experience disasters. In addition more specialized capacity (i.e. Urban Search and Rescue Units) needs to be created to back up local emergency services. There is a need to have clear arrangements that allow the system to switch into emergency mode and mobilize necessary resources in a timely and effective manner.

a. Disaster preparedness and response plans[8]

There is need to clarify mutual roles and responsibilities (horizontal and vertical) and coordination arrangements in an updated, multi-hazard national response plan that is based upon current legislation. The same needs to happen at provincial and district levels while following a common approach to planning, so plans complement each other. Plans need to be based upon risk assessments, operational realities and existing resources while making specific suggestions how to improve upon current levels of performance.

b. Hazard- and sector-specific plans[9]

Effective response requires each relevant sector to define their responsibilities and interventions in their own response plans (based upon the overall plan) specifying technical details, standards and requirements as well as sector-specific coordination.

Given the regularity, significance and/or highly specific nature of certain events such as floods, oil-spills or terrorist attacks single-hazard

[7] A Draft Multi Hazard Early Warning System Plan is available and awaits finalization.
[8] These plans can be part of broader DM plans.
[9] In principle also to be performed at all levels.

contingency plans need to be created for specific scenarios bringing together concerned agencies and stakeholders.

c. Defining levels and geography of disaster situations

There is a need to set criteria for the identification and declaration of "disaster affected" areas. Disaster declarations may temporarily restrict individual rights (such as property rights or mobility). They eventually open up local areas to assistance from higher levels and they denote a condition where local capacity to cope with the event and its aftermath is either at its limit or overwhelmed.

Hazards rarely coincide with administrative boundaries. Therefore an integrated national disaster preparedness and response system needs to be prepared to deal with situations that exceed the capacity of a single district or province or even the nation. A Standard Operating Procedure needs to define criteria to determine whether a disaster is a "district", "provincial" or "national" level disaster. Broad criteria for the declaration of disaster situations at various levels may apply to the level of physical damage and/ or the numbers of casualties and/ or the loss of functionality of key services including local government capacity to lead, implement and coordinate response efforts. Furthermore the SOP needs to highlight the mechanism for declaring an emergency, and subsequent responsibilities at various levels of government. In the event of a national-level disaster an appeal for international assistance may be launched by the national government.

There is a need to clarify the legal ramifications of a disaster declaration defining rights and duties of citizens, private businesses and government organizations in the affected and (in the case of "district", "provincial" or "national" level disasters) surrounding areas. This requires by-laws at all levels that also clearly define centers of authority and mechanisms to declare a disaster area or situation, conditions for keeping these declarations in place and phasing out from such declarations.

d. Disaster response forces / volunteers

Communities are the first to respond to disasters and the importance of training the community in preparedness and life-saving measures is well recognized. Their immediate response needs to be backed up by more specialized and better-resourced response forces. There is a need to create such forces at provincial and district levels while building upon everyday emergency services (medical services, fires-service etc.) and Civil defense

with its volunteer structure. The specific roles and potential of other voluntary organizations such as the Pakistan Red Crescent Society and Edhi Foundation should be considered. The role and protection of volunteers participating in DRR activities require legal clarification to address issues of status, liability and insurance. It is likely that different provinces will come up with slightly different models for disaster response forces[10] however they need to perform to overall standards as set out in guidelines and SOPs.

At provincial level and in major cities including the national capital more specialized search and rescue units and hazmat teams that can also be deployed to local areas need to be created.

e. Assessments and information management

Effective response rests upon timely, accurate and up-to-date information. This requires clear procedures and standardized forms for information collection, sharing and analysis. Situation Reports, (Rapid) Needs and Damage and Needs Assessments require harmonized protocols, methodologies and forms. Needs and damage assessments protocols and methodologies need to define a) methodologies to gather gender-differentiated data, and b) ways to gather information from women and children to address their specific needs. Multi-sectoral capacity needs to be built to perform assessment and tasks in a timely fashion.

At provincial and national levels an integrated data-base should capture available disaster response in all areas under their jurisdiction resources including human, material and financial to facilitate mobilization in times of need. This data-base should also reach out to the district level.

f. Civil-military relations

The Pakistani military plays an important role in emergency response. In the light of increasing decentralization of DRR to provinces and districts, there is need to strengthen civil-military coordination to pursue common goals and minimize inconsistencies. Coordination as a shared responsibility should include a) joint planning covering agreed alert and mobilization procedures; b) information sharing including the sharing of SOPs, c) task division and d) hand-over procedures between civilian authorities and the military where appropriate. Joint simulations can help to clarify coordination and cooperation modalities. Overall there is a need

[10] For instance in the Punjab, Provincial and District Response Forces have been established under the executive leadership of Rescue 1122 incorporating the voluntary structure of Civil Defense.

to define the use of military assets in natural, industrial and conflict emergencies (as well as in emergencies where conflict and natural hazards overlap) in specific guidelines for Pakistan.[11]

3.3.3 Financial protection and disaster risk financing mechanisms

The objective of financial protection is to mitigate the impact of natural hazards on communities and wider society through a range of instruments employing a combination of public (international and national) and private channels of funding. The efficient financing of natural disasters relies on public-private partnerships between the private insurance and reinsurance industries and governments.

Pakistan has very low private insurance penetration and the government is often expected to support private reconstruction representing a huge burden on public funds. At the national and provincial level the current financial protection practice is largely reliant on public post-disaster financial instruments (budget reallocations and tax increases) as well as donor assistance. Such ex-post instruments have been insufficient to cover recovery and reconstruction needs and have also led to liquidity shortfalls in the immediate aftermath of disasters. The government's ultimate responsibility to provide post-disaster assistance to the poor and vulnerable and restore lifeline infrastructure has been challenged by wide and competing demands.

Proactive financial protection strategies based upon advance planning would allow to increase Pakistan's financial response capacity in the aftermath of disasters and to reduce the economic and fiscal burden of natural disasters by transferring excess losses to private capital and insurance markets. Well designed disaster risk financing and insurance strategies can create financial incentives for public and private agencies and/or households to take responsibility and further mitigate their risks. For example, access to Disaster Risk Financing and Insurance (DRFI) instruments can be made contingent upon compliance with earthquake-resistance building codes.

Risk Assessments and risk modeling techniques provide the tools to assess the likely economic and fiscal impact of natural hazards upon which cost-effective risk financing and insurance strategies can be built. A holistic financial protection strategy needs to be designed that explores the following categories of financial protection and risk transfer:

[11] See UN IASC Civil-Military Guidelines for global reference on the topic.

a. Public catastrophe risk financing

There is need to develop a sovereign catastrophe risk financing strategy to increase the financial response capacity of the Pakistani government. Such a strategy could suggest a layered system: a) a national DM reserve for funding the response and recovery following frequent but low impact hazard events; b) contingent credit facilities and emergency loans to finance the medium layer of risk and c) parametric insurance[12] or catastrophe bonds to finance rare but high impact events. .

b. Property catastrophe insurance system[13]

There is need to create a conducive environment for the development of a competitive private catastrophe insurance market targeting home-owners, small and medium enterprises, and public entities for example through catastrophe-(re) insurance pools and defining top layers of risk that insurances will have to absorb. This will require a dialogue between the Insurance Department and Security Exchange Commission with the Insurance Industry.

There is also a need to encourage programs for farmers, herders and agricultural financing institutions (e.g., rural banks, microfinance institutions) to increase their financial resilience to adverse natural hazards. Special insurance products will have to be created to protect the livelihoods of the poor, in particular against extreme weather events.

[12] Triggered by an event of an agreed magnitude, such as wind speed of a cyclone, not linked to loss assessment.

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Chapter 4

Implementation Framework

4. Implementation Framework

The success of the National DRR Policy lies in the effective implementation of operational plans to be prepared and implemented by national and provincial governments in line with broad policy parameters. Most significantly, the role of F/G/S/PDMAs and district authorities will be the key to enhancing DRR capacities of line departments and at-risk communities. In the following section, an overall framework for implementation is recommended to facilitate the subsequent process of formulating detailed action plans.

4.1 National DRR Policy: A Living Adaptable Document

The National DRR Policy will remain a dynamic document to be reviewed and updated continually in order to keep the policy parameters aligned with national priorities, changing weather patterns and risk profile of the country, and international obligations. The reviews and updates, however, will be made on the basis of:

a) Scientific information / data related to hazards, risks and vulnerabilities;

b) Any changes in legal, constitutional or governance setups at the national or provincial level; and

c) Lessons learnt to improve, enhance and strengthen mitigation, preparedness and response management systems at the national, provincial and local levels.

The process of introducing changes to the policy document will ensure multi-stakeholders' consultations with technical and legal experts, federal ministries / divisions / departments, authorities and institutions, and provincial and regional governments.

The DRR Policy would be reviewed every three years, however, in case of a need to introduce changes at a specific point of time to address any policy issues based on the feedback during implementation of action plans, the national and provincial DRM institutions (NDMA & F/G/S/PDMAs) will hold consultations and propose changes for approval by the competent forum..

4.2 Operationalizing through Plans

The current policy will be implemented through three main instruments: a) development plans; b) disaster risk reduction/management plans; and c) sectoral and hazard-specific plans. In order to implement specific components of the policy, a range of specific plans and strategic frameworks need to be designed or finalized. These include, among other, a human resource development plan, a national multi-hazard early warning system plan, a financial risk protection strategy and a range of strategic frameworks to

promote safer and sustainable land-use in a variety of socio-economic, geographic and risk contexts. In parallel to DM planning processes preparedness, prevention and mitigation objectives will also be integrated into development planning at national, provincial and district levels as well as into specific plans of key and lifeline sectors.

Disasters and development go hand-in-hand and the mainstreaming of DRR in the overall development process is considered to be the foundation of a long-term agenda that allows to mitigate risks and vulnerabilities and to make communities more resilient to natural or man-made shocks. .

For a risk-sensitive development environment in Pakistan, the National DRR Policy reinforces that all the relevant ministries, departments, organizations and agencies will attach greater importance to integrating DRR considerations into policy, planning and programming at all levels. NDMA will facilitate the process of developing specific guidelines by engaging technical experts and organizing consultations with relevant entities at all levels. Planning for disasters and disaster risk management/reduction is a participatory process and will aim to involve a multitude of stakeholders from across government sectors, the private sector, NGOs, CBOs and communities. It would therefore be necessary to cluster stakeholders into planning groups relevant to the various activities associated with disasters and disaster risk management, e.g. hazard-specific contingency plans and operational plans, development of disaster risk reduction strategies, etc

4.2.1 Development plans

The national, provincial and district governments will ensure that disaster risk reduction principles are incorporated in the development agenda and other country programs. In order to guarantee availability of financial resources for the disaster risk reduction activities, the annual and long-term mega development programs/ projects and the poverty reduction strategies will recognize and include DRR as an integral part of development agenda. Development programs or projects will only be approved by the competent authorities when they comply with the general and specific DRR guidelines.

NDMA and F/G/S/PDMAs will work closely with the National Planning Commission and the Provincial Planning & Development Departments respectively and provide technical assistance to help scrutinize DRR-sensitive programs/projects for approval and implementation.

Similarly, the DDMA will be the focal point for technical assistance to be provided during the formulation of annual or 5-year District

Development Program (DDP). DDMAs will have to ensure that the DDPs take into account the risk and vulnerability profile of the district and incorporate feedback from hazard-prone communities. DDMAs will also be required to guide and assist the local governments (Tehsil and Union Council) on integrating DRR into development planning and implementation.

4.2.2 Disaster risk reduction / management plans

In addition to regular development plans, the national, provincial and district governments will develop and implement DRR/DRM plans in order to continuously identify, treat and manage risks through appropriate structural and non-structural means. A National Disaster Management Plan (NDMP) will be developed outlining measures for disaster prevention, mitigation and preparedness as well as defining roles and responsibilities of different ministries or divisions of the Federal Government to be performed at different stages of disaster risk management. Similarly, F/G/S/PDMAs will develop provincial DRR/DRM plans, which will be approved by the PDMC. Respective F/G/S/PDMAs will ensure overall coordination and implementation of the Provincial DRR/DRM Plan.

Local governments have a key role in identifying and understanding the hazards and risks that could impact on the safety and sustainability of their communities. At local level, DDMAs, with technical assistance from F/G/S/PDMAs, will prepare District DRR/DRM Plans keeping in view the detailed analysis of risks and vulnerabilities of the area, mapping of capacities available with public and private sector, and clearly defined roles and responsibilities of district line departments to be performed in pre- and post-disaster phases. The District DRR/DRM Plans will also provide long-term DRR/DRM vision, key priorities and financial arrangements necessary for implementing programs and activities aimed at making the local communities resilient to hazards and threats from potential climatic changes. The District DRR/DRM Plans will not entirely focus on structural or engineering solutions but equal importance will be given to non-structural aspects of DRR/DRM. DDMA will endorse the District DRR/DRM Plan for final approval by F/G/S/PDMAs. For effective implementation of the Plan, F/G/S/PDMAs will also help district authorities in resource mobilization.

UC DRR/DRM Plans are equally important to be prepared as risks and vulnerabilities may vary from rest of the areas and UCs of the district. NDMA will assist F/G/S/PDMAs in developing and finalizing specific

guidelines that the DDMAs will follow during the process of developing a UC-DRR/DRM Plan. The planning process will have to ensure active participation of communities, CBOs and other local-level stakeholders so that they could identify prevailing risks and suggest medium and long-term means to mitigate them on the basis of indigenous knowledge and local capacities. DDMAs will impart necessary training to district and UC officials for undertaking the planning activity. UC-DRR/DRM Plans will be approved by DDMAs. UC-level planning inputs can be very useful for updating the District DRR/DRM Plans as well. DDMAs will be required to review / update district and UC DRR/DRM plans annually for their effectiveness and complementarities.

4.2.3 Sectoral and hazard-specific plans

In addition to capitalizing on multi-tier development and DRR/DRM plans, federal ministries / departments and provincial and district line departments will be required to develop sector-specific DRR/DRM plans to be reviewed and updated annually. This approach will allow each public-sector entity to complement and strengthen the overall structure of DRM both horizontally and vertically. NDMA will provide technical assistance in terms of preparing guidelines and imparting technical skills to government officials for developing sectoral DRR/DRM plans at the national and provincial levels. Likewise, F/G/S/PDMAs will take this initiative down to the districts. For the approval of sectoral plans, NDMA and F/G/S/PDMAs will undertake technical reviews before their approval by relevant ministries / divisions at the national and provincial level. The technical reviews will revolve around: a) department-specific risk analysis; b) measures for structural and non-structural mitigation of identified risks and allocation of budget; c) defined mandate of the department vis-à-vis DRM; and d) inter-department linkages.

Moreover, NDMA will also develop and implement a Multi-hazard Early Warning System Plan and a National Human Resource Development Plan.

4.2.3 Planning guidelines

The National DRR Policy emphasizes that for effective multi-tier DRR / DRM planning that is in consonance with the requirements and provisions of the HFA and the NDM Act 2010, NDMA will engage the technical agencies from public and private sectors and develop a set of guidelines and templates for the following:

a) Risk Assessment guidelines for national, provincial and district DRR/DRM plans;
b) DRR Mainstreaming guidelines;
c) Community-Based Risk Assessment Guidelines;
d) Guidebook on Indigenous Coping Mechanism for flood, drought, earthquake, landslide and coastal hazards;
e) Damage and Needs Assessment template for district authorities, F/G/S/PDMAs and national entities;
f) Hazard-specific Risk Assessment Guidelines;
g) Emergency Response Guidelines;
h) Contingency Planning template and guidelines;
i) Guidelines and templates for Sectoral DRR/DRM plans;
j) Guidelines for Industrial Hazards Mitigation;
k) Guidelines and templates for monitoring and evaluation of DRR / DRM plans; and
l) Guidelines for reviewing and updating DRR / DRM plans at national, provincial, district and Union Council level.

4.3 Finance

Adequate resources and their efficient utilization is of critical importance for effective disaster risk reduction measures. Timely and adequate investment on DRR will substantially reduce hazard risks but also the costs associated with response, recovery and rehabilitation. NDMA, F/G/S/PDMAs should be provided with sufficient financial resources for designing and implementing disaster risk reduction measures. The resource mobilization and disaster risk financing arrangements are based upon the provisions of NDM Act 2010. The financing needs to be guided by the principles of Adequacy, Equity, Predictability, Administrative efficiency, Incentive effects, Autonomy, and Risk pooling.

The National DRR Policy recommends that a separate and dedicated budget line for disaster risk reduction be created at federal, provincial and district tiers. For the sustainability of prevention, mitigation and preparedness efforts and to ensure a timely response to any disaster situation, the NDM Act 2010 calls for establishing and managing National and Provincial Disaster Management Funds separately; National Disaster Management Fund (NDMF) and Provincial Disaster Management Fund (PDMF). The Act identifies two major sources of funding: a) government's grants; and b) loans, aids and donations by national or international agencies or other sources. It also requires the Federal and Provincial governments to make provisions for funds in their annual budgets for carrying out activities and programs set out in disaster management plans as required by N/F/G/S/P/DMAs. The National

DRR Policy also recommends for development partners to contribute to strengthen the national and provincial disaster management funds.

4.4 Knowledge Management and Research and Development (R&D)

A predominant response-oriented approach till 2007 did not provide enough space for the academic work on DRR to take roots and inform and prioritize policy decisions and strategic interventions. Similarly, whatever amount of DRR knowledge was created over the years within the public and private-sector domains remained scattered and inaccessible, which could have otherwise been transformed into 'life-saving' knowledge for risk-prone communities.

DRR knowledge management has gained importance given the global acknowledgement that losses to lives and livelihoods can be reduced substantially if people are informed about risk and vulnerabilities and using their capacities for DRR. However, it requires the collection, compilation and dissemination of relevant knowledge and information.

The National DRR Policy thus recognizes that an environment has to be established to create, share, learn, enhance, organize and utilize DRR knowledge in best possible manners. In view of the above context, following key policy measures will be taken to promote DRR-related R & D and knowledge management:

4.4.1. Research on disaster risk reduction

To guide, promote and strengthen research aspects, NDMA, in consultation with scientific and technical institutions, will set up a core group of experts to identify research needs in disaster risk reduction, and to undertake a range of research studies. Emphasis is required to be given to climate change and adaptation and global warming in addition to research on cross-cutting themes including technological and man-made disasters. Research into indigenous coping mechanism for flood and drought hazards, micro-zonation and scenario development based on simulation studies will be of significant importance.

Similarly, post-disaster field studies will be undertaken as an institutional measure to identify gaps and analyze the status of preparedness, response and mitigation. The findings of such studies will be fed into national, provincial and local level DRM plans for their enhanced effectiveness.

Additionally, NIDM will document lessons of past disasters vis-a-vis recovery and reconstruction to guide the future course of mainstreaming DRR into post-disaster phases. NIDM will also document DRM case studies and best practices to be disseminated to all stakeholders for the promotion of DRM in Pakistan.

4.4.2. Strategic plan of NIDM

NDM Act 2010 outlines the roles and responsibilities of the NIDM with regard to research and capacity building. In order to effectively fulfill legal and technical obligations, NIDM will prepare a Strategic Plan in consultation and collaboration with NDMA and relevant provincial institutions/academies to take forward the agenda of research, training and capacity building for disaster risk reduction and management. NIDM will also extend desired technical assistance to provincial disaster management institutions for preparing research, training and capacity building action plans.

4.4.3. Academic affiliations

In order to enhance academic and technical scope, credibility and effectiveness of NIDM, options will be explored for its affiliation with research, training and educational institutions at the national, regional and international levels.

4.4.4. Disaster resource center

NIDM will establish and run a Disaster Resource Center (DRC) to support and complement DRR efforts through technical inputs on research, training, education, advocacy and awareness throughout the country. DRC will be a hub of disaster-related information for consumption of public-sector departments and organizations, print and electronic media, students, development professionals, and academicians.

4.4.5. Training and capacity building

A training and capacity building agenda will flow out of NIDM's Strategic Plan. NIDM will gather all the available training, awareness and capacity building material and consolidate/adapt it for use by different actors. Besides developing training manuals and modules in Urdu and English languages, NIDM will chalk out a detailed strategy for mass awareness on DRR through appropriate means.

Training and capacity building programs become more useful if the training content is based on the training needs of different stakeholders. Therefore, NIDM will prepare Training Needs

Assessment template and guidelines and complete the practical exercise before finalizing the list and outlines of training courses / materials. Lastly, NIDM, in consultation with NDMA and F/G/S/PDMAs, will plan for regularly conducting drills and simulations at different levels.

4.5 Community Based Disaster Risk Management

CBDRM has a pivotal role to play in strengthening the overall DRR/DRM system and structures. Although, there is a world-wide broad consensus on established principles and techniques for CBDRM, different countries, however, have developed CBDRM frameworks and guidelines according to their own national priorities and specific community and cultural needs. In Pakistan, national and international NGOs have largely been implementing CBDRM programs and activities according to their own understanding of the local context. In the absence of a national CBDRM framework, it becomes difficult to create synergies and get maximum benefits for hazard-prone communities out of the CBDRM efforts. Therefore, a national CBDRM framework that could be further adapted and refined at provincial and district levels will be developed.

4.6 DRR Mainstreaming in Education System

DRR agenda will remain inconclusive unless the national education system is made an integral part of it. Efforts are already underway to mainstream DRR in education curricula at all levels (school, college, university). However, the task at hand is to develop the DRR curricula in national and regional languages for subsequent mainstreaming. NDMA will facilitate the process of developing DRR curricula in consultation with relevant forums. Similarly, an appropriate mechanism will be devised to review with DRR lens the curricula of graduate and post-graduate level courses in architecture, engineering, and earth sciences, etc.

4.7 Monitoring & Evaluation

Needs-based prioritization of future DRR/DRM interventions becomes relatively difficult if the monitoring and evaluation (M&E) of past and on-going DRR/DRM programs and projects is not done systematically. NDMA, in collaboration and consultation with provincial governments, federal departments, institutions, and development partners, will develop a monitoring & evaluation framework for periodic oversight of the implementation of DRR/DRM activities in Pakistan. The framework will aim to objectively

evaluate the relevance, effectiveness, efficiency, sustainability and impact of DRR/DRM interventions.

More specifically, the M&E framework will provide unified tools and templates for tracking the implementation status of the National DRR Policy, Disaster Management Plans and other DRR/DRM-related programs and projects at the national, provincial and local levels.

F/G/S/PDMAs will undertake M&E activities at the provincial and district levels whereas NDMA will do the same for national-level initiatives. At the end of each year or in the first month of the following year, NDMA and F/G/S/PDMAs will share their M&E findings and analysis for subsequent consolidation and sharing with relevant stakeholders. NDMA will annually publish a national report on M&E of DRR/DRM interventions, which will be presented to the NDMC together with overall progress related to DRR / DRM. F/G/S/PDMAs will present their M&E reports to respective PDMCs.

4.8 Harmonizing DRR initiatives

Over the last few years, the federal and provincial governments have taken various initiatives aimed at reducing structural and non-structural vulnerabilities to different hazards and building capacities of government officials and communities. However, there is a need to create synergies within and among provincial and national initiatives and making optimum use of on-going efforts. The implementation of such activities in isolation is not likely to achieve desired results. Therefore, it is imperative for the federal and provincial governments to dovetail all such initiatives of structural and non-structural nature within the holistic framework of DRR in order to effectively contribute to the national agenda of making Pakistan a disaster resilient country