

National Disaster Risk Management Framework

Pakistan

February 2007

National Disaster Management Authority (NDMA)
Government of Pakistan

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Acronyms

AJ & K	Azad Jammu and Kashmir
AKPBS	Aga Khan Planning and Building Services
APPNA	Association of Physicians of Pakistani Descent of North America
BEF	Balochistan Environmental Foundation
BWASA	Balochistan Water and Sanitation Agency
CBOs	Community Based Organizations
CCB	Citizen Community Boards
CCI	Chamber of Commerce and Industry
CWS	Church World Service
DCO	District Coordination Officer
DDMA	District Disaster Management Authority
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EDO	Executive District Officer
EOC	Emergency Operations Centre
ERC	Emergency Relief Cell
ERRA	Earthquake Reconstruction and Rehabilitation Authority
FATA	Federally Administrated Tribal Areas
FHA	Focus Humanitarian Assistance
FAO	Food and Agriculture Organization
FFC	Federal Flood Commission
GSP	Geological Survey of Pakistan
HFA	Hyogo Framework for Action 2005-2015
IASC	Inter-Agency Standing Committee
IOM	International Organization for Migration
IRP	International Recovery Platform
IRSA	Indus River System Authority
IUCN	The World Conservation Union
JCSC	Joint Chiefs of Staff Committee
MSA	Maritime Security Agency
MDMA	Municipal Disaster Management Authority
NA	Northern Areas
NDMA	National Disaster Management Authority

NDMC	National Disaster Management Commission
NDMO	National Disaster Management Ordinance
NESPAK	National Engineering Services of Pakistan
NEOC	National Emergency Operations Centre
NIPA	National Institute of Public Administration
NRECC	National Radiation Emergency Coordination Centre
NGOs	Non-governmental Organizations
NWFP	North West Frontier Province
OCHA	Office for Coordination of Humanitarian Assistance
PARC	Pakistan Agricultural Research Council
PCRWR	Pakistan Council of Research in Water Resources
PCSIR	Pakistan Council for Scientific and Industrial Research
PDMA	Provincial Disaster Management Authority
PDMC	Provincial Disaster Management Commission
PEC	Pakistan Engineering Council
PEOC	Provincial Emergency Operations Centre
PINSTECH	Pakistan Institute of Nuclear Science and Technology
PMD	Pakistan Meteorological Department
PNRA	Pakistan Nuclear Regulatory Authority
PRCS	Pakistan Red Crescent Society
SDF	Sangi Development Foundation
SDPI	Sustainable Development Policy Institute
SOPs	Standard Operating Procedures
SUPARCO	Space and Upper Atmospheric Research Commission
TMA	Tehsil Municipal Administration
TRDP	Tharparkar Rural Development Programme
UNDP	United Nations Development Programme
ISDR	International Strategy for Disaster Reduction
UNICEF	United Nations Children's Fund
UNHCR	United Nations High Commission for Refugees
WAPDA	Water and Power Development Authority
WFP	World Food Programme
WHO	World Health Organization
WRRC	Water Resources Research Centre
WWF	World Wide Fund for Nature

Message from the Honourable President

It is a great pleasure and privilege to launch the National Disaster Risk Management Framework. The earthquake of 8 October 2005 highlighted the vulnerability of Pakistan to disaster risks. With the current transition in economy, the risks of disaster impact and vulnerabilities of society may increase. Therefore, the Government of Pakistan has committed itself to address the issues of disaster risk reduction and preparedness in a comprehensive manner.

The National Disaster Management Ordinance has been passed and the National Disaster Management Commission established. The Ordinance emphasises upon adoption of a proactive and comprehensive approach to various phases of disaster risk management, including risk reduction, preparedness, response, and recovery. Membership of the National Commission is well represented by federal structure of the country. It includes representatives from the federal government and the opposition in the National Assembly and the Senate. Governments of the four provinces and the AJ & K, administration of NA and FATA are also represented in the National Commission.

The National Disaster Management Authority (NDMA) established under the Ordinance will ensure that appropriate policies, strategies and programmes for risk management are developed and implemented to reduce disaster risks, and the country is ready to tackle any future disasters in an organized and effective way. In this regard, the NDMA will work closely with Provincial DM Authorities (PDMAs), federal ministries, departments, technical agencies, armed forces, provincial governments, UN agencies, donors, NGOs, and civil society organizations.

The National Disaster Risk Management Framework has been prepared to guide the work of all stakeholders. It provides overall direction for key stakeholders at national, provincial and local levels. It sets-out priorities for the next five years. The federal government will ensure through close and constant monitoring that priorities identified in the Framework are implemented by all stakeholders. The government would allocate sufficient financial resources from its own budget, in addition to mobilizing additional resources from the international community. The federal government would encourage the provincial governments and the governments of AJK, FATA and NA to allocate funds for disaster risk management in their annual development budgets.

I wholeheartedly wish that this Framework and its implementation meet great success.

General Pervez Musharraf
President
Islamic Republic of Pakistan

Prime Minister's Message

In countries like Pakistan disasters and development have very close relationships. Over the past few years, Pakistan's economy has seen a sharp growth. This economic growth has made many positive impacts upon the lives and livelihoods of Pakistanis. However, this growth is not risk free. The development infrastructure located in hazard prone areas is at risk from disasters. The impact of disasters upon development infrastructure could negatively affect growth, thus hindering growth development. Supply of services could also be affected by disasters. In other cases, relief and recovery from disasters may require reallocation of precious development resources, as has been demonstrated during the response and recovery phases of October 08 earthquake. All of this could adversely impact the current trends of economic growth and social development. Simultaneously the requirements of economic growth can put pressures upon natural resource base of the country. This in turn could lead to more severe and frequent hazard events; e.g. landslides, flooding, droughts, pests and storms.

Realizing the nature of these close linkages between disasters and development, the Government of Pakistan has embarked upon developing and implementing appropriate strategies to reduce vulnerabilities of our society and economy to disasters and controlling the negative consequences of development to minimize hazards and disasters.

In this context, I am glad to announce the compilation of this National Disaster Risk Management Framework, which will guide the work of National Disaster Management Commission and all stakeholders in the country.

In order to materialize the vision, mission and objectives of this Framework the federal government will allocate appropriate financial resources in annual development budgets. The federal government expects that all stakeholders and particularly the line ministries and provincial/regional governments will also pay serious attention towards establishing institutional mechanisms, developing capacities and implementing strategies in their respective sectors and regions. In this regard the federal government will work closely with the provincial and regional authorities. The federal government would strive to integrate disaster risk lens into all development policy, planning and programming processes in the country, eventually.

The government would welcome the support and participation of international donors, UN agencies, NGOs, media, research and academic institutions, private sector, insurance and banking sectors in achieving the vision of the National Framework.

In my capacity as Chairman of the National Disaster Management Commission (NDMC), I will closely supervise the work of National Disaster Management Authority to ensure that progress is made in the implementation of this Framework.

I thank you all stakeholders, who contributed to the formulation of this Framework.

Shaukat Aziz
Prime Minister
Islamic Republic of Pakistan

Preface

The loss of life and property and the challenges that were faced in the aftermath of October 2005 earthquake affecting Azad Jammu and Kashmir and the NWFP province exhibited the need for establishing appropriate policy and institutional arrangements to reduce losses from disasters in future. The earthquake tested the resilience and capacity of Pakistan and its people to overcome catastrophes.

The need for strong institutional and policy arrangements has been fulfilled with the promulgation of the National Disaster Management Commission (NDMC), the National Disaster Management Authority (NDMA), and the passing of the National Disaster Management Ordinance, 2006.

This Framework prepared with active participation of multiple stakeholders serves as a vision document for leading the way towards a safer Pakistan. The Framework provides guidelines to coordinate activities of numerous stakeholders. It also sets out priorities for mobilization of resources from donors and development partners of Pakistan to implement strategic activities during the next five years. The journey towards a safer Pakistan requires cooperation of all concerned ministries, departments, technical agencies, armed forces, provincial governments, UN agencies, media, NGOs, donors and most of all the vulnerable communities.

The Framework has been formulated through a consultative process involving stakeholders, ranging from government ministries and departments, technical agencies, UN agencies, NGOs and donors. This helped in identification of gaps, needs, priorities and strategies for further action.

The immediate priorities will be addressed by NDMA in a systematic manner in collaboration with relevant stakeholders. Considering the fact that disaster risk management is a provincial subject, the cooperation and political will of the provincial governments through the Provincial Disaster Management Authorities (PDMAs) would be critical for successful implementation of priorities identified in the Framework.

Extensive feedback was received from stakeholders during the consultation process. NDMA has tried to integrate the essence of comments of all stakeholders to the extent possible, while finalizing the Framework. We were not able to incorporate certain valuable comments, which were out of the scope of a National Framework. I take this opportunity to sincerely thank all the stakeholder agencies and individuals who contributed to the conception and compilation of this important document. I also deeply appreciate the valuable services rendered by the United Nations Development Programme (UNDP) in formulation of the Framework.

I am confident that the implementation of Framework will lead to a Pakistan safer from disasters.

Chairman
National Disaster Management Authority (NDMA)

Executive Summary

Pakistan is in transition from a predominantly rural and agrarian to an industrial, service based upon urban economy. The economy has been growing at an impressive average of more than 6 % over the past few years due to macro-economic policy directions pursued by the government. Natural disasters threaten sustained economic growth by causing shocks, as the October 2005 earthquake did. The quake caused a loss of 5.2 billion USD which is staggering when compared to national budget for 2006-07 which was about USD 25 billion. This amount was much higher than the total allocations for social sector development. Similarly, the economic damages suffered from 14 major floods, since 1947, have been estimated as USD 6 billion¹. The drought of 1997-2001 demonstrated that this phenomenon could have serious political, economic and social repercussions. Sustainable development in agriculture, livestock, water resources, food security and environment sectors is seriously threatened by droughts, particularly in Balochistan, Southern Punjab, Tharparkar and D.I.Khan in NWFP. The drought of 2001 reduced the economic growth rate to 2.6 % as compared to an average growth rate of over 6 %². Therefore, it is not a coincidence that areas which experience disasters frequently, are amongst the poorest regions; e.g. Balochistan, Tharparker, Cholistan and Northern areas. In order for Pakistan to ensure continuity of current economic growth in the medium to longer terms, it must address risks posed by natural disasters.

Pakistan is vulnerable to disaster risks from a range of hazards including avalanches, cyclones/storms, droughts, earthquakes, epidemics, floods, glacial lake outbursts, landslides, pest attacks, river erosion and tsunamis. Human induced hazards that threaten the country include transport, industrial, nuclear and radiological accidents, oil spills, urban and forest fires, civil conflicts and internal displacements of communities due to multiple factors. High priority hazards in terms of their frequency and scale of impact are:- earthquakes, droughts, flooding and transport accidents that have caused widespread damages and losses in the past.

A number of factors lay behind vulnerabilities of Pakistani society to hazards. These include poor construction practices, poor livestock and agricultural management, fragile natural environment and poverty. Poor communication infrastructure and lack of critical facilities aggravate vulnerabilities of communities. In mountainous regions the non-availability of safer land for construction, scattered settlement patterns and harsh climatic conditions further aggravate vulnerabilities. The size and growth of human and animal population, environmental degradation resulting from poorly managed urban and industrial development processes, climate change and variability are major dynamic pressures that aggravate vulnerabilities of Pakistani society. In the coming decades frequency, severity and impact of certain hazards may increase which might lead to greater social, economic and environmental losses.

A reactive, emergency response approach has remained the predominant way of dealing with disasters in Pakistan till now. The Calamity Act of 1958 was mainly concerned with organizing emergency response. A system of relief commissioners at provincial level was established. An Emergency Relief Cell (ERC) in the Cabinet Secretariat was responsible for organizing disaster response by the federal government. The awareness of policy makers, media, civil society, NGOs, UN agencies and other stakeholders remains low about disaster risk management. The situation is relatively better with regards to flood and drought mitigation. A number of government agencies and NGOs have been implementing mitigation measures for these hazards. However, until recently, country lacked a systematic approach towards disaster risk management.

¹ . Federal Flood Commission of Pakistan

² . Qureshi, A. Sarwar and Smakhtin, V. Extracting Wetness from Dryness: Water Harvesting against Droughts in Pakistan.

Realizing the importance of disaster risk reduction for sustainable social, economic and environmental development, the GOP has embarked upon establishing appropriate policy, legal and institutional arrangements, strategies and programmes to minimize risks and vulnerabilities. In this regard, National Disaster Management Ordinance has been passed, the implementation of which would be ensured by the National Disaster Management Commission.

The National Disaster Management Authority (NDMA) will be the focal point for coordinating and facilitating the implementation of strategies and programmes on disaster risk reduction, response and recovery. Similarly, Disaster Management Authorities will be established at provincial, district and municipal levels. NDMA would provide technical guidance to national and provincial stakeholders about formulation of plans, strategies and programmes for disaster risk management. NDMA would also work towards capacity development of national, provincial and local stakeholders in collaboration with PDMAs and DDMAAs.

The National Disaster Risk Management Framework has been formulated to guide the work of entire system in the area of disaster risk management. It has been developed through wide consultation with stakeholders from local, provincial and national levels.

The Framework envisions, *“To achieve sustainable social, economic and environmental development in Pakistan through reducing risks and vulnerabilities, particularly those of the poor and marginalized groups, and by effectively responding to and recovering from disaster impact”*.

Nine priority areas identified to establish and strengthen policies, institutions and capacities over the next five years include:- i) Institutional and legal arrangements for DRM ii) Hazard and vulnerability assessment, iii) Training, education and awareness, iv) Disaster risk management planning, v) Community and local level programming, vi) Multi-hazard early warning system, vii) Mainstreaming disaster risk reduction into development, viii) Emergency response system, ix) Capacity development for post disaster recovery.

Roles and responsibilities of key national, provincial and local stakeholders have been defined in the framework. Broadly speaking, all stakeholders are expected to undertake following actions to promote disaster risk management; i) Integrate risk assessment in the planning and design stages of all new infrastructure/projects, ii) Assess vulnerability of people, infrastructure, assets and services related to their sector, iii) Develop disaster risk management plans, iv) Integrate vulnerability reduction measures in new construction, v) Develop technical capacities of their departments/sectors to implement disaster risk management strategies, and vi) Allocate funds for disaster risk management in annual development budgets. Other responsibilities include:- i) Conduct post disaster damage and loss assessments, ii) Organize emergency response as per the mandate of the department; and iii) Organize recovery and rehabilitation as per the mandate;

The principles established in the Framework are: i) promoting multi-stakeholder, multi-sectoral and multi-disciplinary approaches, ii) reducing vulnerability of most vulnerable social groups, iii) strengthening community and local level risk reduction capacities, iv) combining scientific and people’s knowledge, v) developing culturally, socially, economically and environmentally relevant technologies, vi) strengthening sustainable livelihood practices, vii) acquiring specific capacities in view of the hazard-risk profile of the area and country, and viii) working with other countries, and the international community to promote disaster risk reduction.

Priorities for Five Years

Priorities	Time Frame (in years)			Costs Year-wise USD (in million)		
	1	2-5	3-5	1	2-5	3-5
1. Institutions and Legal Arrangements (DM authorities established)						
Strengthening of NDMA	1			2		
Formation of PDMCs and PDMA	1			2.5		
Formation of DDMA, MDMA	1-2			.075		
Strategy on building codes implementation		2			.02	
Drafting of land-use plans for five cities					.075	
Development of insurance schemes for disaster risk reduction				.011		
CAT Financing schemes (Disaster Management Fund)				5		
2. National Hazard and Vulnerability Assessment						
Vulnerability Atlas of Pakistan	1			.6		
Digitization of Vulnerability Atlas for selected areas	1				2.8	
Study on impact of climate change on glaciers and ice cap		2-3			.023	
3. Training, Education and Awareness						
Curriculum development for NDMA, PDMA, DDMA				.2		
Training for NDMA, PDMA, and district and municipal DM authorities	1-3			.14		
Media Orientations	1-5				.025	
Awareness for policy makers, politicians		2-5			.02	
Integrate DRM in the syllabus of Civil Services Academy, NIPAs, Administrative Staff College, Defence College, Regimental Centres and armed forces training institutions		2-3			.14	
Offering courses in selected universities and colleges			5			.16
4. Promoting Disaster Risk Management Planning						
Inputs on drafting of National, Provincial and Ministerial Plans				.126		
National Emergency Response Plan	1			.029		
Provincial and Regional Disaster Risk Management Plans	1-2			.042		
Disaster Risk Management Plans of Selected Line Ministries		2-3			.075	
District/Municipal Disaster Risk Management Plans		2-5			.025	
5. Community and Local Level Risk Reduction Programming						
Training, awareness materials communities & local stakeholders		2-5			.01	
Community Risk Assessment and Planning					.3	
Implement small scale mitigation schemes			3-5			4
School preparedness in high risk regions			3-5			.6
6. Multi-hazard Early Warning System						
Stakeholder workshops to strengthen institutional arrangements for EWS	1-2			.02		
Flood Warning System in NWFP	1			3.5		
Flash Flood Warning System in Balochistan		2-3			7.6	
Cyclone Warning Centre			3-5			2
Communicable disease surveillance system for Health sector					.67	
7. Mainstreaming Disaster Risk Reduction into Development						
Sectoral Guidelines on mainstreaming DRR	1-2			.137		
Courses for line ministry officials on mainstreaming DRR	1-2			.11		
Implementation of pilot projects on mainstreaming DRR			3-5			3
Lessons learnt from pilot projects on mainstreaming DRR			5			.06
8. Emergency Response System						
National EOC established with a Data Centre	1-2			3.8		
EOCs established at provincial and regional levels				2.1		
EOCs established in 50 districts		2-5			8.6	
SOPs developed for national, provincial and district levels	1			.084		
Common Assessment methodology for damage, loss and needs assessment developed for use of all stakeholders	1			.04		
Two Core Search and Rescue Teams	1-2			3.6		
Six Search and Rescue Teams established in provincial and regional capitals and key industrial cities			5			3
Training for EOCs, Civil Defence Academies			3-5		.1	
National, provincial and district level drills					.03	.03
9. Capacity Development for Post Disaster Recovery						
Training curriculum for recovery managers on needs assessment and programme design and implementation			3-5			.054
Lessons learnt from earthquake recovery		2			.03	
TOTAL				24.114	20.543	12.904
GRAND TOTAL				USD		

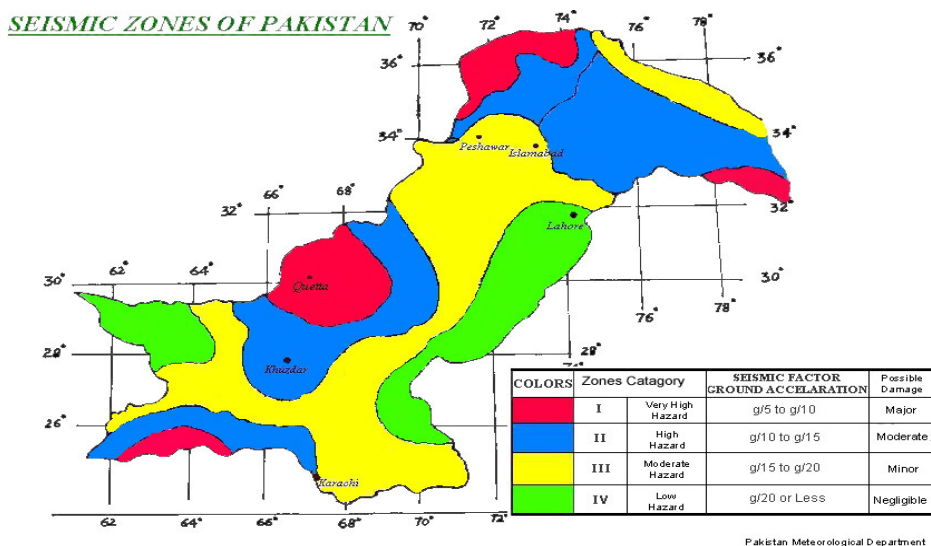
1. Disaster Risks in Pakistan

1.1. Hazards

Pakistan's exposure to natural hazards and disasters could be ranked between moderate to severe. Natural hazards including avalanches, cyclones and storms, droughts, earthquakes, epidemics, floods, glacial lake outbursts, landslides, pest attacks, river erosion and tsunami pose risks to Pakistani society. A variety of human-induced hazards also threaten the society, economy and environment. They include industrial, transport, nuclear and radiological accidents, oil spills, urban and forest fires, civil conflicts and internal displacements of communities. High priority hazards in terms of their frequency and scale of impact are:- earthquakes, droughts, flooding and transport accidents that have caused widespread damage and losses in the past. Given below is an overview of the key hazards that threaten Pakistan.

Earthquakes

The Indo-Australian plate upon which Pakistan, India and Nepal lie, is continuously moving northward and sub-ducting under the Eurasian plate, thus triggering earthquakes in the process and forming Himalayan mountains. Within the Suleiman, Hindu Kush and Karakoram mountain ranges, the Northern Areas and Chitral district in NWFP, Kashmir including Muzaffarabad, and Quetta, Chaman, Sibi, Zhob, Khuzdar, Dalbandin, the Makran coast including Gawadar and Pasni in Balochistan are located in high or very high risk areas. Cities of Islamabad, Karachi and Peshawar are located on the edges of high risk areas. Four major earthquakes have hit Pakistan in 20th Century including: 1935 Quetta earthquake, 1945 Makran coast earthquake, 1976 Northern Areas and the 2005 Kashmir/NWFP quake. Seismologists like Dr. Roger Bilham and associates believe that one or more great earthquakes may be overdue in a large fraction of the Himalayas³. They also don't rule out the chances of ruptures in the range of 7.5 Mw. to 8 magnitude in Balochistan area⁴.

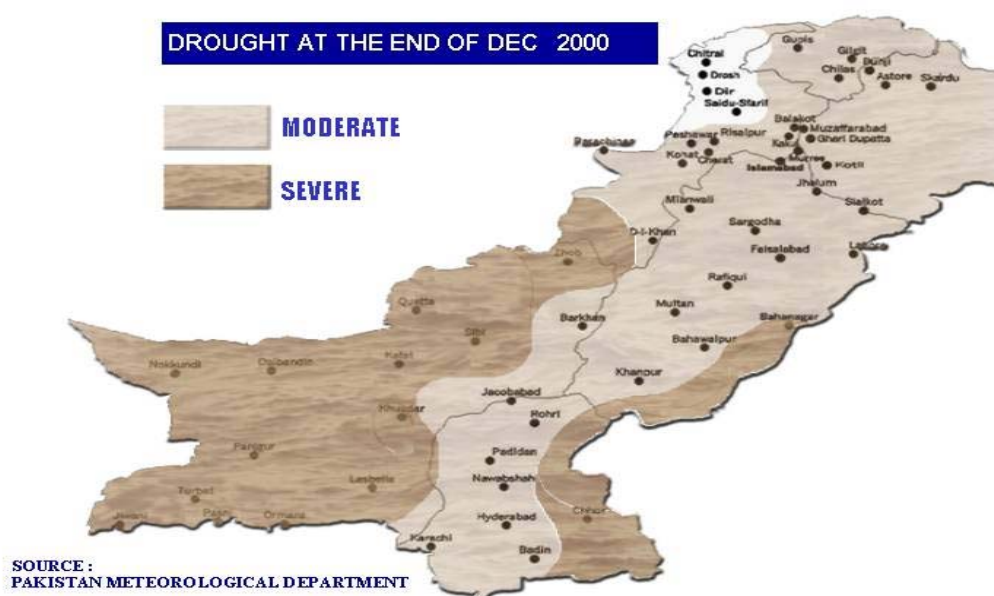


³. Himalayan Seismic Hazard, Roger Bilham, Vinod K Gaur, Peter Molnar

⁴. Kashmir quake of October 8 2005: A quick look report, Mid America earthquake centre, MAE Report No. 05-04 Ahmed Jan Durrani et al

Droughts

The incidence of drought is becoming increasingly common in Pakistan with substantial consequences upon sustainable development in sectors of food security, livestock production, agriculture, water resources, environment and hydro-electricity. Low rainfall and extreme variations in temperature characterize the climate in Pakistan. About 60 per cent of the total land area is classified as arid, which receives less than 200 mm annual rainfall. The main arid rangelands include Cholistan, D. G. Khan, D.I. Khan, Kohistan, Tharparkar and Western Balochistan⁵. Average annual precipitation in Balochistan and Sindh provinces is about 160mm as compared with 400 mm in Punjab province and about 630mm in NWFP province. Rainfall variation during different seasons is also considerably high⁶. Climate in lower southern half of the country is arid and hyper-arid. Some areas remain drastically dry in each region and are always vulnerable to drought with a small negative deviation from low mean rainfall. Certain areas experience two-three drought years in every decade.



Floods

Fifty six (56%) percent of the Indus river basin lies in Pakistan and covers approximately 70 % of the country's area (IUCN, 2005). Generally major floods in the Indus basin occur in late summer (July-September) when South Asian region is subjected to heavy monsoon rains. In upper to mid reaches of the Basin, generally tributaries like Jhelum and Chenab are the cause of flooding. Major flooding is generally associated with the monsoon low depression that develops in the Bay of Bengal and move across India in west/north-westerly direction to enter Pakistan. River floods particularly hit Punjab and Sindh while hill torrents tend to affect the hilly areas of NWFP, Balochistan and northern areas. Districts of Charsadda, Mardan, Nowshera and Peshawar in NWFP are exposed to risks from flooding in the river Kabul. Flash floods also hit hilly and mountain areas of Punjab, which may cause landslides and road erosion. Cloud Burst Flash Floods (CBFF) could also occur over Lahore (as it happened in 1996), Rawalpindi, Islamabad and Jhelum⁷. Floods in Pakistan can also occur due to dam bursts; e.g. the floods in Pasni due to Shadi Kot dam burst in February 2005. In recent years, vulnerabilities of large cities to flooding have increased. Cities like Karachi, Lahore and Rawalpindi have experienced flooding due to

⁵ Dr. Chaudhry, Q.Z., Meteorological Drought in Pakistan, <http://www.pakmet.com.pk>

⁶ Halcrow, Analytical paper 4., Livestock, Feed and Fodder Development, Balochistan Rural Development and Drought Mitigation Project.

⁷ Written Comments, November 2006, Flood Forecasting Division, Pakistan Meteorological Department.

inability of sewerage system to cope with heavy rains. Fourteen major floods that have hit the country since 1947 caused economic losses and damages of about USD 6 billion.

Landslides

The regions of Kashmir, Northern Areas and parts of the NWFP province are particularly vulnerable to landslide hazard. Aside from the young geology and fragile soil type of mountain ranges, accelerated deforestation is a major cause behind increased incidences of landslides. Small scale isolated landslide hazards happen frequently in the above mentioned regions. Frequency of landslides may increase in future since the forest cover is shrinking by 3.1% (7000-9000 ha taken away annually)⁸.

Tsunami

Pakistan also has a history of tsunami disasters. A big tsunami was experienced on 28 November 1945, due to an earthquake of magnitude 8.3, offshore Makran Coast⁹. The tsunami produced sea waves of 12-15 meters height that killed at least 4000 people in Pasni and adjoining areas. Karachi, about 450 kms from the epicentre, experienced 6 feet high sea waves which affected harbour facilities. The fact that cities like Karachi lie close to potential epicentres for large submarine earthquakes, demands attention for enhancement of local capacities for disaster risk reduction, early warning and response in order to reduce losses from tsunami events.



Cyclones/storms

Coastal belt of Pakistan (especially in Sindh) is highly vulnerable to cyclones and associated storm surges. Fourteen cyclones were recorded between 1971 and 2001¹⁰. Cyclones can cause large scale damage to coastal areas of Sindh and Balochistan. The cyclone of 1999 in Thatta and Badin districts wiped out 73 settlements and killed 168 people and 11,000 cattle. Nearly 0.6 million people were affected. It destroyed 1800 small and big boats and partially damaged 642 boats, causing a loss of Rs. 380 million. Losses to infrastructure were estimated at Rs. 750 million. Climate change may increase the frequency and intensity of storms and could cause

⁸ . PARC, 2002, National Action Program to Combat Desertification in Pakistan.

⁹ . Wikipedia, http://en.wikipedia.org/wiki/1945_Balochistan_Earthquake.

¹⁰ . Pakistan Meteorological Department, 2006, National Plan: Strengthening National Capacities for Multi-hazard Early Warning and Response System.

changes in their tracks. Although the frequency of cyclones along Pakistani coast is low, yet they cause considerable damage, when they occur.

Glacial Lake Outburst Flood (GLOF)

Another likely scenario that can come into play is the burst of glacial lakes in the upstream of Indus basin due to heat waves, a phenomenon termed as Glacial Lake Outburst Flood (GLOF). A recent study found that, of the 2420 glacial lakes in the Indus basin, 52 are potentially dangerous and could result in GLOF with serious damages to life and property. The study has also indicated that global warming can increase the potential of GLOF in future¹¹.

Avalanches

The Kashmir region and northern areas in Pakistan experience avalanches on a regular seasonal basis. Local people in the hazardous region and tourists are vulnerable to this hazard. A study conducted by WAPDA in 1985-89 under the Snow and Ice Hydrology Project, identified the potential avalanche paths.

Transport and Industrial Accidents

Transport accidents are a common phenomenon in Pakistan. Particularly the train system is notorious for collisions. Plane crashes and road accidents are not uncommon events either. Ports in Karachi and Gawadar are at risk from marine accidents too. In August 2003 the oil wreckage of Tasman Spirit, a Greek oil ship caused colossal environmental losses and health hazards for businesses, port workers and adjacent communities at Karachi. About 28,000 ton oil spilled all over the harbour area, which affected marine life in a major way.

The growing industrialization particularly within urban settlements in cities like Faisalabad, Gujranwala, Karachi, Hyderabad, Lahore, Sialkot and elsewhere can be a source of major industrial and chemical disasters. The neighbouring India suffered from Bhopal Gas leakage in 1985, in which 5000 people were killed and enormous health problems were experienced by citizens of Bhopal.

Nuclear and Radiological Accidents

Although nuclear facilities and power plants are designed to very high levels of safety, however, there is always a probability of occurrence of accidents. The magnitude of such accidents can be quite large. Three Miles Island accident in the US and Chernobyl disaster in Russia remind us the extent of consequences. Similarly there is an evident risk of radiological accidents at facilities possessing high activity sources; e.g. hospitals, radiotherapy units and commercial irradiators, which are the most vulnerable venues for such accidents.

Urban and Forest Fires

With growing urbanization and industrialization in the country, risks of urban fires are on the rise. CNG gas stations are installed in all urban areas and the gas is also sold at small stores for household use. Sale of petroleum products within residential areas is also common in cities. These practices pose major fire risk in urban areas, while urban services are generally poorly equipped. The northern regions of Pakistan and AJK are prone to forest fires.

Civil Conflicts

Pakistan is a diverse society, ethnically, linguistically, religiously and culturally. This diversity has some times led towards civil conflicts amongst various social groups and impacts the most on women, children and minorities. For example, Pakistan suffered sectarian conflicts during the 1980s and 1990s. These conflicts caused loss of life and damage to property, while creating

¹¹. Indus Basin River system-flooding and flood mitigation, H. Rehman, and A. Kamal

insecurity for various social groups in the affected areas. The hosting of about 6 million Afghan refugees also damaged the social fabric of Pakistan.

1.2. Vulnerabilities

Main causes of vulnerability to hazards in Pakistan include; poor quality of construction of housing stock, buildings and infrastructure (particularly rural), fragile natural environment, poor livestock and agriculture management practices and poverty. Lack of communications infrastructure and critical facilities further aggravate vulnerabilities of communities in post disaster situations.

Most of the rural housing in Pakistan is adobe, which is extremely vulnerable to hazards like earthquakes, floods and landslides. In Kashmir, FATA, NA and NWFP, people build houses by piling stones upon each other without any reinforcement. The indigenous practice of light-weight, timber-laced construction has given way to more massive masonry and reinforced concrete construction which provides adequate protection against harsh weather but is often poorly constructed to withstand strong earthquakes¹². The urban housing and infrastructure suffers from lack of implementation of building codes. The mushrooming of slums and urban poverty has further compounded unsafe construction practices. Even a city like Quetta that was devastated by an earthquake in 1935 doesn't follow safer construction practices. Reasons lie in lack of political will, business interests, corruption, lack of information and trained man-power.

Fragility of natural environment in upstream areas of Indus river basin has also exacerbated conditions of vulnerability. Due to massive deforestation, the rate of soil erosion is quite high in the Northern region. Pakistan has been left with only 4 % forest and vegetative cover, in contrast to the required 25 % percent, thereby experiencing an intense and uninterrupted discharge of water, especially during monsoon seasons. This coupled with increasing snowmelt in the Himalayan glaciers has intensified flood and landslide risks. Pressures upon forests and other natural resources need to be released in order to reduce vulnerabilities.

Overgrazing of marginal lands in Balochistan and Tharparkar, and cultivation of water-intensive crops, such as rice and sugar cane, has worsened the drought conditions. A many fold increase in livestock population in arid zones has led to overexploitation of range-lands without providing them the time to recover. Simultaneously, extensive installation of tube-wells in Balochistan has accelerated extraction of ground water, which is lowering the water tables very fast. Solutions to drought and water shortage problems in arid zones require modifications in agricultural and livestock management practices; e.g. reduction in the size of livestock population to make it compatible with carrying capacity of rangelands and replacement of water-intensive crop varieties with drought resistant crops.

A little below one-third of Pakistani people are living under poverty-line, many of whom are inhabited in hazard prone areas. This social segment which struggles to cope with daily life risks couldn't be expected to make disaster risk reduction a priority, and therefore suffers severely from disasters.

The peculiar vulnerabilities of mountain communities in Northern Pakistan are caused by physical isolation, scattered settlement patterns and harsh climatic conditions. Development of infrastructure for health, education, safe drinking water and sanitation is usually overlooked due to high construction costs and nature of the terrain. Complexity of physical isolation is further compounded by fragile ecosystems susceptible to soil erosion, landslides and loss of bio-diversity. Often there is no other possibility than to build a house or road in a position known to be at risk. Mountain people lack access to hazard-resistant building technologies and

¹². Mid America Earthquake Centre: Report No. 05-041

construction materials. Vulnerabilities of mountain communities could be exacerbated in post-disaster scenario by road cuts, inability to receive relief supplies and harsh climatic conditions.

1.3. Dynamic Pressures:

Population growth, urbanization, industrialization, the resultant environmental degradation and climate change/variation and gender power imbalances are working as major pressures behind the increasing vulnerability of Pakistani society and economy to disasters.

Population Growth and Size

Growth and size of Pakistan's population have become a major dynamic pressure, negatively affecting all aspects of social, economic and environmental life. Population has grown by 350 per cent since independence in 1947. Pakistan will be the second largest contributor to global population after China, with a contribution of 133 million till 2025.

Population growth works in multiple ways to create and exacerbate vulnerabilities. Increased population has pushed people to move and live in hazard prone locations, which were traditionally considered as un-inhabitable; e.g. flood plains, steep slopes and coastal areas. Population growth in upstream locations has increased the demand for fuel wood, fodder and timber, leading to uncontrolled forest cutting, causing intensified erosion and higher peak flows, thus resulting in severe flooding in densely populated plains. Population density in hazard prone regions also means greater loss of life and property in case of disasters. In case population growth trends continue at current rates, a far greater number of people would be living in areas prone to earthquakes, floods and droughts in the coming years. In order to arrest the rising trends of vulnerability, Pakistan must confine the growth in its people.

The expansion in animal population in arid and drought prone areas of Pakistan has also been enormous. A five to nine fold increase in livestock population in Tharparkar and Balochistan regions respectively has outstripped the carrying capacity of rangelands. In-turn this effects local climate and weather patterns, resultantly exacerbating dry and drought conditions. The size of livestock in these regions needs to be reduced in order to minimize pressures upon local carrying capacity. This can be facilitated by providing mechanisms to export livestock from arid regions to other parts of the country. Alternative means of livelihoods could be promoted to diversify the sources of income in arid zones and to minimize extensive dependence upon livestock based livelihoods.

Livestock and droughts in Baluchistan

Balochistan houses about 20 % per cent of the national livestock. Estimated livestock population in Balochistan in 1999 was: 1,402,000 cattle, 213,000 buffaloes, 10,761,00 sheep and 10, 098,000 goats. The population of livestock in Balochistan has grown by nine-hundred per cent since 1947 rising from 2,327,000 to 22,483,000 heads. The total available dry edible matter output per year (in normal years) amounts to 3.3 million tones against a feed requirement of animal population, of some 6.3 million tones. Hence the range lands carrying capacity has been exceeded over the years by growing animal population.

The drought of 1997-2002 had severe impact on livestock population in Balochistan. As per estimates of an FAO/WFP joint mission's report, farmers lost up to 50 per cent of their sheep and up to 40 per cent of their goats in the drought in the form of higher mortality and forced culling. It is estimated that 10. 65 million livestock were affected and 2.18 million perished. In Sindh 5 million livestock were affected and 30,000 died.

Sources: FAO Crop and food supply assessment mission to the Balochistan province of Pakistan, June 2000, and Contingency Plan for Drought affected Districts of Balochistan, 2006.

Urbanization, Industrialization and Environmental Degradation

Pakistan is in transition from an agricultural and rural to a modern industrial economy. The transition entails rapid urbanization, infrastructure development, environmental degradation, soil erosion and water and air pollution etc. Urban expansion is happening faster due to high rural-urban migration. The preference for development of infrastructure and services in urban centres coupled with opportunities for jobs and higher incomes have acted as pull factors in attracting educated and uneducated rural lots to cities. With urbanization and consumption patterns shoot-upwards drastically, city life demands better services and more natural resources (land, water, forest) to sustain life styles. Growing industrialization also require more water, timber and mineral resources. This leads to accelerated exploitation of natural resources in countryside and upstream, thus degrading the environment; e.g. cutting of forests, depletion of ground and surface water resources and land clearance for development. Studies indicate that environmental degradation in Pakistan may lead to land erosion and soil degradation, which could enhance landslides in Northern Areas, Kashmir and Muree Hill tracts. It could also increase torrential rains and flooding. The clearing of mangroves along with reduced volumes of water discharge in the ocean in coastal Sindh has led to sea intrusion. The loss of this natural barrier could expose coastal communities and infrastructure to escalated frequency of storms and flooding.

Urbanization in Pakistan

Pakistan's cities are expanding much faster than the overall population. At independence in 1947, many refugees from India settled in urban centers. Between 1951 and 1981, the urban population quadrupled. The annual urban growth rate during the 1950s and 1960s was more than 5 percent. Between 1980 and early 1994, it averaged about 4.6 percent. In 1994, 32 percent of Pakistanis were living in urban areas. Urban population was estimated at 47.7 million in 2001 using the growth rate of 3.5 per cent. Estimates suggest that during 1951-98 when the overall population grew by almost 4 times, the urban population rose by 7 times. The population of urban areas in Pakistan was about 17.8 per cent of the total population in 1951, which rose to become 33 percent in 1998.

Climate change and variability

As per observations of WWF Pakistan, global warming is causing damage to Pakistan's environment. Among the impacts felt and seen are biodiversity loss, shifts in weather patterns and changes in fresh water supply. A study carried out by GTZ for WAPDA to analyze trends in temperature and precipitation in the Northern Areas for the last century (Archer, 2001) found that at Skardu seasonal and annual temperatures have risen over the last century. Mean annual temperature has increased by 1.4° C with the mean annual daily maximum rising more than 2.35° C. The winter temperatures have risen far more than summer with an increase of upto 0.51° C in winter maxima per decade since 1961. Temperature increase might cause an upward shift of almost 400 meters in the frost line, which might impact upon the snow and rain patterns and the availability of snow for melt during summer, which is a major source of water in many rivers. Observations of the World Glacier Monitoring Service based in Switzerland indicate that mountain glaciers in the Karakorams have been diminishing for the last 30 years. Experts believe the flow of water in rivers increased during the decade of 1990-2000 in comparison to 1975-1990, which means melting of more ice upstream. Researches also indicate that some of the Glaciers in Pakistan have retreated significantly in the recent past. Scientists believe this is an indicator of climate change, resulting in more snow melt. Changes in the climate denote that the incidence of flash flooding and extreme flooding can increase during the next few decades. Studies conducted by SDPI also indicate that with a doubling of CO², average rainfall in South

Asia would increase between 17-59 per cent¹³. This will be associated with a doubling in the frequency of high rainfall events. Variable monsoons, also anticipated, could mean more droughts. Experts also believe that further desiccation of arid areas due to warming would endanger food production in the plains unless a lot of trees are planted there.

Gender Power Imbalances

Countries having experienced large disasters demonstrate that the cost of ignoring gender in disaster response, recovery and preparedness is tremendous. This results in overlooking the damages, needs and priorities of most vulnerable in times of disaster and worsens existing poverty and inequity. Lack of gender sensitive assessments and programming intensify the existing political, social and economic inequality. In spite of devastation they cause, natural disasters provide opportunities for social and economic change. Women would be empowered as equal stakeholders to act as key resource, before, during and after disasters in reducing loss to lives, household economy and in reducing break-down of social safety-nets.

1.4. Future Disaster Trends in Pakistan

The analysis of hazard risks, vulnerabilities and dynamic pressures bring home a scenario of more people living in and around hazard-prone areas. More people would be living in existing settlements in hazard-prone areas and new settlements would continue to spring-up with expanding population. This trend may worsen over the years since population of Pakistan is expected to be doubled in another 25-30 years. At the other end, the frequency, severity and intensity of certain hazards is on the rise; e.g. droughts, flooding, soil erosion and landslides, resulting from environmental degradation and climate change. From these scenarios it could be concluded that disasters in future would be more frequent and their social, economic and environmental impacts higher than before. Regions that previously were not prone to certain hazards (e.g. droughts, flooding), may experience them in future.

2. Gaps, Challenges and Strengths and Opportunities

2.1. Gaps and Challenges

Emergency response has remained the predominant approach in Pakistan to deal with disasters until recently. The Calamity Act of 1958, the national policy for disaster management prior to the passing of National Disaster Management Ordinance, was mainly concerned with emergency response. Pakistan Civil Defence was the focal agency for responding to disasters till 1970. In the aftermath of 1970 cyclone in the then East Pakistan (Bangladesh), the Emergency Relief Cell (ERC) was established, which became the government's focal point for emergency relief in disaster hit areas. Reasons behind this reactive approach by policy makers might be related to the relatively lower socio-economic impact of disasters in the past. By no means, it implies that no work was being undertaken on disaster risk reduction in the country. Organizations like the FFC, PARC, and a number of NGOs have been implementing programmes and initiatives with relation to drought, earthquake and flood mitigation. Communities in drought prone areas have developed ingenious methods to reduce the negative impacts of droughts. However, disaster risk management remains a relatively new concept for majority of the policy makers, UN agencies, donors, civil society organizations and for common people. Historically disasters have been occurring in localized areas in each province or region, affecting mainly local communities. Consequently, the establishing of appropriate policy, institutional and legal arrangements to deal with issues of risk and vulnerability was not given priority at higher levels. Therefore, Pakistan lacked such mechanisms and institutions. There was a lack of political will and capacities for risk analysis and risk reduction. Lack of disaster risk management plans also remains a major gap. Even the districts and regions that have suffered from frequent hazards don't have plans, except few. Pakistan lacks application of building codes for construction of housing and infrastructure in

¹³. Dr. Shaheen R. Khan, Does Climate Change Matter in Pakistan

hazard prone areas. This could be attributed to lack of political will, lack of trained construction workforce, lack of monitoring and evaluation mechanisms, corruption, and apathy etc. Pakistan also lacks an effective system for emergency response, e.g. Emergency Operations Centres, response plans, SOPs to deal with various hazards, capacities in search and rescue, fire fighting, medical first response, evacuation etc, although specific agencies (e.g. WAPDA, FFC) have developed systems and procedures to deal with certain hazards.

2.2. Strengths and Opportunities

A number of situations in the aftermath of October 08 earthquake could be described as favourable opportunities to promote disaster risk reduction in Pakistan. They include: i) Heightened awareness of highest level decision-makers, officials, media and civil society about disaster risks and vulnerabilities, ii) Enhanced commitment of donors and UN for establishing institutional arrangements and developing capacity on disaster risk management, iii) Approval of the National Disaster Management Ordinance 2006, establishment of NCMC, and the NDMA, iv) and Commitment of the NDMA leadership. Existing disaster risk management system also has a number of strengths. For example, Pakistan has relatively well developed systems for flood mitigation, preparedness and response. Provincial revenue departments have policies, systems and procedures in place for disaster relief, particularly for floods and droughts. Pakistan armed forces are generally well experienced in managing various kinds of disasters. A number of departments including agriculture and irrigation departments have been implementing drought mitigation strategies. Some NGOs have extensive experience in community level disaster risk reduction and preparedness. NDMA will build upon the above mentioned strengths and opportunities, while developing the systems for disaster risk management.

3. Organizations Working on Disaster Management

A number of govt. institutions currently working on disaster risk management in Pakistan include:

Phase	Agency
Mitigation/Prevention	Federal Flood Commission
	Provincial Irrigation Departments
	Pakistan Nuclear Regulatory Authority
	Water and Power Development Authority (WAPDA)/ Dams safety council
Preparedness and Response	Armed Forces
	Civil Defence
	Emergency Relief Cell
	Fire Services
	National Crisis Management Cell (NCMC)
	Pakistan Meteorological Department
	Police
	Provincial Communication and Works
	Provincial Food Departments
	Provincial Health Departments
	Provincial Relief Commissioners
	Provincial Agriculture and Livestock Departments
	Space and Upper Atmospheric Research Commission (SUPARCO)
Recovery & Reconstruction	Earthquake Reconstruction and Rehabilitation Authority (ERRA)
	Provincial Irrigation Departments

4. Policies & Protocols with Links to Disaster Risk Management

Being a cross-cutting theme, disaster risk management has close links with all development sectors. Given below is a list of national sectoral policies and international protocols that have implications for disaster risk management and vice-a-versa. The NDMA would strive to build linkages with these policies and protocols for the implementation of the Framework.

National Disaster Risk Management Framework for Pakistan

Sector/Agency	Legislation/document
Agriculture	Agricultural Perspective and Policy
Bio-diversity	Convention for Biodiversity (CBD), June 1992
Climate Change	Framework Convention on Climate Change (UN FCCC), June 1992
Desertification	Convention for Combating Desertification, October 1994
Development	Medium Term Development Framework 2006-2010, Planning Commission
Development	Ten Year Perspective Development Plan, 2001-2011, Planning Commission
Development	Millennium Development Goals (MDGs), 2000
Disaster Management	SAARC Disaster Management Plan (<i>yet to be finalized</i>)
Disaster Management	ASEAN Regional Forum – Draft Plan for Mutual Cooperation
Disaster Risk Management	Hyogo Framework of Action 2005-2015
Environment	National Conservation Strategy 1992
Environment	National Environment Action Plan (NEAP), 2001 National Environment Policy 2005
Environment	Stockholm Convention on Persistent Organic Pollutants , 2001
Hazardous Waste	Basel Convention on the control of Trans-boundary movement of hazardous waste and their disposal, 1994 July
Ozone Layer	Vienna Convention for the Protection of Ozone layer and the Montreal Protocol, December 1992
Poverty Reduction	Poverty Reduction Strategy Paper
Water Resources	Draft National Water Policy, 2006

5. Vision, Mission, Scope, Guiding Principles and Process

5.1. Vision

To achieve sustainable social, economic and environmental development in Pakistan through reducing risks and vulnerabilities, particularly those of the poor and marginalized groups, and by effectively responding to and recovering from all types of disaster events.

5.2. Mission

To manage complete spectrum of disasters by adopting a disaster risk reduction perspective in development planning at all levels, and through enhancing institutional capacities for disaster preparedness, response and recovery.

5.3. Implications of the mission

- ❖ Develop institutional arrangements and technical capacities of key national, provincial and local stakeholders to undertake risk assessments (hazard, vulnerability, capacity mapping) in multiple development sectors,
- ❖ Develop coordinated disaster risk management plans at national, provincial and local levels;
- ❖ Integrate and implement disaster risk reduction strategies in sectoral development plans and programmes of line ministries and departments;

5.4. Guiding principles

- ❖ Focus upon most vulnerable social groups; e.g. children, women, elderly, minorities;
- ❖ Promote community and local level preparedness culture;
- ❖ Follow multi-disciplinary and multi-sectoral approaches
- ❖ Combine scientific knowledge with social knowledge;
- ❖ Make development policy, planning and implementation risk-sensitive;
- ❖ Develop culturally, economically and environmentally relevant technologies for safer construction in different parts of the country;
- ❖ Promote sustainable livelihood practices in areas at high risk from multiple hazards;
- ❖ Establish and strengthen partnerships amongst multiple sectors; e.g. government, private sector, media, insurance, NGOs, civil society organizations, UN and donors;
- ❖ Work with other countries and international community to promote disaster risk reduction;
- ❖ Acquire specific capacities/capabilities keeping in view hazard-risk profile of the country;

- ❖ Develop disaster risk management plans from district level upwards in view of specific requirements of the local area;

5.5. Hyogo Framework of Action

The vision, mission and priorities of the National Framework have been developed in synchronization with the Hyogo Framework of Action (HFA) 2005-2015, which was agreed by all nations in January 2005 in Kobe Japan during the UN-World Conference on Disaster Reduction (WCDR). The expected outcome of HFA at the end of ten year period is *“the substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries”*.

In order to attain this output HFA calls for adopting the following goals:

- (a) The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction;
- (b) The development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards;
- (c) The systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities.

5.6. Scope

This framework intends to provide direction and guidelines to all national, provincial and local stakeholders. The framework includes aspects of vulnerability reduction and capacity building of key institutions and communities to address disaster risks. It provides for implementation of policies, strategies and programmes for all three phases of disaster risk management; including pre-disaster (*risk reduction and preparedness*), during disaster (*response and relief*), and post-disaster (*rehabilitation, recovery and risk reduction*).

5.7. Duration

The priorities set-out in this framework are for next five (5) years period. It is expected that all relevant stakeholders would actively participate in implementation of identified priorities. It is proposed to update and revise the framework after five years based upon risk analysis at that time.

5.8. Process

The NDRM Framework has been developed through an extensive consultation process. Consultations were undertaken by UNDP between February-April 2003 to seek inputs from national and provincial stakeholders to prepare a National Disaster Management Programme (NDMP). This process identified gaps in the system in Pakistan and provided recommendations to address them. With relation to this initiative, the Cabinet Division held consultations with large number of provincial and national stakeholders. The Framework has greatly benefited from the National Disaster Management Programme (NDMP).

The Draft Framework was circulated to provincial and national stakeholders in early November 2006 by the NDMA. Written comments were received from more than 30 government agencies, NGOs and donors. Besides written feedback, a national consultation workshop was held on

27 November 2006 to seek opinions and inputs from government departments, UN agencies and donors. A consultation meeting was also organized with NGOs on December 07, 2006. A special meeting with donors was organized on 09 December 2006. The stakeholder consultations provided important inputs regarding gaps, priorities and capacity building needs. The framework was revised based upon feedback from stakeholders. The Framework was approved by National Disaster Management Commission (NDMC), which is the highest policy making body on disaster risk management in the country.

6. Priorities for Disaster Risk Management

This section delineate priorities to promote disaster risk reduction and to develop capacities for disaster preparedness, response and recovery at national, provincial, local and community levels.

6.1. Institutional and Legal Arrangements

Key Issues

A system of National and Provincial/Regional DM Commissions, and Authorities is proposed in the NDM Ordinance to facilitate implementation of disaster risk management activities in the country. The National and Provincial/Regional Commissions would be the policy making bodies, while the DM Authorities would be the implementing and coordinating arms. Experience of other countries demonstrates that establishment and maintenance of effective disaster management committees is a challenge, particularly in countries that are not frequently affected by disasters. Maintaining Disaster Management Committees at the higher level (e.g. province) could be even more difficult, since disasters are issues of local importance, in many cases. Nevertheless the formation of multi-sectoral DM authorities is essential to develop and implement effective disaster risk management strategies. Establishment of technical committees on various aspects would also be required. Formation of institutions, legal instruments, guidelines and procedures will also need to be taken care of.

Strategy

Appropriate systems, procedures and plans would be developed to facilitate effective working of the NDMA. This would also include acquiring staff and resources. Subsequently the formation of provincial/regional Commissions and Authorities will be encouraged in four provinces, the AJK, FATA and NA. Efforts will be particularly undertaken to form DM Authorities in prioritized hazard prone districts, municipalities and cantonments. The local level DM Authorities would include Nazims, DCOs, police chiefs, civil defence, fire services, EDOs for agriculture, education, health, and works and rural development sectors. They would also include representatives of local Red Crescent societies, NGOs, civil society, private sector and media. Detailed functions of Commissions and Authorities have been discussed in Section 5: Structure for Disaster Risk Management. However, the Commissions and Authorities can further define their functions after their establishment.

Initiatives will be undertaken to develop guidelines, standards and procedures. This may include updating of existing building codes and development of land use plans etc. Implementation of building codes is a major challenge. A consultation process will be undertaken with relevant agencies to develop strategies to promote implementation of building codes particularly in major urban centres; e.g. Karachi, Lahore, Islamabad, Peshawar, Quetta, Muzafarabad, Faisalabad, Gujranwala, Sialkot etc.

Outputs

- ❖ National Disaster Management Authority functioning effectively;
- ❖ Provincial/ Regional DM Commissions and Authorities established and functioning;
- ❖ About 50 District/Municipal DM Authorities functional in highly hazard prone districts, municipalities and cantonments;
- ❖ Locally appropriate building codes available for hazard resilient construction;
- ❖ A report on issues and strategies related to implementation of building codes available;
- ❖ Land use plans available for at risk cities and districts;

6.2. National Hazard and Vulnerability Assessment

Key issues

No systematic information exists in Pakistan about relative vulnerability of various local areas (districts, municipalities) to impending hazards. In the absence of such information it is difficult to identify priorities and make decisions on allocation of resources for risk reduction. Risks and vulnerabilities are dynamic and they change over time and space. Therefore, it is essential to develop mechanisms and systems for continuous monitoring of hazard risks, and vulnerabilities. This instrument would enable decision makers at all levels to take effective decisions to develop risk reduction policies, strategies and programmes.

Strategy

A Vulnerability Atlas of Pakistan will be prepared. This would include hazard maps indicating the location of various hazards with zonation of risk levels; e.g. low, moderate and severe. The Atlas will also include analysis on vulnerability of settlements, housing stock, important infrastructure and environmental resources. It will indicate location of key settlements in hazard-prone areas. The analysis will describe the types of existing housing stock in hazard-prone areas, and the potential of damage to various housing categories. The Vulnerability analysis will identify key infrastructure and environmental resources in each local area that are prone to damage and loss from prevalent hazards. Vulnerabilities of various social groups in hazard prone areas will also be analyzed. Experts would undertake assessment based upon scientific analysis of the geology and past history of hazards. They would also review secondary data from the 1998 census and other sources. Consultations with selected communities and stakeholders would be organized to assess hazard exposure, disaster impact and vulnerabilities.

A disaster inventory will be developed in order to facilitate analysis on disaster and vulnerability trends. A national consultation will be organized to define the scope of database and categories of information that needs to be covered. The database will be developed through an analysis of past disasters and their impact. This will be done by reviewing secondary data from government sources as well as from media reports. The reports, charts and maps produced by the database will provide analysis on trends and patterns of risks and vulnerabilities. The analysis of small, medium and large scale disasters could provide proxy indicators for disaster risk. In this way underlying trends could be determined at a much lower cost and with less effort than with other methodologies. A computerized database will be produced and managed by NDMA. The database will be made available online, so that any interested stakeholders could access it. The PDMA and DDMA would be involved in managing the database at provincial and district levels.

Major water resources of Pakistan lie in the frozen north. Damage to the glaciers and ice caps would enhance disaster risks of various kinds. A study would be conducted to assess any negative impact of climate change on glaciers and ice cover in Northern Pakistan.

Outputs

- ❖ Information on spatial distribution of selected natural hazards and vulnerable areas made available in digitized form as a decision making tool for risk reduction programming. The Atlas will be published and disseminated widely to stakeholders at all levels.
- ❖ An online open-source database will be available for use of local, provincial and national decision makers and practitioners interested in developing programmes for risk reduction or conducting research on risk and vulnerability patterns.
- ❖ A study on the impact of climate change on glaciers and ice caps in the North available;

6.3. Training, Education and Awareness

Key issues

Enhancing knowledge and skills of decision makers and at-risk-communities is essential in order to promote a culture of safety and prevention. Purpose of training, education and awareness raising activities would be to develop a cadre of experts at national, provincial and local levels who is able to analyze risks and develop and implement disaster risk management activities.

DRM education, training and awareness is required in multiple sectors; e.g. civil servants, in development ministries at provincial and national levels, staff of district, provincial and national DM authorities, staff of technical agencies, UN staff, NGOs, media and politicians. Enhancement of knowledge and skills of students would also be pertinent in order to enable future generations to deal with disaster risk problems.

Training and education would involve orientation about disaster risks and vulnerabilities, skill development on risk assessment, vulnerability reduction, hazard mitigation and emergency response management. Specialised training in areas of response would also be needed; e.g. search and rescue, first aid, fire fighting, evacuation, camp management and relief distribution. Considering the importance of media the NDMA and PDMA will establish partnerships with electronic and print media and develop awareness of media personnel.

Strategy

NDMA and PDMA will focus on following five priority areas to enhance knowledge and develop technical skills on disaster risk management in Pakistan.

- i) Conduct courses for district and municipal DM authorities in hazard prone areas,
- ii) Organize media orientations about its role in promoting disaster risk management and community preparedness,
- iii) Develop public awareness materials (e.g. posters, brochures, booklets, videos) for orientation of parliamentarians, senators, bureaucrats, politicians etc,
- iv) Integrate disaster risk management education in the syllabus of Civil Services Academy, the NIPAs, Administrative Staff College, National Defence College, Regimental Centres and armed forces training institutions including Staff College,
- v) Work with the Ministry of Education to integrate disaster risk management component in school, college and university syllabus,

Outputs

- ❖ Technical skills and knowledge of district and municipal officials in hazard prone areas enhanced on disaster risk reduction and preparedness,
- ❖ Curriculum on disaster risk management available for training of district, municipal, and provincial and national officials available,
- ❖ Curriculum for media orientation on disaster risk reduction and preparedness available;
- ❖ Awareness of parliamentarians, senators, members of political parties, members of bureaucracy, chambers of commerce & industry enhanced about disaster risk reduction strategies;
- ❖ Curriculum for training of civil servants available and incorporated in the syllabus of civil service academy and other civil and military training institutions;
- ❖ Short term courses on disaster risk management offered in schools, colleges and universities;

6.4. Promoting Disaster Risk Management Planning

Key issues

Objectives of DRM planning are to minimize adverse effects of hazard/s through effective disaster risk reduction, preparedness and adequate, timely and coordinated response. The plans would include strategies for disaster risk reduction and measures for disaster preparedness. Disaster risk reduction actions may include; dykes, dams, safer construction, retrofitting, rainwater harvesting, relocation, community organizing, training, awareness raising, provision of safer sources of livelihoods etc. Preparedness involves development and regular testing of warning systems and plans for evacuation and other precautionary measures to be taken during a disaster alert period. It also involves education and training of officials, intervention teams and communities in search and rescue, fire fighting, evacuation, mass casualty management etc. Establishment of policies, standards, organizational arrangements and operational plans to be executed following a disaster is also crucial. Effective plans also consider securing resources; e.g. stockpiling supplies and earmarking funds.

It is important to clearly define roles of stakeholders and to strengthen coordination amongst concerned agencies. It is also essential to ensure reliable lines of communication as well as arranging alternative lines for emergency communications; sensitize the media about importance of correct information and alternative information mechanisms.

Strategy

NDMA will take the lead in formulating National Disaster Response Plan. The plan will define roles and responsibilities of federal ministries, departments and other entities with regards to national level disaster response. The Plan will help various line ministries, departments and entities to collaborate in providing needs-based efficient response.

NDMA will also work with selected federal ministries to support them in development of sectoral disaster risk management plans. As a first priority, the ministries may include:- agriculture, defence, education, environment, health, infrastructure, housing and works, telecommunications and information, shipping and ports and water and power.

Provincial DM Authorities would formulate disaster risk management plans for their respective regions. The plans would include analysis of hazard-prone areas (districts/municipalities), vulnerabilities, resources available, strategies for risk reduction, and responsibilities of various stakeholders for disaster preparedness and response.

NDMA will support PDMA's to particularly work closely with DDMA's and MDMA's in selected hazard-prone districts and municipalities to assist them in development of disaster risk management plans.

Outputs

- ❖ National Disaster Response Plan available, which clearly defines roles and responsibilities of federal stakeholders in case of disaster response,
- ❖ Disaster risk management plans of Provincial/Regional Disaster Management Authorities available,
- ❖ Disaster risk management plans of selected federal ministries at federal and provincial levels available,
- ❖ Disaster risk management plans of 50 hazard-prone districts and municipalities (from various provinces and regions) available,

6.5. Community and Local Level Risk Reduction Programming

Key issues

Community and local level programme implementation is the heart of disaster risk reduction strategies. Disaster risks are essentially local in terms of their impact, as well as response. The local communities, local infrastructure and local economy are directly affected by disasters and women, children and elderly are usually disproportionately affected. At the same time local communities and authorities are first responders to any disaster situation. Historical analysis of disasters also demonstrates that most disaster events are localised in their scale, affecting few villages, municipalities or districts. Mega-disasters happen rarely, requiring extraordinary response from provincial and national authorities; e.g. the earthquake of October 2005. Considering this characteristic of disaster risks, it is imperative that risk reduction programmes are implemented at local level for capacity development of local officials, communities, civil society organizations and other players; e.g. builders, contractors, masons, teachers and doctors. The utilization of resources and energies at this level will have a lasting impact. Effective local authorities, local research institutions, educational institutions, NGOs and community groups can play an important role in this work. Additionally, it is essential to recognize women as equal stakeholders in all decision-making processes (like development of disaster management plans at village, UC and District level) and an essential resource in response, recovery, reconstruction and preparedness.

Strategy

In order to materialize the goals and objectives of the National Law and the Framework, community and local level risk reduction projects and programmes will be designed and implemented in selected districts and municipalities (50 districts/municipalities). These may include local level programming on drought and flood mitigation or earthquake vulnerability reduction in priority regions in all four provinces, the AJ& K, FATA and NA. The programmes may cover other hazards, depending upon the outcomes of local risk assessment and prioritization by stakeholders. Considering the fact that historical focus of disaster mitigation in Pakistan has mainly remained on structural mitigation; e.g. embankments, dykes, dams etc, the current strategy would emphasize more upon non-structural aspects of mitigation.

The programmes would focus on community organizing, training, awareness-raising, masons training, volunteers training on search and rescue, first aid, evacuation, fire fighting etc. Based upon local risk assessment small scale schemes for mitigation, strengthening of livelihoods and local early warning systems would be implemented. Disaster preparedness activities will also be implemented at village, neighbourhood, city and school levels.

Outputs

- ❖ Local institutions for DRR established and strengthened at village and town levels;
- ❖ Technical capacity of community organizations, masons, school teachers enhanced to deal with disaster risk reduction and preparedness issues
- ❖ Awareness of vulnerable communities and local stakeholders increased about hazards, risks, vulnerabilities, risk reduction and disaster preparedness;
- ❖ Small structural mitigation schemes implemented in most vulnerable villages and towns, and livelihoods of vulnerable groups strengthened;
- ❖ Institutional and technical capacity of schools in vulnerable villages and towns enhanced to implement risk reduction and preparedness strategies;

6.6. Multi-hazard Early Warning System

Key Issues

The primary objective of a multi-hazard early warning system (EWS) is to generate advance warnings and thus improve capacity of decision makers and communities to take appropriate action prior to occurrence of a hazard. It consists of collection, consolidation, analysis and dissemination of risk information. An effective EWS involves availability of technology for hazard monitoring, technical capacity of scientific institutions to analyse observation data and make decisions regarding issuance of warning, application of multiple channels to communicate warning messages, and mechanisms for community action. EW has the potential to contribute significantly to reducing disaster losses. It is a proactive process in which various institutions collect, analyze and generate information to help prevent likely negative consequences of hazards by taking precautionary actions.

Pakistan needs to strengthen its EW capacities for droughts and flooding which are frequent and high impact hazards in the country. EWS will need to be developed for cyclones and tsunami, which although are low in frequency but could have high impact. Strengthening of monitoring and analysis capabilities with relation to seismic risks would also be a priority.

Strategy

Technical and operational capacities of relevant scientific organizations (e.g. PMD, FFC, WAPDA, GSP, PNRA etc) to monitor and predict hazards with maximum lead time would be developed. This will be done by improving and expanding the existing technological networks. It will also include facilitating multi-agency interface, and strengthening the sharing of technical information about hazards amongst multiple agencies. The role of media will also be enhanced to improve dissemination of warnings. Linking communities with warning agencies would be an essential component. Initiatives will be taken to build capacities of communities in early warning by connecting them and by providing necessary warning equipment. This component will be covered under the Priority Area 4.5. Community and local level risk reduction programming.

Flood forecasting system for NWFP and Balochistan

Considering the environmental degradation and climate change, the incidence of flash flooding and river flooding in NWFP is expected to rise in coming years. Therefore enhancement of early warning capacities over there is an important requirement. The purpose of flood forecasting centre is to provide as much advance notice as possible of an impending flood. The higher reliability of forecasts and additional lead time would result in improved dam water management, flood fighting and evacuations from areas likely to be affected by floods. At present the PMD has networking of four radars at Karachi, R. Y. Khan, D. I. Khan and Islamabad. WAPDA also manages a flood telemetry network of 24 stations in upper catchments of Punjab, NWFP and AJK. The network is being strengthened by installing another 20 stations further upstream. The Radar installed at Islamabad covers only surrounding areas and doesn't cover the hilly areas in Northern part of the country. Thus, installation of flood forecasting equipment would improve capability of PMD, FFC and related organizations in improving the warning systems for NWFP. Considering the new developments in the areas of Gawadar coast and the risks of flooding, it would be important to strengthen early warning capacities for flash flooding in coastal belt and Northern Balochistan. This may include installation of weather radars and rain gauges in addition to establishing of institutional arrangements for warning.

Tropical Cyclone Warning Centre

Objectives of establishment of Tropical Cyclone Warning Centre (TCWC) are to minimize losses in the coastal areas of Pakistan. This activity will have two components: i) a transfer of advanced technology, experience and training that will enhance the forecast and warning aspect; ii)

infrastructure enhancement of the PMD to enable effective warning communication and education and training of emergency managers.

Drought Monitoring and Warning System

Government of Pakistan has established a National Centre for Drought/Environment Monitoring and Early Warning System at the PMD. Support will be provided by NDMA to the Drought Monitoring and Warning Centre under the National Framework in order to expand the network of rain gauges and research and training for technical staff for this Drought and Environment Monitoring and EWS system.

Tsunami Early Warning System

The PMD intends to develop capacity for monitoring and prediction of Tsunamis in the Arabian sea. This would involve installation of sensors, ocean buoys, tidal gauges and technical capacity building of the staff of PMD. The soft side of tsunami warning system would involve drills with local rescue forces (e.g. civil defence, police, coast guard, fire services, Red Crescent volunteers and NGOs), awareness raising of communities.

Earthquake research capacity

GOP is interested in developing capability for earthquake research. This might include upgrading and expansion of PMD's existing seismic network of 6 seismic stations and establishment of a team of seismic experts for research on seismicity of Pakistan. Planning commission has approved the project "Up-gradation of Seismic Network of Pakistan".

Disease early warning system

The Ministry of Health (MoH) is required to manage a disease early warning system, with a combination of reporting from health facilities, the community, and media, to identify possible outbreaks of communicable diseases and take action to control them. Ministry of Health would also implement a program in collaboration with Diagnosis Inc. about hepatitis monitoring, which will be eventually spread to cover the whole country.

Institutional Arrangements for Early Warning

A range of stakeholders are involved in an end-to-end EWS; e.g. hazard monitoring and forecasting agencies, NDMA, PDMA, media and user departments, e.g. agriculture, health, information, police, fire services, Red Crescent, PNRA, irrigation departments etc. Interface and partnerships amongst these stakeholders are critical. Forums would be established to facilitate communication and dialogue amongst stakeholders for improving the EWS.

Outputs

- ❖ A study group on prediction of earthquake and research on seismicity of Pakistan established,
- ❖ Network of rain gauges of the National Centre for Drought/Environment Monitoring and Early Warning expanded,
- ❖ Technical capacity of staff of the National Centre for Drought Monitoring enhanced in data-collection, analysis and prediction of drought phenomenon,
- ❖ Flood Forecasting and Warning systems established in NWFP and Balochistan,
- ❖ Technical and operational capacity of the PMD and other stakeholders developed to monitor and predict tsunamis in the Arabian sea,
- ❖ Multi-sectoral forums exist regarding issuance of early warning and strategies to improve warning communication,
- ❖ Media personnel's awareness enhanced about scientific aspects of early warning and the role of media in communicating early warning messages,

6.7. Mainstreaming Disaster Risk Reduction into Development

Key issues

An important priority of NDMA will be to promote the adoption of a risk sensitive approach in development planning and programming in all sectors. The purpose of mainstreaming effort would be to ensure that all development infrastructures in hazard-prone areas is built to higher standards of hazard resiliency; e.g. schools, hospitals, roads, bridges, dams and telecommunications infrastructure etc. This can be done by incorporating risk and vulnerability assessment into project planning stage, and including vulnerability reduction measures in project implementation, in case the proposed projects are found vulnerable to hazard risks.

Strategy

NDMA will work with the National Planning Commission and the Ministry of Finance in order to integrate disaster risk reduction into the National Development Plan and the National Poverty Alleviation Strategy. NDMA will also work with ministries on integration of disaster risk reduction into sectoral policy, planning and implementation. It would develop technical guidelines on incorporating risk assessment into sectoral project planning and sectoral vulnerability reduction. NDMA will also work closely with the National Planning Commission to develop criteria for assessment of development projects with a risk reduction lens. NDMA would conduct national and provincial workshops for selected line ministries to orient them on integrating risk assessment in programme planning and design, and to include vulnerability reduction in programme implementation. NDMA may initiate pilot projects with selected line departments on mainstreaming of risk reduction in order to show case for others. Prior to initiating pilot projects, the NDMA will organize a review of current status on mainstreaming DRR within line ministries and departments and produce case studies of good practice. Pilot projects on Mainstreaming DRR in five (5) selected ministries will be undertaken with following sub-activities

- Establish dialogue and working group with the sectoral ministry/department
- Plan pilot activity of using guidelines to undertake mainstreaming of DRM considerations in a planned or ongoing programme in the selected sector
- Implement pilot activity
- Document experience and lessons learnt during the project implementation
- Identify ways to extend mainstreaming in other programmes of the Ministry and/ or other interested ministries/sectors

Insurance sector has played a very important role in many countries in promoting disaster mitigation at family and business levels. NDMA would work with insurance companies to explore the possibilities and develop schemes for promotion of insurance for shelter and business against natural disasters.

Outputs

- ❖ A section on integrating disaster risk reduction included in the National Development Plan and in the National Poverty Reduction Strategy.
- ❖ A set of sectoral guidelines on mainstreaming DRR, and criteria on assessment of development projects from a risk reduction perspective available for the use of development ministries and the Ministry of Planning and Development.
- ❖ Curriculum of national and provincial workshops on mainstreaming DRR available;
- ❖ Technical capacity of selected federal line ministries increased on integrating risk reduction into development plans and programmes;
- ❖ Case studies on previous experience of line ministries on mainstreaming DRR available;
- ❖ Lessons learnt from pilot projects on mainstreaming DRM available;
- ❖ Cost-benefit analysis of integrating risk reduction into development sectors available;

6.8. Emergency Response System

Key issues

The inability of Pakistan's existing emergency response system to deal with large scale catastrophes was highlighted in the aftermath of October earthquake. The government had to create a Federal Relief Commissioner (FRC) to organize emergency response. However, this was a stop-gap arrangement. It is imperative to develop a system under the management of NDMA to organize effective disaster response at national, provincial and district levels. This would involve development of institutional mechanisms and technical and operational capacity of involved agencies. A revamping of the Civil Defence Department at federal and provincial levels would be critical. The organization is extremely weak both at federal and provincial levels. The provincial governments need to undertake proper overhauling of civil defence departments to enable them to organize search and rescue, fire fighting, first aid and other response activities. This will need to be coupled with strengthening of the Civil Defence training academies. Other agencies that need to be strengthened include, the ERC, PRCS, police and fire services, ministries of Interior and health and the National Volunteer Movement. Forums need to be strengthened for collaboration between armed forces and above-mentioned agencies.

Strategy

Emergency Operations Centres would be established at National, Provincial and District levels under the overall supervision of NDMA, PDMA and DDMA respectively. The NEOC would serve as a hub for receiving early warning and issuing necessary instructions to response agencies. The EOCs would lead coordination and management of relief operations in affected areas. Civil Defence, armed forces, NCMC, fire services, police, ambulance services, Red Crescent, Edhi Foundation and other related agencies will be coordinated by the EOCs at respective levels.

Standard Operating Procedures (SOPs) will be drafted, which would define roles of federal, provincial and local agencies for their involvement in emergency response.

A methodology and system for common post-disaster damage, loss and needs assessment will be developed for collaborative action by multiple stakeholders. It will include a framework for damage and loss assessment, common reporting formats, data-collection methodologies, and roles and responsibilities of stakeholders. It would also include SOPs about activation, deployment, reporting and de-activation of assessment teams.

A database will be developed to record disaster response resources available with different departments at district, provincial and national levels. This would allow authorities to mobilize the resources and deploy them in affected areas at the time of disaster. Based upon an agreed list of resources and equipment, the departments will submit lists of resources available with them to the DDMA, PDMA and NDMA. The database will be made available on line, so that all stakeholders can access this information when needed. The PDMA, DDMA and MDMA will manage the databases at provincial, district and city levels.

Two federal Search and Rescue teams will be established with capacity to respond to all kind of disasters. Pakistan Civil Defence will be closely involved in the development and management of SAR teams. Additional search and rescue teams will be developed at provincial levels on as needed basis. Priority would be to establish such teams in provincial and regional capitals and in industrial cities like Hyderabad, Sukkar, Gujranwala, Faisalabad, Sialkot, and Hub Industrial Estate. In this regard, training academies of Pakistan Civil Defence will be upgraded with provision of relevant equipment and upgrading of skills of the trainers.

Relevant national, provincial and local agencies will be encouraged by the NDMA, PDMAs and DDMA to establish Godowns for stockpiling essential relief items for timely provision of relief to the disaster affected people.

A National Disaster Management Fund would be established in order to enable the federal government to organize emergency response effectively. The fund would also be used for monetization of the disaster affected areas to support recovery of survivors. Possibilities for establishing catastrophe financing schemes will be explored with the Banks, international donors and insurance sector agencies.

Outputs

- ❖ Emergency operation centres established at national, provincial and district levels in 50 districts;
- ❖ Standard operating procedures available for emergency response at national, provincial and district levels;
- ❖ A common assessment methodology available for the use of multiple stakeholders;
- ❖ A database about district level resources for emergency response available;
- ❖ Two search and rescue teams functional for quick and safer rescue of trapped individuals in case of a disaster;
- ❖ Search and rescue teams for dealing with multiple hazards established in provincial and regional capitals and key industrial cities;
- ❖ 4 Training institutions of the Pakistan Civil Defence upgraded with latest facilities to train emergency responders;
- ❖ A National Disaster Management Fund established and managed by the NDMA;

6.9. Capacity Development for Post Disaster Recovery

Key issues

Government of Pakistan established Earthquake Reconstruction and Rehabilitation Authority (ERRA) to manage the recovery effort in the aftermath of October 2005 earthquake, however, ERRA would accomplish its mission in few years time. In order to manage future recovery programmes in an effective manner, it is essential to put in place institutional arrangements and systems. Therefore, NDMA will work on capacity building for post disaster recovery. NDMA would strive to benefit from the experiences being gained by ERRA in disaster recovery and lessons learnt from the earthquake recovery. In this regard NDMA would closely coordinate with ERRA to ensure that experiences gained by ERRA over the next few years are integrated into the working of NDMA for better recovery management.

Strategy

NDMA will work on following five areas as priority in order to organize effective recovery programming in future.

- i) Guidelines for recovery needs assessment and recovery programme design and management for multiple sectors,
- ii) Database on technical capacity of relevant stakeholders in designing and implementing recovery programmes. This will be developed to keep track of capacities that have been developed through recovery and reconstruction programming after the earthquake,
- iii) Identify lessons learnt from earthquake recovery by different stakeholders; e.g. the ERRA, line ministries, district authorities, UN agencies and NGOs. Lessons learnt exercises will help to identify gaps in effective recovery programming and identify areas for capacity building. In this regard, NDMA will consider the work done by the UN International Recovery Platform (IRP) in Kobe.

- iv) NDMA will conduct orientation workshops for line ministries and other stakeholders on post disaster recovery programme design and implementation.
- v) Federal and provincial ministries would be required to develop their sectoral strategies for organizing recovery after disasters;

Outputs

- ❖ A system on recovery needs assessment and programme planning established,
- ❖ Methodology on recovery needs' assessment and guidelines on recovery programme planning developed,
- ❖ A roster on recovery capacity of various agencies available,
- ❖ A booklet on lessons learnt in recovery programming produced comprised upon experiences of Pakistan earthquake response and the IRP documentation,
- ❖ Curriculum on training of recovery programme managers available,

7. Structure for Disaster Risk Management

7.1. National Disaster Management Commission

Government of Pakistan has established the National Disaster Management Commission (NDMC) as the highest policy and decision making body for disaster risk management. The NDMC is responsible to ensure coordination in its broadest sense; to oversee the integration of disaster risk management issues into sectoral development plans; and to oversee the implementation of this policy through the NDMA. The Commission consist of : -

- Prime Minister, who is the chairperson, ex officio;
- Leader of the Opposition in the Senate,
- Leader of Opposition in the National Assembly,
- Minister for Communications,
- Minister for Defence,
- Minister for Finance,
- Minister for Foreign Affairs,
- Minister for Health,
- Minister for Interior,
- Minister for Social Welfare and Special Education,
- Governor NWFP (for FATA),
- Chief Ministers of all provinces,
- Prime Minister AJ&K,
- Chief Executive Northern Areas,
- Chairman JCSC or his nominee,
- Representative (s) of Civil Society,
- Any other person appointed or co-opted by the Chairperson
- Chairman of NDMA will be the secretary to the Commission

The National Commission would perform following functions.

- ✓ Lay down policies on disaster risk management,
- ✓ Approve the National DRM Framework and Emergency Response Plan,
- ✓ Approve plans prepared by Ministries or Divisions of the Federal government in accordance with National Framework and Plan,
- ✓ Lay down guidelines to be followed by Federal and Provincial Authorities,
- ✓ Arrange for, and oversee, the provision of funds for risk reduction, preparedness and response and recovery measures,
- ✓ Provide support to other countries affected by major disasters as may be determined by the federal government,
- ✓ Take such other measures for risk reduction, preparedness and capacity building as it may consider necessary,
- ✓ In addition, NDMC may constitute an advisory committee or committees of experts in disaster risk management,

Meetings: NDMC will meet twice a year (before the start of monsoon and winter seasons, during which seasonal hazards may occur), when early warning thresholds indicate need, and when a disaster strikes.

7.2. National Disaster Management Authority

Disaster Risk Management is a multi sectoral, multi discipline and timely response undertaking. National Disaster Management Authority (NDMA) has been established in order to serve as the focal point and coordinating body to facilitate implementation of disaster risk management strategies. This necessitates NDMA to directly interact/communicate with all stakeholders, including Ministries, Divisions, and Departments in relaxation to normal communication channel. All ministries, divisions and agencies which are likely to participate in disaster risk management shall procure all relevant items, stock them if necessary and supply them as directed by the NDMA for meeting any calamity or disaster. Being an intricate and time sensitive activity disaster risk management requires to be conducted as a one window operation through the NDMA. For this purpose, to institutionalize the operations, all stake holders including government departments / agencies and armed forces will work through and form part of NDMA in all stages of Disaster Risk Management. NDMA aims to develop sustainable operational capacity and professional competence to undertake following tasks:

- Coordinate complete spectrum of disaster risk management at national level,
- Act as Secretariat of the NDMC to facilitate implementation of DRM strategies,
- Map all hazards in the country and conduct risk analyses on a regular basis,
- Develop guidelines and standards for national and provincial stakeholders regarding their role in disaster risk management,
- Ensure establishment of DM Authorities and Emergency Operations Centres at provincial, district, and municipal levels in hazard-prone areas,
- Provide technical assistance to federal ministries, departments and provincial DM authorities for disaster risk management initiatives,
- Organize training and awareness raising activities for capacity development of stakeholders, particularly in hazard-prone areas,
- Collect, analyze, process, and disseminate inter-sectoral information required in an all hazards management approaches,
- Ensure appropriate regulations are framed to develop disaster response volunteer teams,
- Create requisite environment for participation of media in DRM activities,
- Serve as the lead agency for NGOs to ensure their performance matches accepted international standards,
- Serve as the lead agency for international cooperation in disaster risk management. This will particularly include, information sharing, early warning, surveillance, joint training, and common standards and protocols required for regional and international cooperation,
- Coordinate emergency response of federal government in the event of a national level disaster through the National Emergency Operations Centre (NEOC),
- Require any government department or agency to make available such men or resources as are available for the purpose of emergency response, rescue and relief,
- Declare a National Disaster Preparedness Day (to commemorate 08 October Earthquake) and conduct awareness raising activities at the occasion,
- Establish a National Disaster Management Fund,
- Perform any other function as may be required by the NDMC,

7.2.1. Technical Committees

The NDMA, PDMA and DDMA may establish Technical Committees in order to facilitate coordination and enable optimum use of available skills and resources. Technical Committees will focus on specific disaster threats and issues, which may not have been covered as part of

the stakeholder responsibilities in the Framework. Technical Committees could assist local, provincial or national authorities in identifying issues and problems and devising solutions. The specific areas that could be covered through the establishment of TCs are:

- Cyclones, storms, winds
- Disaster risk communication
- Drought
- Early warning systems
- Earthquakes
- Epidemics
- Floods
- Industrial and mines accidents
- Land slides, earth slides and avalanches
- Laws, procedures and standards
- Locust/pest infestation
- Major transportation accidents
- Marine disasters, including oil spills
- Nuclear, chemical, biological and radiological accidents
- Refugees/displaced persons
- Tsunamis
- Urban and forest fires
- Any other future calamity

7.3. Provincial (Regional) Disaster Management Commissions

Disaster management being a provincial subject, the provincial/regional governments will have a crucial role in implementation of disaster risk management policies, strategies and programmes. Each Provincial/regional government will form a Provincial (regional) Disaster Management Commission (PDMC) which will be chaired by the Chief Minister. Leader of opposition and a member to be nominated by him will also form part of the PDMC. Other members will be appointed by the Chief Minister. They may include stakeholders from provincial/regional ministries and departments, civil defence, Red Crescent, police, fire services, university faculty, research institutions, civil society organizations, representatives from commerce, industry and insurance sectors, and other technical experts in the province/region. Provincial/Regional Commission will facilitate links between national objectives and provincial/regional priorities. The Director General, Provincial (Regional) Disaster Management Authority (PDMA) will serve as the Member/Secretary of the PDMC with focal point responsibilities for disaster policy, planning and implementation.

The Provincial (Regional) Disaster Management Commission shall:

- Lay down the provincial/regional disaster risk management policy,
- Develop provincial/regional disaster risk management plan in accordance with guidelines laid down by the National Commission,
- Ensure that disaster risk management plans are formulated by all ministries, departments, and district/municipal authorities;
- Review the sectoral development plans of provincial departments and ensure that risk reduction measures are integrated therein,
- Approve disaster risk management plans prepared by provincial/regional departments,
- Review implementation of the plans,
- Oversee the provision of funds for risk reduction and preparedness measures,

7.4. Provincial (Regional) Disaster Management Authorities

The Provincial/Regional Authority will be headed by a Provincial/Regional Director General with the status and powers of a Secretary. The DG will be appointed by the Provincial government. The Authority will serve as secretariat of the Provincial/Regional Commission. It will work upon development, implementation and monitoring and evaluation of disaster risk reduction activities in vulnerable areas and sectors in the province. The provincial/regional authority will have responsibility for the following.

- Coordinate complete spectrum of disasters in the province/region,
- Formulate provincial/regional disaster risk management plan,
- Continuously monitor hazards, risks and vulnerable conditions within the province/region,
- Develop guidelines and standards for provincial/regional and local stakeholders regarding their role in disaster risk management,
- Ensure preparation of disaster risk management plans by all districts;
- Coordinate implementation of provincial disaster risk management plan in accordance with the National Framework,
- Promote education, awareness and training on disaster risk reduction and response;
- Provide necessary technical assistance and advice to local authorities for carrying out their functions effectively;
- Coordinate emergency response in the event of a disaster, through the Provincial/Regional Emergency Operations Centre (PEOC);
- Develop specific capabilities to manage threats that exist in the province/region,
- Perform such other functions as may be assigned by the Provincial/Regional Commission,

7.5. District and Municipal Disaster Management Authorities

District Disaster Management Authorities shall be established by the provincial government in hazard prone areas on a priority basis. The District Authority will comprise of the Nazim, District Coordination Officer (DCO), Police Officer, ex-officio and EDO health. The local government can nominate other officers as members of the DDMA or MDMA. They may include EDOs for education and agriculture, Red Crescent, NGOs, media, private sector, fire services, or any other local stakeholders. Municipal Disaster Management Authorities (MDMA) will be established in urban areas and cities on similar lines.

The DDMA and MDMA will:

- Formulate district disaster risk management plan, based upon local risk assessment, and coordinate its implementation,
- Review development plans of government departments and provide guidance on mainstreaming disaster risk reduction measures in these plans,
- Continuously monitor hazards, risks and vulnerable conditions within the district, municipality, or cantonment,
- Prepare guidelines and standards for local stakeholders on disaster risk reduction,
- Conduct education, training and public awareness programmes for local officials, stakeholders and communities,
- Encourage involvement of community groups in disaster risk reduction and response by providing them necessary financial and technical assistance for implementing community level initiatives,
- Examine construction in the area and if hazard safety standards have not been followed, direct the relevant entities to secure compliance of such standards,

- Invest in specific capabilities according the requirement to manage all types of threat peculiar to local area,
- Undertake appropriate preparedness measures at district level; e.g. maintain an early warning system, identify buildings to be used as evacuation sites, stockpile relief and rescue materials and identify alternative means for emergency communications,
- In the event of a disaster, organize emergency response through the District Emergency Operations Centre (DEOC),
- Keep linkages with the Provincial Disaster Management Authority and the Relief Department.
- Perform such other functions as the Provincial Authority may assign to it,

7.6. Tehsil and Town Authorities

Institutions at this level are the frontline of disaster risk reduction and response. For many departments this is the lowest level of administration where they interface directly with communities; agriculture, education, health, police, revenue and others. Extension workers of above departments could play a significant role in promoting risk reduction. For example agriculture extension workers could promote awareness of drought, flood or cyclone resistant crops. Health workers could raise people's awareness about potential diseases that may occur after a flood or drought and how to prepare for them. Education officials could work on school disaster preparedness. Similarly Tehsil Authorities have an important role in organizing emergency response and relief; e.g. damage and loss assessment, recovery needs assessment. Tehsil and town Nazims will lead in risk reduction and response operations with the help of Tehsil or Town Municipal Officer in consultation with the DDMA. Other key players include; extension workers, police, fire services, community organizations (COs), traditional leaders and NGOs. Appropriate local structures would be established for risk reduction and preparedness.

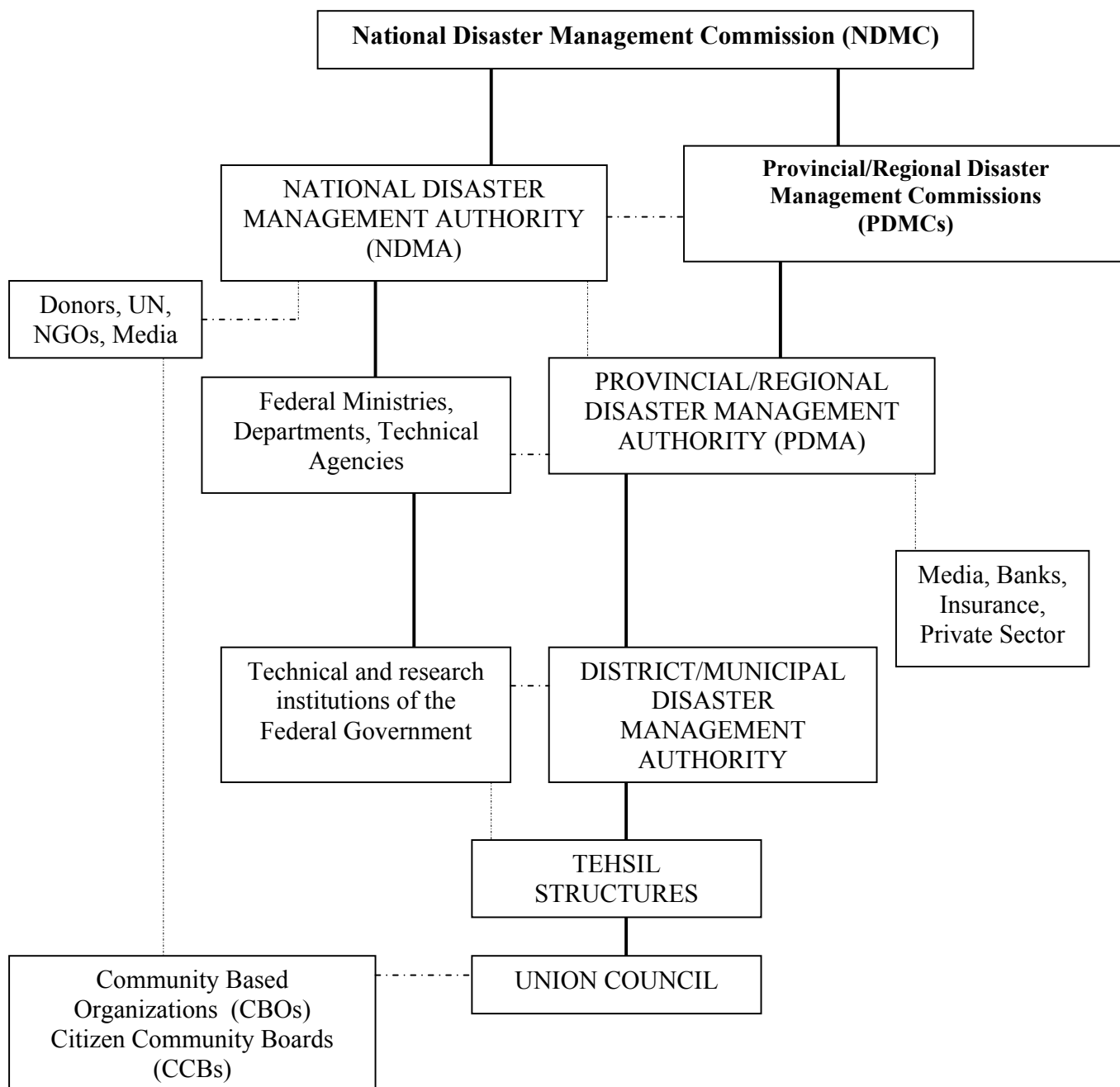
7.7. Union Councils

Union Councils are the lowest tier in the governance structure. Elected representatives from village and ward levels form these bodies. These bodies have an important role in allocation of resources for local development works. Union Councils can play an important role in advocating demands of communities to the District Councils and DM Authorities. Community demands may include requests for allocation of resources from local budgets for hazard mitigation and vulnerability reduction activities; e.g. spurs for flood control, rainwater harvesting structures for drought mitigation, vocational training for livelihoods to reduce vulnerability etc. Therefore, it will be important to develop orientation and knowledge of local political leadership at this level. More capable Union Councils may develop local policies and guidelines for vulnerability reduction.

7.7. Community Based Organizations

In order to promote community level disaster risk management activities, the capacity of existing community organizations will be developed and enhanced by district and Tehsil authorities. In the absence of community organizations, new groups would be established to work on disaster risk reduction management. CBOs will be trained about local early warning system, evacuation, first aid, search and rescue, fire fighting etc. Linkages would be developed between CBOs and relevant local agencies; e.g. agriculture, banks, health and veterinary services to promote disaster preparedness. Skills and knowledge of CBO leadership will also be developed in financial management, people management, resource mobilization, interpersonal communication and presentation and negotiation skills. The provision of Citizen Community Boards (CCBs) in Local Government Ordinance (LGO 2001) provides a good opportunity to organize communities and mobilize resources for issues like local level disaster risk management.

Structure for Disaster Risk Management



8. Roles and Responsibilities of Key Stakeholders

Disaster Risk Management is a multi sectoral, multi discipline and timely response undertaking. National Disaster Management Authority (NDMA) has been established in order to serve as the focal point and coordinating body to facilitate implementation of disaster risk management strategies. This necessitates NDMA to directly interact/ communicate with all stakeholders, including Ministries, Divisions, and Departments in relaxation to normal communication channel. All ministries , divisions and agencies which are likely to participate in disaster risk management shall procure all relevant items, stock them if necessary and supply them as directed by the NDMA for meeting any calamity or disaster. Being an intricate and time sensitive activity disaster risk management requires to be conducted as a one window operation through the NDMA. For this purpose to institutionalize the operations , all stake holders including government departments / agencies and armed forces will work through and form part of NDMA in all stages of Disaster Risk Management.

Roles and responsibilities described in this part refer to functions that are expected to be performed by concerned stakeholders with relation to disaster risk reduction, preparedness, response and recovery after disasters. Not each stakeholder has a role in each phase of disaster risk management. Functions of certain stakeholders are more relevant to disaster risk reduction, while those of others are more related to disaster preparedness and response. Together all of them cover the range of functions required to address the complete spectrum of disaster risk management. The list of functions given below is only an indicative one. It is expected that each stakeholder would develop their own organizational/sectoral strategies and plans for disaster risk reduction, preparedness, response and recovery. These plans would include detailed information about sectoral risks, vulnerabilities, vulnerability reduction strategies and resources allocated by the ministry/department or agency. Each stakeholder is expected to submit the organizational plans to DDMA, PDMA or NDMA respectively in order to ensure coordination of efforts.

Each stakeholder must nominate a focal point for disaster risk management, who would be responsible for coordinating with the DDMA, PDMA and NDMA respectively. The respective DM Authorities would provide technical guidance and support to stakeholders in carrying out their functions. Stakeholders must develop technical capacities in order to perform their functions regarding risk reduction and response. NDMA, PDMA and DDMA would launch capacity building initiatives in this regard. In case of disaster, the DDMA, PDMA or NDMA (as needed) will be the lead agencies to organize emergency response with the help of relevant stakeholders.

8.1. Ministries

Defence

- ❖ Develop a disaster preparedness and response plan for involvement of Pakistan armed forces in response operations in close coordination with and according to specific requirements of local civil authorities;
- ❖ Submit the Ministry's plan to NDMA in order to ensure effective coordination;
- ❖ Assess vulnerability of assets, infrastructure and personnel of the Pakistan Armed Forces to disaster risks and integrate vulnerability reduction measures;
- ❖ Prepare inventory of resources that are available with armed forces for relief, rescue and evacuation;
- ❖ Equip military response teams to perform various tasks; e.g. search and rescue, evacuation, fire fighting, first aid;
- ❖ Integrate disaster risk management education into the syllabus of National Defence College, Staff College, Regimental centres and Armed Forces training institutions;

- ❖ Take actions to reduce the risks of nuclear, biological and radiological accidents in the facilities managed by the Ministry in close collaboration with Pakistan Atomic Energy Commission, Pakistan Nuclear Regulatory Authority and Other relevant agencies;
- ❖ Conduct drills/simulations with army personnel and other stakeholders about disaster response operations;
- ❖ Deploy armed forces for disaster response upon receipt of instructions from the NDMC;
- ❖ Assist communities in evacuation, and rescue the trapped groups and individuals during disasters;
- ❖ Provide essential first aid as required and transport injured to the hospitals;
- ❖ Undertake aerial and field assessment in collaboration with other stakeholders to identify needs of survivors;
- ❖ Deploy helicopters and other air services for emergency response, relief delivery and for recovery of affected people;
- ❖ Assist civilian authorities in reconstruction and rehabilitation of infrastructure as needed;

Education

- ❖ Develop a disaster risk management plan for the Ministry covering aspects of risk reduction, preparedness and response and curriculum development on disaster risk education;
- ❖ Identify and inventory vulnerable educational institutions and infrastructure of the Ministry in hazard-prone areas;
- ❖ Implement actions to reduce vulnerability of built infrastructure in education sector in hazard-prone areas, e.g. retrofitting, renovation, rebuilding etc;
- ❖ Construct all new schools, colleges, universities and other educational buildings located in hazard-prone areas to higher standards of hazard resilience;
- ❖ Develop capacities in schools of hazard prone areas to cater for additional water, sanitation and other administrative chores to house affected populations in the event of disaster;
- ❖ Conduct orientation programmes to raise awareness of education authorities, professors and teachers about disaster risks in hazard-prone areas;
- ❖ Develop curriculum for schools, colleges and universities on disaster risk management, particularly in hazard-prone areas;
- ❖ Implement school, college and university level activities to enhance awareness of students and to promote overall preparedness in educational institutions through conducting drills, reducing vulnerability etc;
- ❖ Encourage local educational authorities and teachers to prepare school disaster response plans and their implementation;
- ❖ Allocate funds for safer construction and disaster preparedness activities at school, college, and university levels in hazard-prone areas;

Environment

- ❖ Develop disaster risk management plan for risk reduction and response with relation to Ministry's mandate;
- ❖ Incorporate Natural Disaster Risk Assessment in the Environmental Impact Assessment guidelines;
- ❖ Develop technical capacities of the staff of ministry to undertake disaster risk assessment and disaster risk reduction activities in the environment sector;
- ❖ Undertake assessment of vulnerability of natural resources (forest, lakes, streams, mangroves, coral reefs, protected areas, coastal areas) to natural and human induced hazards;

- ❖ Implement programmes for conservation and rehabilitation of natural resources in order to reduce risks of natural hazards; e.g. reforestation, mangrove plantation, combating desertification, conservation of special natural resources; e.g. wetlands, lakes, reefs, mangroves, and coastal areas;
- ❖ Allocate resources for implementation of programmes to conserve and rehabilitate the natural resource base, particularly in up-stream areas of the Indus River basin;
- ❖ Develop mechanisms for assessment of environmental losses and damages in the aftermath of disasters and their rehabilitation;

Finance and Revenue

- ❖ Coordinate with NDMA about needs for financial resources to promote disaster risk management programmes in hazard-prone areas;
- ❖ Allocate financial resources to NDMA and other line ministries and departments for implementation of disaster risk management activities as part of their development plans;
- ❖ Allocate funds for the establishment of a National Disaster Management Fund, which could be utilized to organize emergency relief and to monetize the affected areas;
- ❖ Monitor and evaluate utilization of funds by relevant authorities and ministries on disaster risk management;
- ❖ Encourage financial service sectors and local capital markets to develop schemes for financing disaster risk reduction measures by families and community organizations;
- ❖ Incorporate provisions in micro-finance schemes to have flexible repayment schedules for recipients who have been affected by a disaster;

Food, Agriculture and Livestock

- ❖ Develop disaster risk management plan to deal with hazards and disasters with relation to ministry's mandate and assets;
- ❖ Allocate funds in annual budget for implementation of disaster risk management activities in hazard prone areas;
- ❖ Undertake vulnerability and risk analysis for food, agriculture and livestock sectors in hazard-prone areas, particularly in relation to floods, droughts, cyclones and locust;
- ❖ Coordinate with NDMA and jointly identify appropriate actions for reducing vulnerability of food, agriculture and livestock to disaster risks;
- ❖ Coordinate with PMD, FFC and research institutions to establish warning systems for identification of risks to food, agriculture and livestock sectors;
- ❖ Develop capacity and raise awareness of staff of ministries at federal and provincial levels, local extension workers and farmers on disaster preparedness for food, agriculture and livestock sectors;
- ❖ Promote contingency crop planning to deal with year to year climate variations and crop diversification including use of hazard resistant crops, to deal with shifts in climate patterns;
- ❖ Ensure sustainable livelihoods in areas of recurrent climate risks (i.e. arid and semi-arid zones, flood and drought prone areas) by promoting supplementary income generation from off-farm (e.g. animal husbandry) and non-farm activities;
- ❖ Promote effective insurance and credit schemes to compensate for crop damage and losses to livelihoods due to natural hazards;
- ❖ Assist in saving crops, agricultural land and livestock in disaster situation;
- ❖ Make available inputs like seed plant, fertilizers and agricultural equipment to victims of disasters on credit basis;
- ❖ Survey and investigate extent of damages to crops and livestock;

- ❖ Ensure adequate availability of food stocks in disaster situation;
- ❖ Organize ration depots at location required by the local authorities;

Foreign Affairs

- ❖ Develop operating procedures to fast track requests for aid and to facilitate deployment of international response teams, and receive relief goods in case of a large scale disaster in the country;
- ❖ Share with NDMA the operating procedures for requesting and receiving disaster relief from international community;
- ❖ Develop and maintain inventory of Embassy focal points for disaster preparedness and other aid giving organizations in order to quickly organize requests for assistance in case of disaster;
- ❖ Coordinate with foreign countries to receive aid in case of a major catastrophe;
- ❖ Coordinate with international technical organizations and relevant UN agencies to receive technical and financial assistance for disaster risk reduction and preparedness;
- ❖ Coordinate the deployment of aid to any other countries in the region by the government of Pakistan, in case of a disaster in other countries;
- ❖ Maintain liaison with NDMA in order to ensure collaborative efforts for disaster risk management;

Health

- ❖ Act as focal point for managing all aspect of healthcare preparedness, response and recovery in a disaster situation in close coordination with the NDMA;
- ❖ Prepare disaster preparedness and response plan for each level of health care facilities, including management of mass casualties, epidemics and submit this plan to the NDMA for better coordination of efforts;
- ❖ Provide technical support in all health related areas to NDMA through the newly established Emergency Preparedness and Response Centre of the Ministry;
- ❖ Conduct hazard based mapping of all health care facilities, including vulnerability assessment (infrastructure and organizational setup) and integrate hazard resilience measures;
- ❖ Develop a disease surveillance system to identify hotspots for communicable disease;
- ❖ Enhance disaster management capacities of health work force (all cadres at all levels) in collaboration with Provincial ministries;
- ❖ Prepare protocols and guidelines to address all priority public health issues as part of preparedness, response and recovery plans;
- ❖ Integrate disaster preparedness and response capacities into all existing and future health programs at federal, provincial and district level;
- ❖ Establish emergency health operation to ensure better coordination and mobilization in emergency/ disaster situation at all level;
- ❖ Set-up medical camps and mobilize emergency health teams including mobile hospitals, to be deployed in the event of a disaster;
- ❖ Mobilize all available health resources and possible assets for emergency interventions;
- ❖ Build effective linkages and coordination with all national, regional and international health agencies/ stakeholders;
- ❖ Device strategies for community involvement in all aspects of emergency preparedness, response and recovery plans with regards to health sector;

Housing and Works

- ❖ Prepare a disaster risk management plan for risk reduction with relation to Ministry programs, infrastructure and mandate;
- ❖ Develop national building codes for safer construction of houses, buildings and infrastructure in hazard-prone areas for multiple hazards; e.g. earthquakes, floods, landslides, storms/cyclones;
- ❖ Develop sample designs of house, high-rise buildings and infrastructure (bridges, roads) for safer construction in hazard-prone rural and urban areas;
- ❖ Promote sample-safer-designs through media and other channels in order to enhance mass level awareness and application;
- ❖ Promote compliance and enforcement of local building laws requiring prescribed standards under national building codes in hazard-prone urban areas;
- ❖ Conduct training of builders, contractors and masons on safer construction methods;
- ❖ Allocate funds for promoting safer construction practices;
- ❖ Implement pilot programmes on safer construction in hazard-prone areas to enhance awareness;
- ❖ Monitor construction of government buildings and infrastructure in hazard prone areas to ensure that safer construction techniques are followed;
- ❖ Develop guidelines on conduct of damage and loss assessment to infrastructure and housing sectors in the wake of a disaster, and conduct assessments after disasters;
- ❖ Incorporate disaster risk assessment in the planning process for construction of new roads and bridges;
- ❖ Promote use of hazard risk information in land-use planning and zoning programmes;
- ❖ Organize emergency repairs for restoration of public transport routes;

Industries, Production and Special Initiatives

- ❖ Develop disaster risk management plan with regards to the mandate of the Ministry;
- ❖ Develop guidelines for industrial sector to ensure safety of industry and its production processes in hazard-prone areas;
- ❖ Establish systems to monitor implementation of guidelines by industrial sector;
- ❖ Develop system of incentives and disincentives for industry to promote application of disaster safety;
- ❖ Implement awareness raising programmes for industrial sector including Chambers of Commerce and Industry (CCI) on integrating disaster risk assessment and vulnerability reduction in project planning and implementation stages;
- ❖ Prepare inventories of industries based upon the type of chemicals and raw materials used in their products and the dangers posed by various types of industries;
- ❖ Initiate demonstration programmes on industrial disaster preparedness;
- ❖ Develop safety codes for all industries to reduce risks of industrial and chemical hazards and to ensure vulnerability reduction from natural hazards;
- ❖ Develop SOPs for emergency response to industrial disasters;
- ❖ Develop physical capability to manage all types of likely industrial disasters including chemical disasters;
- ❖ Monitor and encourage implementation of safety codes in industry;

Information and Broadcasting

- ❖ Develop a communication action plan to ensure the availability of communication services in case of the occurrence of a disaster;
- ❖ Coordinate with the NDMA to receive information about the disaster risks and preparedness strategies, particularly about community preparedness;

- ❖ Train the staff of communications ministry and the private sector media personnel from electronic, and print media to raise their awareness about disaster risks and the role of media in promoting community preparedness
- ❖ Implement programmes on awareness raising of vulnerable communities in high risk areas of the country;

Information Technology

- ❖ Ensure safety of telecommunication infrastructure in hazard-prone areas;
- ❖ Develop alternative technologies to facilitate telecommunication during disaster in affected areas, in case of the collapse of mainstream communication systems;
- ❖ Coordinate with NDMA and the National Emergency Operations Centre (NEOC) to ensure the provision of alternative communication technology and services to disaster survivors and response agencies;
- ❖ Maintain through the National Telecommunication Corporation (NTC) a pool of telecom equipment preferably satellite/wireless based for provision and establishment of emergency telecom network. For procurement of liaison equipment, necessary funding will be arranged by NDMA.
- ❖ Liaison and coordinate with international bodies, NGOs for resources arrangement on urgent basis during relief operation and disaster mitigation;
- ❖ Focal Ministry for telecom resource management during disaster relief operations;
- ❖ Develop trained manpower working in subordinate organizations like NTC and SCO and could be called in emergency for restoration purposes;
- ❖ Liaison and coordinate with member administrations of International Telecommunication Union (ITU) and Tampere Convention for arrangement of assistance in the shape of telecom equipment and human resources for restoration of telecom services during and after disasters;
- ❖ Ensure that ITU based standards and practices are implemented by the operators;

Interior

- ❖ Prepare Ministry's plan for disaster preparedness and response in order to deal with any eventualities caused by natural or man-induced hazards; e.g. floods, droughts, earthquakes, nuclear accidents etc;
- ❖ Submit Ministry's plan to NDMA in order to ensure coordination of efforts.
- ❖ Maintain peace and security in affected areas;
- ❖ Ensure safety of relief goods being sent to affected areas from other parts of the country;
- ❖ Provide security to volunteers, government officials, and staff of international NGOs and UN agencies working in affected areas;
- ❖ Ensure safety of most vulnerable survivors; e.g. children, elderly, and women by saving them from criminal elements that might want to take advantage of the situation of chaos;
- ❖ Train the police personnel in emergency response skills; e.g. rescue, medical first aid, fire fighting, evacuation and warning;
- ❖ Operate through Police Telecommunication, the wireless and tele-printer network for disaster information and messages to all concerned departments and agencies;
- ❖ Provide assistance to District, Provincial and National Disaster Management Authorities in disaster warning, rescue, relief and evacuation operations;
- ❖ Enhance capacities of the National Crisis Management Cell to deal with crisis situations created by terrorist and criminal activities in accordance with the mandate of the NCMC;
- ❖ Share the plans of the NCMC with NDMA for better coordination and effective response;

- ❖ Revamp the Federal and Provincial Civil Defence departments, through strengthening the legal mandate of Federal Civil Defence to include actual response as its responsibility, Directing Provincial Civil Defence offices to report to the Federal Civil Defence, Upgrading of the Civil Defence Training Academies, Provision of appropriate equipment to Civil Defence offices to enable them to perform its functions related to search and rescue, fire fighting, bomb disposal etc
- ❖ Take actions in coordination with provincial and municipal governments for revamping of the fire services in major cities and towns, in order to enable them to deal with fire incidents.
- ❖ In coordination with provincial and municipal governments arrange appropriate equipment, training and supplies for the personnel of fire services in all provincial headquarters and other major cities and towns;
- ❖ Coordinate with NDMA regarding the development and implementation of strategies for revamping of the Civil Defence and Fire Services;

National Crisis Management Cell (NCMC), Ministry of Interior

- ❖ Manage a round the clock Operational Control Room;
- ❖ Collect information on emergencies of all sorts in the country;
- ❖ Coordinate with Provincial Crisis Management Cells (PCMCs);
- ❖ Coordinate with other agencies to gather relevant information; e.g. casualty figures etc
- ❖ Coordinate plans for emergency response in case of crisis situations;

Law, Justice and Human Rights

- ❖ Develop appropriate laws and regulations to ensure the provision of relief and recovery packages to disaster survivors;
- ❖ Monitor the situation of human rights in affected areas and take action on human rights violations of disaster survivors; e.g. denial of aid, capturing of property, kidnapping of children or women, and harm to elderly;
- ❖ Work with relevant UN agencies; e.g. Inter-Agency Standing Committee (IASC) and the IOM to ensure the human rights of affected people;
- ❖ Prepare reports about potential bottlenecks that may hinder certain vulnerable groups of disaster survivors from receiving relief and rehabilitation packages;
- ❖ Implement programmes to raise awareness of the staff of ministry on human rights and disasters;

Local Government and Rural Development

- ❖ Develop disaster risk management plan with regards to the mandate of the Ministry;
- ❖ Undertake vulnerability analysis of the local government property and infrastructure located in hazard-prone areas;
- ❖ Incorporate disaster risk assessment in planning of projects for construction of local government and rural development infrastructure;
- ❖ Integrate vulnerability reduction strategies in the construction of new infrastructure located in hazard prone areas;
- ❖ Allocate additional funds for disaster risk assessment and vulnerability reduction for local government infrastructure;
- ❖ Organize orientations for staff of the Ministry and local authorities in hazard-prone areas on disaster risk assessment and vulnerability reduction;
- ❖ Monitor the performance of local authorities in integrating disaster risk assessment and vulnerability reduction in local development projects;
- ❖ Provide its training institutions namely AHKNCRD and MTRI Karachi for training of district, municipal authorities and line ministries.

Petroleum and Natural Resources

- ❖ Develop disaster risk management plan with regards to the mandate of the Ministry;
- ❖ Develop guidelines for safety in oil/gas, fire and mining sectors;
- ❖ Integrate risk assessment and risk reduction in planning and implementation of projects in the above sectors;
- ❖ Implement awareness raising programmes for staff in the oil, gas, fire and mining sectors;
- ❖ Develop SOPs for emergency response to disasters in the above sectors;
- ❖ Through the Geological Survey of Pakistan (GSP) conduct research on hazard mapping and produce user friendly maps;

Planning and Development

- ❖ Planning to be based upon hazard risk maps available with the NDMA and from other technical agencies; e.g. PMD, FFC, WAPDA, SUPARCO and circulate these to all development ministries and departments;
- ❖ Develop guidelines on incorporation of disaster risk assessment (and vulnerability analysis) in project identification, design and planning;
- ❖ Organize orientations for line ministries about the guidelines on risk assessment;
- ❖ Issue policy directive to all line ministries about incorporating disaster risk assessment (and vulnerability analysis) in project design and planning;
- ❖ Make mandatory the inclusion of vulnerability reduction measures in implementation of development projects, if located in hazard-prone areas;
- ❖ Monitor the progress on implementation of vulnerability reduction measures in all development projects in hazard-prone areas;
- ❖ Obtain and maintain data on public sector infrastructure in hazard-prone areas in order to plan vulnerability reduction initiatives and organize reconstruction operations;
- ❖ Assist the NDMA in evaluation of losses and damages;

Population Welfare

- ❖ Develop disaster risk management plan with regards to the mandate of the Ministry;
- ❖ Conduct research on population growth, settlement trends and vulnerability patterns in hazard-prone areas;
- ❖ Consult with the NDMA and other technical organizations to identify strategies to influence patterns of settlement and population growth in hazard prone areas;
- ❖ In collaboration with relevant stakeholders, launch programmes for awareness raising of people about linkages between population density, growth and vulnerability to disasters;

Ports and Shipping

- ❖ Assess vulnerability of port facilities, infrastructure and services to natural disasters; e.g. cyclones, tsunamis, oil spills, coastal flooding, fire etc;
- ❖ Develop technical guidelines on vulnerability reduction strategies for ports infrastructure, facilities and services;
- ❖ Develop disaster risk management plan and acquire specific capabilities to reduce losses to infrastructure and services of the ports and shipping industry;
- ❖ Integrate vulnerability reduction methods in construction of new infrastructure at ports;
- ❖ Implement vulnerability reduction strategies for existing infrastructure, facilities and services;
- ❖ Conduct training and drills for staff and management of the Ministry and ports and shipping industry on disaster preparedness;
- ❖ Develop plans to carryout services of shipping transportation through alternative means in case of disaster impact upon port facilities;

Railways

- ❖ Develop disaster risk management plan with regards to the mandate of the Ministry;
- ❖ Identify vulnerabilities of train infrastructure to natural disasters in hazard-prone areas;
- ❖ Develop strategies to reduce vulnerabilities of train network and infrastructure to natural disasters;
- ❖ Implement actions for vulnerability reduction of train network in Pakistan, so that the damage and losses to train network are lower in case of disaster;
- ❖ Prepare strategies and acquire capabilities for quick rehabilitation of train network and services in case of disaster impact;
- ❖ Identify alternative strategies for continuity of services of Pakistan railway in case of a severe disaster impact upon train network;
- ❖ Develop guidelines and procedures to receive and transport relief goods to disaster-affected areas in a quick manner;
- ❖ Coordinate with the NDMA and relevant local authorities about transportation of relief goods;
- ❖ Allocate trains for on-time and safe transportation of relief goods to affected areas;
- ❖ Develop technical capacities of the Ministry staff to undertake risk assessments and risk reduction in railways network with relation to natural and human-induced disasters;

Science and Technology

- ❖ Develop disaster risk management plan with regards to the mandate of the Ministry;
- ❖ Assess vulnerability of infrastructure and facilities of the Ministry in hazard-prone areas;
- ❖ Implement strategies to reduce vulnerabilities of infrastructure and facilities to disasters;
- ❖ Develop guidelines for disaster risk assessment and vulnerability reduction for the infrastructure and facilities of the Ministry in hazard-prone areas;
- ❖ Develop awareness of the staff of ministry on the role of science and technology in disaster risk management;
- ❖ Undertake research to explore the role of Ministry in promoting disaster risk management;
- ❖ Develop technologies for better disaster preparedness and disaster response; e.g. emergency communications technologies in case of damage to the mainstream communication infrastructure;

Social Welfare and Special Education

- ❖ Prepare ministry's plan to address disaster vulnerabilities of most vulnerable social groups; e.g. minorities, women, disabled, children before, during and after disasters;
- ❖ Submit Ministry's plan to NDMA to ensure coordination of efforts;
- ❖ Allocate funds in the annual budget of the Ministry for disaster preparedness activities for most vulnerable social groups;
- ❖ Develop awareness and capacities of the Ministry staff about the role of social welfare in disaster risk management;
- ❖ Conduct research to identify most vulnerable social groups in hazard- prone areas;
- ❖ Implement awareness raising, and preparedness programmes with most vulnerable social groups;
- ❖ Prepare inventories about potential post disaster needs of most vulnerable social groups through conducting assessments in hazard prone areas;
- ❖ Make institutional (establishment of a committee, establishment of outreach offices during disasters, legislation if needed etc) arrangements for provision of relief and recovery assistance to most vulnerable social groups;
- ❖ Manage post-hospitalization care, recovery and rehabilitation of poor and vulnerable casualties;

- ❖ Manage upkeep and rehabilitation of all vulnerable groups in post disaster scenario;
- ❖ Coordinate with NDMA and the Ministry of Law, Justice and Human Rights to ensure that needs of most vulnerable social groups are addressed during disasters;

Tourism

- ❖ Develop disaster risk management plan with regards to the mandate of the Ministry;
- ❖ Coordinate with the NDMA and other scientific agencies to gather information about hazards and risks prevalent in tourist areas;
- ❖ Enhance awareness of tour operators, hotel management, transporters and other stakeholders in tourism industry about high risk areas and the need for disaster preparedness strategies in tourism industry;
- ❖ Develop guidelines for various stakeholders in tourism sector on disaster preparedness; e.g. the tourism industry and the relevant authorities;
- ❖ Publish materials for tourists about seasonality of hazards and risks in areas of tourist attraction and print details of agencies from which they could seek help;
- ❖ Put up evacuation route maps in tourist areas and in hotels in case of a disaster;
- ❖ Encourage hotels and guest houses to organize evacuation drills with their staff;
- ❖ Link the tourism industry with the mainstream early warning systems; e.g. PMD, FFC;
- ❖ Encourage business owners to formulate preparedness plans for their businesses;
- ❖ Build capacity of the staff of Ministry on disaster preparedness in tourism sector;

Youth Affairs

- ❖ Develop disaster risk management plan with regards to the mandate of the Ministry;
- ❖ Make institutional arrangements to raise awareness of youth about disasters and role of youth in disaster preparedness;
- ❖ Establish teams of volunteers to work in post disaster situations for provision of relief and organizing response;
- ❖ Develop capacities of youth volunteers on first aid, fire fighting, camp management, tenting, information management, and security, and search and rescue;
- ❖ Organize drills with youth groups in hazard-prone areas on evacuation, first aid, fire fighting and other aspects;
- ❖ Support youth volunteers to implement awareness raising and disaster preparedness activities in their villages and towns;
- ❖ Coordinate with the NDMA and other relevant authorities for deployment of volunteer youth teams for assistance in emergency response;

Water and Power

- ❖ Develop disaster risk management plan with regards to the mandate of the Ministry;
- ❖ Monitor and manage the dams and reservoirs for irrigation releases from the point of view of specific hazard peculiar to that area;
- ❖ Assess disaster vulnerability of existing dams, reservoirs and power sector infrastructure in hazard-prone areas;
- ❖ Implement strategies to reduce vulnerability of existing dams, reservoirs and power sector infrastructure against disasters;
- ❖ Incorporate disaster vulnerability assessment in design and planning of future projects on water and power sector infrastructure development;
- ❖ Include vulnerability reduction measures in the construction of water and power sector infrastructure in hazard-prone areas;
- ❖ Provide telemetric data from rain gauge stations and flood data from Indus River Basin to the Flood Forecasting Division of the Pakistan Meteorological Department;
- ❖ Conduct studies on possibilities of dam failures and develop contingency plans;

WAPDA (Dams Safety Council)

- ❖ Carry out periodic inspections of dams and advise WAPDA and provincial governments regarding repairs and maintenance of dams and reservoirs;
- ❖ Review the plans of new dams to ensure adequate safety of structures;
- ❖ Review the plans and specifications for enlargement, modifications, major repairs, revival or abandoning of dams / reservoirs;
- ❖ Keep close liaison with International Commission on Large Dams based in Paris;

Women Development

- ❖ Develop disaster risk management plan with regards to the mandate of the Ministry;
- ❖ Raise awareness of decision makers and staff at the Ministry about special vulnerabilities and capacities of women with relation to disasters;
- ❖ Make institutional arrangements for involvement of women in disaster risk management;
- ❖ Promote awareness amongst women in hazard-prone areas about disaster risks and disaster preparedness;
- ❖ Develop capacities of women's organizations on disaster risk management;
- ❖ Ensure that needs of women survivors are addressed in post disaster situations during the relief, rehabilitation and reconstruction phases;
- ❖ Facilitate participation of women in the management of relief, rehabilitation and reconstruction activities;
- ❖ Support post-disaster rehabilitation of livelihoods of women survivors, which is mostly in the informal sector and is ignored many times;

8.2. Departments

Civil Defence

- ❖ Assist local administration / armed forces in rescue, evacuation and relief measures;
- ❖ Supplement disaster-response equipment of the armed forces;
- ❖ Save lives by rapid extrication of persons trapped beneath debris or in buildings damaged by a natural or man made disaster;
- ❖ Render first aid to injured persons and transport them to nearest hospitals;
- ❖ Ensure evacuation of damaged buildings/structures including demolition of damaged structures to avoid further loss of life and properties;
- ❖ Provide quick and effective search and rescue coverage, protection and operation in case of any disaster;
- ❖ Build public confidence by introduction of more effective measures for their protection and ensure adoption of requisite preventive measures by the community;
- ❖ Assist in restoration of essential traffic so as to carry out rescue work without any hindrance or obstruction;
- ❖ Assist in debris clearance and restoration of essential services to the affected buildings;
- ❖ Search and defuse unexploded bombs in the affected areas;
- ❖ Recruit/induct operational staff for SAR teams with required specialized skills;
- ❖ Enhance capabilities of the existing Search and Rescue teams of Pakistan;
- ❖ Coordinate airlifting of relief goods from abroad by PIA;

Coast Guards

- ❖ Develop capacities in emergency response; e.g. evacuations, rescue, first aid etc;
- ❖ Keep liaison with the District, Provincial and National DM Authorities and PMD;
- ❖ Identify safer areas/buildings to be used as evacuation shelters, when needed;
- ❖ Warn coastal communities through public address systems and face to face contacts;
- ❖ Assist most vulnerable families in evacuation to safer sites;
- ❖ Conduct search and rescue to assist the trapped individuals, families and communities,

- ❖ Coordinate with the Maritime Security Agency (MSA) about any ocean related hazards,

Emergency Relief Cell (Cabinet Division)

- ❖ Develop policies and arrangements for procuring relief items on a fast track basis;
- ❖ Procure relief items, when needed;
- ❖ Stockpile relief items in collaboration with national and provincial EOCs, Civil Defence, Red Crescent, and other stakeholders;
- ❖ Make arrangements for receipt of international assistance;
- ❖ Make arrangements for receipt of international response teams;

Fire Services

- ❖ Purchase and maintain fire fighting machinery and equipment;
- ❖ Develop fire risk monitoring systems in urban localities;
- ❖ Raise awareness of citizens and stakeholders; e.g. hotel, restaurant, shop owners, petrol pump owners, about potential fire risks and strategies for combating fire;
- ❖ Develop technical skills of volunteers on fire fighting;
- ❖ Deploy fire fighting teams;
- ❖ Conduct fire fighting drills on regular basis;

Federal Flood Commission (FFC)

- ❖ Prepare flood protection plans for the country;
- ❖ Review and approve flood protection schemes prepared by provincial governments and concerned federal agencies;
- ❖ Make recommendations regarding regulation of reservoirs for flood control;
- ❖ Review damage to flood protection works and review plans for restoration and reconstruction works;
- ❖ Implement measures to improve flood forecasting and warning system;
- ❖ Prepare a research program for flood control and protection;
- ❖ Standardize designs and specifications for flood protection works;
- ❖ Evaluate and monitor progress of the National Flood Protection Plan implementation;

KANA Division

- ❖ Handle disaster risk management related issues in Northern Areas and the AJK;

National Logistics Cell (NLC)

- ❖ Prepare contingency plans and SOPs of the NLC regarding its responsibilities in transportation of emergency relief supplies;
- ❖ Act as coordinator of road transport agencies during a disaster / emergency;
- ❖ Plan and organize the movement of logistics from base(s) to forward location(s);
- ❖ To liaise, coordinate and plan with all major transport companies / organizations involved in transportation of goods on behalf of NDMA , to meet any eventuality;
- ❖ Detach a small part to be embedded with small part to be with NDMA as and when required.

Provincial Irrigation Departments

- ❖ Develop capacities of the irrigation department to mitigate floods and droughts;
- ❖ Complete repairs of flood protection works in the pre-flood season;
- ❖ Assist local authorities and communities in building rainwater harvesting tanks and systems in arid zones;
- ❖ Review the plan for regulation of water supply;
- ❖ Position machinery and materials near vulnerable points for emergency repairs;
- ❖ Inspect breaching of sections and carry out final survey;

Provincial Relief Departments

- ❖ Provide adequate support to local administration through co-ordination with provincial departments and agencies;
- ❖ Provide necessary funds to the area administration for relief work;
- ❖ Supervise the work of area administration regarding relief provision;
- ❖ Assess losses and request federal / provincial governments for providing relief;

Pakistan Meteorological Department

- ❖ Observe hazards and generate meteorological, geophysical and phonological data;
- ❖ Analyze data for issuing forecasts and warnings for aviation, agriculture, shipping, ports, irrigation etc
- ❖ Issue forecasts and warnings for any approaching events that might cause damage and loss to life and property;
- ❖ Disseminate warning about hazards to relevant users through speedy communication;
- ❖ Scrutinize, compare and publish data for appraisal of long term weather trends and earthquakes;
- ❖ Analyse extreme events observed in the past and their future trends; e.g. climate change, weather modification, land-ocean-atmosphere interaction, seasonal weather prediction.

Space and Upper Atmosphere Research Commission (SUPARCO)

- ❖ Provide Pakistan' Communication Satellite (PAKSAT) for communications with disaster-hit areas;
- ❖ Provide services in disaster forecasting, monitoring and damage assessment using satellite and remote sensing technologies for floods, cyclones, oil spills, dust storms, droughts, earthquakes, tsunamis and glacier depletion;
- ❖ Establish appropriate facilities to acquire and process satellite data for study of storms, monsoons, cloud movements, dust storms, cloud top, land and sea surface temperatures, and other meteorological atmospheric processes;
- ❖ Undertake studies / surveys on environmental conditions;
- ❖ Provide remote sensing and satellite maps after disasters in order to show the impact;
- ❖ Provide remote sensing and satellite maps for hazard risk zones to enable the agencies to take measures for minimizing damages to population and property;

8.3. Technical agencies

The technical agencies listed below have a very important role of research, training/education, early warning and technology development for disaster risk reduction and response. These agencies have technical know how about hazards and disasters and they can help in identification and implementation of solutions. NDMA and line ministries would work closely with these and other technical organizations in order to develop and implement disaster risk management programmes.

- ❖ Arid Zone Research Institutes (Quetta, Bahawalpur, D.I.Khan, Omer Kot)
- ❖ Atomic Energy Commission
- ❖ Baluchistan Water and Sanitation Agency (B-WASAA)
- ❖ Centre for Applied Molecular Biology (Lahore)
- ❖ Centre of Excellence in Water Resources Engineering (Lahore)
- ❖ Council for Works and Housing Research (Karachi)
- ❖ Geological Survey of Pakistan (GSP)
- ❖ Global Change Impact Study Centre, Islamabad
- ❖ Indus River System Authority (IRSA)
- ❖ Maritime Security Agency (MSA)

- ❖ National Centre for Drought/ Environment Monitoring and Early Warning System
- ❖ National Centre of Excellence in Geology, University of Peshawar
- ❖ National Engineering Services of Pakistan (NESPAK)
- ❖ National Institute of Oceanography (NIO)
- ❖ Pakistan Agricultural Research Council (PARC)
- ❖ Pakistan Council of Research in Water Resources (PCRWR)
- ❖ Pakistan Council for Scientific and Industrial Research labs (PCSIR)
- ❖ Pakistan Engineering Council (PEC)
- ❖ Pakistan Institute of Nuclear Science and Technology (PINSTECH)
- ❖ Pakistan Nuclear Regulatory Authority (PNRA)
- ❖ Survey of Pakistan
- ❖ Universities of Agriculture (Faisalabad, Tandojam, Rawalpindi, Peshawar)
- ❖ University of Marine Sciences
- ❖ Water Resources Research Centre (WRRC)
- ❖ Water and Power Development Authority (WAPDA)

8.4. Other key stakeholders

Banks

- ❖ Undertake analysis to identify high risk areas for the banking sector lending programmes;
- ❖ Develop insurance and lending services against natural hazard risks for housing, industrial and infrastructure sectors;
- ❖ Coordinate with relevant city authorities or NDMA to receive guidelines for construction in high risk areas;
- ❖ Encourage implementation of safer construction guidelines by the bank beneficiaries (including individuals and companies);

Insurance sector

- ❖ Undertake analysis to identify high risk areas for the insurance sector;
- ❖ Develop insurance services against natural hazard risks for housing, industrial and infrastructure sectors;
- ❖ Coordinate with relevant city authorities or NDMA to receive guidelines for construction in high risk areas;
- ❖ Encourage implementation of safer construction guidelines by users of insurance services (including individuals and companies);

Media

Before a disaster

- ❖ Provide analysis on sources and process of risk generation and patterns of risk and vulnerabilities;
- ❖ Disseminate warning messages to at risk communities in an easy to understand language through multiple channels, while being sensitive to people's access and timing issues;
- ❖ Provide information to communities about precautionary measures they can take to avoid loss of life and property from hazards;
- ❖ Advocate to decision-makers to take appropriate actions for disaster risk management;
- ❖ Highlight the need for involvement of communities in disaster preparedness;

During an emergency situation

- ❖ Inform the public with timely and factual information about the extent of disaster, losses caused and the current situation of hazard;

- ❖ Advise public about actions to be taken during the emergency period in order to avoid further losses; e.g. evacuation, unsafe areas, water purification techniques
- ❖ Inform about actions being taken by authorities/aid groups to save lives and property;
- ❖ Relay messages concerning welfare of isolated or trapped groups for the benefit of families, relatives, friends and rescue teams;
- ❖ Facilitate communication among affected people and their relatives, friends, families in other parts of the country or world;
- ❖ Highlight needs of survivors to make sure that all groups of people affected by the disaster receive appropriate aid, irrespective of their social, ethnic, political status;
- ❖ Highlight the need for application of minimum standards to ensure that minimum needs of disaster survivors in terms of water, sanitation, shelter, food and health are met;
- ❖ Communicate about potential secondary risks to minimize further loss or damage;

After a Disaster (Post-Disaster Phase)

- ❖ Appeal for assistance from all parties to meet the needs of survivors;
- ❖ Communicate about rehabilitation and reconstruction plans of authorities, UN and NGOs, others in the affected areas;
- ❖ Encourage survivor participation in recovery through conducting surveys and communicating the opinions of public to authorities;
- ❖ Influence for integrating risk reduction in rehabilitation and reconstruction programmes;

Pakistan Red Crescent Society

- ❖ Develop disaster risk management plans at national and branch levels (82 district branches) in high risk areas;
- ❖ Develop teams of volunteers for disaster preparedness and response;
- ❖ Train volunteers in emergency preparedness and response (e.g. evacuation, first aid, fire fighting, early warning etc);
- ❖ Implement community level programmes on disaster risk reduction and preparedness including drills and simulations;
- ❖ Work closely with local authorities to conduct joint assessments of damages, losses and needs of disaster survivors,
- ❖ Coordinate operations of national and international components of Red Cross/Red Crescent Movement, operating in disaster area,
- ❖ Launch appeal for international assistance through the IFRC and the ICRC;
- ❖ Coordinate with DM Authorities and the UN coordinator for post-disaster relief work;

Private sector

- ❖ Undertake hazard and risk analysis during design and planning stages of new infrastructure and industry;
- ❖ Identify and implement alternative options in order to reduce risks of natural hazards to infrastructure and industry; e.g. change location
- ❖ Implement vulnerability reduction measures in case of construction of infrastructure and industry in high risk areas;
- ❖ Develop disaster preparedness and response plans for industrial units and industrial zones;
- ❖ Undertake drills at industrial unit level in order to prepare for any catastrophic events;

8.5. United Nations agencies

United Nations agencies are crucial partners in disaster risk management. In concert with government and other stakeholders, the UN works to improve disaster risk management systems, support effective national policies and strengthen institutions. In order to ensure coordinated initiatives, all UN agencies are expected to work in close harmony with NDMA and take directions

from the NDMA about national priorities for risk management and response. In the context of UN reform under which “**One UN**” system is being introduced in Pakistan, it is expected that UN agencies will be able to deliver in a more cohesive manner.

- UN agencies shall participate in National Disaster Management Forums for the purpose of information and experience sharing.
- Participate in Technical Committees dealing with specific disaster types.
- Provide financial and technical support for disaster risk management and preparedness capacity development in addition to responding to humanitarian crises.

The UN agencies present in Pakistan contribute to disaster risk management through planned programmes including:

FAO (Food and Agriculture Organization)

- ❖ Support technological advancements in production, storage and marketing of agriculture, fisheries and livestock products,
- ❖ Conduct annual crop surveys critical for addressing food security issues,
- ❖ Assist in emergencies by providing agriculture inputs like seed, fertilizer, medicines/vaccines, animal feed, pesticides/insecticides, water systems,
- ❖ Provide advice to the Government for rehabilitation of agriculture sector following a disaster,

ISDR (International Strategy for Disaster Reduction)

- ❖ Increase public awareness about risks, vulnerabilities and disaster risk reduction,
- ❖ Obtain commitment from public authorities to implement disaster reduction policies,
- ❖ Stimulate inter-sectoral partnerships, including the expansion of risk reduction networks,
- ❖ Improve scientific knowledge about disaster risk reduction,
- ❖ Promote the application of Hyogo Framework of Action in order to achieve sustainable social, economic and environmental development,

OCHA (Office for Coordination of Humanitarian Response)

- ❖ Organize emergency response in the wake of major disasters that could not be managed by national authorities;
- ❖ Lead the IASC at international, national and local levels in order to organize a coordinated response by all stakeholders,
- ❖ Launch consolidated appeals to mobilize resources for emergency response by multiple members of the IASC,

UNDP (United Nations Development Programme)

- ❖ Provide technical assistance to government on formulation of policy, development of institutions and plans for disaster risk reduction,
- ❖ Develop capacity of government agencies and departments on disaster risk reduction,
- ❖ Implement programmes on disaster risk reduction at local level in hazard prone areas,
- ❖ Serve as chair of the UN Disaster Management Team to coordinate relief, rehabilitation and recovery initiatives after a disaster episode,

UNHCR (United Nations High Commissioner for Refugees)

- ❖ Serve as the lead UN agency for protection, survival and eventual repatriation of refugees to their original homeland,
- ❖ Ensure that displaced persons fleeing their homeland are treated with compassion and care humanity requires in times of crisis,

UNICEF (United Nations Children’s Fund)

- ❖ Train service providers to enhance delivery of affordable and quality public services to address the needs of most vulnerable,
- ❖ Water and sanitation development, particularly in times of disaster episodes,

WFP (World Food Programme)

- ❖ Provide food aid security in times of emergencies,
- ❖ Contribute to environmental management for sustainable development,
- ❖ Support institutions and communities for rehabilitation of disaster affected areas,

WHO (World Health Organization)

- ❖ Assist in developing technical skills and training programmes, knowledge management and sharing of best practices in emergency health services
- ❖ Provide medical assistance in case of disasters

8.6. Donors

The donors could be divided into multi-lateral and bilateral donors. Multi-lateral donors include the World Bank, the Asian Development Bank (ADB) and the Islamic Bank etc. The bilateral donors include the government of economically developed countries, who provide development assistance to Pakistan. Considering their influence on the recipient governments, the donors can play a very important role in promoting disaster risk reduction in the country through following strategies and actions.

- ❖ Make disaster risk reduction a criteria for provision of development assistance,
- ❖ Incorporate risk assessment in project formats and planning processes,
- ❖ Develop guidelines for partners on integrating risk reduction in programme design, planning and implementation,
- ❖ Monitor assisted initiatives to ensure that risk reduction is included in implementation;
- ❖ Support capacity building projects for disaster risk reduction,
- ❖ Advocate and support joint disaster assessment frameworks,

8.7. Non-governmental organizations

NGO's are important partners in disaster risk management. They can particularly contribute in mobilizing communities and developing local level capacities for early warning, disaster preparedness and response. They also implement programmes for community vulnerability reduction; e.g. strengthening livelihoods, safer construction practices, drought mitigation. A number of NGOs are currently working on disaster risk reduction, preparedness and response in Pakistan. A list is given in Annex II. In order to forge a closer link with NGOs, the National Disaster Management Authority will:

- Encourage NGO participation in disaster risk management activities. In specific terms NGO's will be encouraged to participate in training, public education, damage assessment, rehabilitation and construction projects in hazard prone areas.
- Invite NGOs to participate in the formulation of disaster risk management plans at Federal, Provincial, District and community levels in order to share resources and information. NGOs shall link up with the NDMA to ensure that strategic policy and operational implementation incorporates their participation.

9. Annexes

Annex I: NGOs working on Disaster Risk Management

This list is not exhaustive and may not cover all organizations working on disaster risk management in Pakistan.

- ❖ Action Against Hunger
- ❖ Aga Khan Planning and Building Services (AKPBS)
- ❖ Anjuman-e-Islah
- ❖ Association of Physicians of Pakistani Descent of North America (APPNA)
- ❖ Balochistan Environmental Foundation
- ❖ CARE International
- ❖ Church World Service (CWS)
- ❖ Citizen's Foundation
- ❖ Concern Worldwide Pakistan (CWP)
- ❖ Doaba Foundation
- ❖ Eco Friends Society
- ❖ Focus Humanitarian Assistance (FHA)
- ❖ GTZ (German Technical Cooperation)
- ❖ Hamdam Development Organization
- ❖ International Organization for Migration (IOM)
- ❖ International Union for Conservation of Nature (IUCN)
- ❖ International Rescue Committee (IRC)
- ❖ Islamic Aid
- ❖ Islamic Relief
- ❖ Jhelum Valley Human Welfare Society (JVHWS)
- ❖ Khwendo Kor
- ❖ Laar Humanitarian Development Programme (LHDP)
- ❖ Mercy Corps
- ❖ Muslim Aid
- ❖ OXFAM
- ❖ Pakistan Fisher Forum (PFF)
- ❖ Pakistan Participatory Development Initiatives (PPDI)
- ❖ Pakistan Red Crescent Society (PRCS)
- ❖ Pattan Development Organization
- ❖ Plan International
- ❖ Roots Work
- ❖ Rural Development Policy Institute (RDPI)
- ❖ Sangi Development Foundation
- ❖ Sangi Welfare Society
- ❖ Sindh Agricultural and Forestry Workers Coordinating Organization (SAFCO)
- ❖ Tharparkar Rural Development Programme (TRDP)
- ❖ Worldwide Fund for Nature
- ❖ World Vision
- ❖ Young Sheedi Welfare Organization
- ❖ Yar Muhammad Sameejo Education and Development organization (YMSESDO)