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Monographic issue

The Afghanistan profile of natural and technological disasters

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Letter from the editors

The *Emergency and Disaster Reports* is a journal edited by the Unit for Research in Emergency and Disaster of the Department of Medicine of the University of Oviedo aimed to introduce research papers, monographic reviews and technical reports related to the fields of Medicine and Public Health in the contexts of emergency and disaster. Both situations are events that can deeply affect the health, the economy, the environment and the development of the affected populations.

The topics covered by the journal include a wide range of issues related to the different dimensions of the phenomena of emergency and disaster, ranging from the study of the risk factors, patterns of frequency and distribution, characteristics, impacts, prevention, preparedness, mitigation, response, humanitarian aid, standards of intervention, operative research, recovery, rehabilitation, resilience and policies, strategies and actions to address these phenomena from a risk reduction approach. In the last thirty years has been substantial progress in all the above mentioned areas, in part thanks to a better scientific knowledge of the subject. The aim of the journal is to contribute to this progress facilitating the dissemination of the results of research in this field.

Afghanistan has a long history of conflicts and because of this reason much of the attention given to the country related to the scope of disasters has been focused mainly on the *humanitarian* emergencies affecting the country for decades. However, other types of disasters such as natural or technological disasters have received less attention. This monographic issue of the journal contains an analysis of the profile of natural and technological disasters in the country so that it contributes to a more complete understanding of its overall disaster risk.

Prof. Pedro Arcos, Prof. Rafael Castro
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Abbreviations

ANDMA	Afghanistan National Disaster Management Authority
ARCS	Afghanistan Red Crescent Society
CBOs	Community Based organizations
CDCs	Community Development Councils
CSO	Central Census Office
DDMCs	District Disaster management Committees
DRR	Disaster Risk Reduction
EOC	Emergency Operation Center
HR	Human Resource
IOs	International Organizations
MoPH	Ministry of public health
MRRD	Ministry of Rural Rehabilitation and Development
MOI	Ministry of Interior
NDMC	National Disaster Management Commission
NDMP	National Disaster Management Plan
NDRRP	National Disaster Risk Reduction Plan
NDRP	National Disaster Response and Recovery Plan
NEOC	Emergency Operation Center
NGO	Non-Governmental Organization
PDMCs	Provincial disaster management committees
PDMC	Provincial Disaster management Commission
UN	United Nations
UNDP	United Nation development Program
UNISDR	United Nations' Office for Disaster Risk Reduction
LVAU	Livelihood and Vulnerability Analysis Unit

1. INTRODUCTION

The Islamic Republic of Afghanistan is a mountainous land-locked country located in Central Asia having an area of 647,500 square kilometers and sharing borders with six countries, namely Pakistan, Iran, China, Tajikistan, Uzbekistan and Turkmenistan. The country has 34 provinces. The climate is arid to semi-arid with hot summers and cold winters. It has a few rivers fed by snow melt. It has history and culture that goes back over 5000 years. Throughout its long, splendid, and sometimes chaotic history, this area of the world has been known by various names. In ancient times, its inhabitants called the land Aryana. In the medieval era, it was called Khorasan, and in modern times, its people have decided to call it Afghanistan.

The official languages of the country are Pashto and Dari. The capital of Afghanistan is Kabul. Unfortunately, due to many years of war, this great city has been shattered and nearly destroyed.

The country is vulnerable to multiple naturals and human-induced disasters and it has been recurrently hit by natural and man-made disasters which has led to loss of lives, livelihoods and property. Between 1970 and 1998, the country was hit by 57 large-scale disasters, which led to loss of 19,630 lives and affected approx. 3,361,178 lives (UNDP 2001).

While between 1960 and 2013 the country has experienced 166 large scale natural disasters and 45 Technological disasters (30 Transport accidents, 6 industrial accidents and 9 miscellaneous accidents), (CRED, EM-DAT 2013), with a total of 22,304 persons killed while almost 9.5 million (9,526,615) people affected. The conflict of over three decades has further increased the vulnerability of the people. Due to geological, geo-morphological and hydro-climatology factors, the country is vulnerable to multiple natural hazards. The north-eastern part is vulnerable to medium and large earthquakes, as it lies along an active Indo-Eurasian tectonic boundary.

The rivers are mostly seasonal and fed by snow melt; hence areas adjoining to river flow are vulnerable to floods especially flash floods and landslide. Depletion of forest cover has further aggravated the situation.

It is also vulnerable to avalanches, extreme temperatures and in some parts the temperature goes as low as (-25 ºC). The central and northern provinces are also vulnerable to Locust attack, which leads to crop failure having multiplier effect. The conflicts of over three decades and limited developmental interventions have further aggravated the vulnerability, as infrastructures including communication network, hospitals, roads, etc. along with equipment are essential for quick and effective disaster response.

2. OBJECTIVE

The objective of developing this profile of the Afghan natural and technological disasters is to collect update information about the natural and technological disasters happened during the last 53 years (1960-2013) which is mainly focusing on the following specific objectives:

A. To Identify frequency of disasters happened in the country during the last 5 decades

B. To assess the impact of disasters on the population's lives , economy and general health

C. To determine the main hazards and vulnerability factors present in the country

D. To identify disaster prevention and response strategies implemented by the authorities

E. To identify structure and characteristics of the emergency and disaster response framework in the country

3. METHODOLOGY

The Afghanistan profile of natural and technological disasters has been developed through using the secondary data obtained from the databases and literature reviews.

The national documents developed by Afghanistan National Disaster Management Authority (ANDMA) have been reviewed. The classification & statistics on natural and technological disasters have been adopted from CRED disaster database EM-DAT. Other sources used are mortality surveys, incidence reports, fact sheets, articles, guidelines and Manuals. Maps and information are also obtained through exploring UN OCHA, UNISDR, WHO, Prevention Web, Relief Web, ANDMA, MoPH, gape minder, and Google websites.

4. DISASTERS' HISTORY AND IMPACTS

Afghanistan has been recurrently affected by natural disasters, technological disasters and conflicts causing losses and affects to lives, livelihoods and property. In the past 35 years which has been the era of conflict, has led the country to massive problems of food insecurity and population exodus from the worst hit areas, though the focus of this profile is only on natural and technological disasters.

From 1960 to 2013, Afghanistan has experienced 166 large scale natural disasters and 45 Technological disasters (30 Transport accidents, 6 industrial accidents and 9 miscellaneous accidents), (CRED, EM-DAT 2013), with a total of 22,304 persons killed while almost 9.5 million (9,526,615) people affected. It is important to mention that the last 35 years of conflict has increased the vulnerability of Afghan people to the hazards which in turn make

worst the situation. The figures mentioned above are exclusive of people killed or affected by conflicts for the last more than three decades.

In the recent past, the country has experienced a series of disasters, the sarobi flood and Nangarhar earthquake and a prolonged drought are the examples the country has recently experienced.

Afghanistan is economically a poor country, which has regularly confronted natural disasters as well as those arising as a consequence of prolonged war and conflict. An ethnically, socially and politically complex country, Afghanistan's geo-strategic position at the heart of Asia has contributed both to its rich cultural and historical heritage and an acute vulnerability to the geopolitical interventions of its neighbors throughout its history. As a result of political and military upheavals over the last more than three decades of war, humanitarian factors have played an overriding role in the assistance to Afghanistan. Disasters, therefore, have been primarily viewed from the perspective of humanitarian relief and response rather than from the point of view of longer-term capacity building for risk and vulnerability reduction.

The country has an area of 647,500 km2 with a total Population of 27 million (CSO 2012) with 34 provinces, having no border with sea has protected the country from sea-relevant disasters however the country has been facing the effect of climate which is mostly dry with extremes of cold winters and hot summers.

Earthquakes are frequent in the northern parts of the country and often trigger devastating landslides. Flooding and mudslides are common, particularly in the spring when snow starts melting. Extreme winter conditions and avalanches are also a recurrent feature in the mountainous areas.

4.1 Impacts on human lives

Disaster has affected the direct effects on human lives, in the last more than five decades Afghanistan has been suffered 6 prolonged droughts, which has affected 6,558,000 people while 37 people reported have been killed due to droughts.

Meanwhile the country has faced 29 Earthquakes related disasters which has killed 9,327 people and affected 627,616 others.

Beside, Afghanistan has experienced 73 Floods, which has killed 4,063 while it has affected 1,559,712 other people.

The country has witnessed 16 mass movements (wet and dry) during the past 53 years, which has left 1,267 people killed and 301,782 other people affected.

Storms in turn has also affected the country where the country faced 5 disasters which has killed 362 people and 22,661 other people affected.

The extreme temperature has also hit the country, where the country has had 7 disasters in the last five decades, which has killed 1,934 people and affected 200,268 others.

20 epidemics related disaster has also attacked the country which has killed 3,845 people while affected 254,317 others.

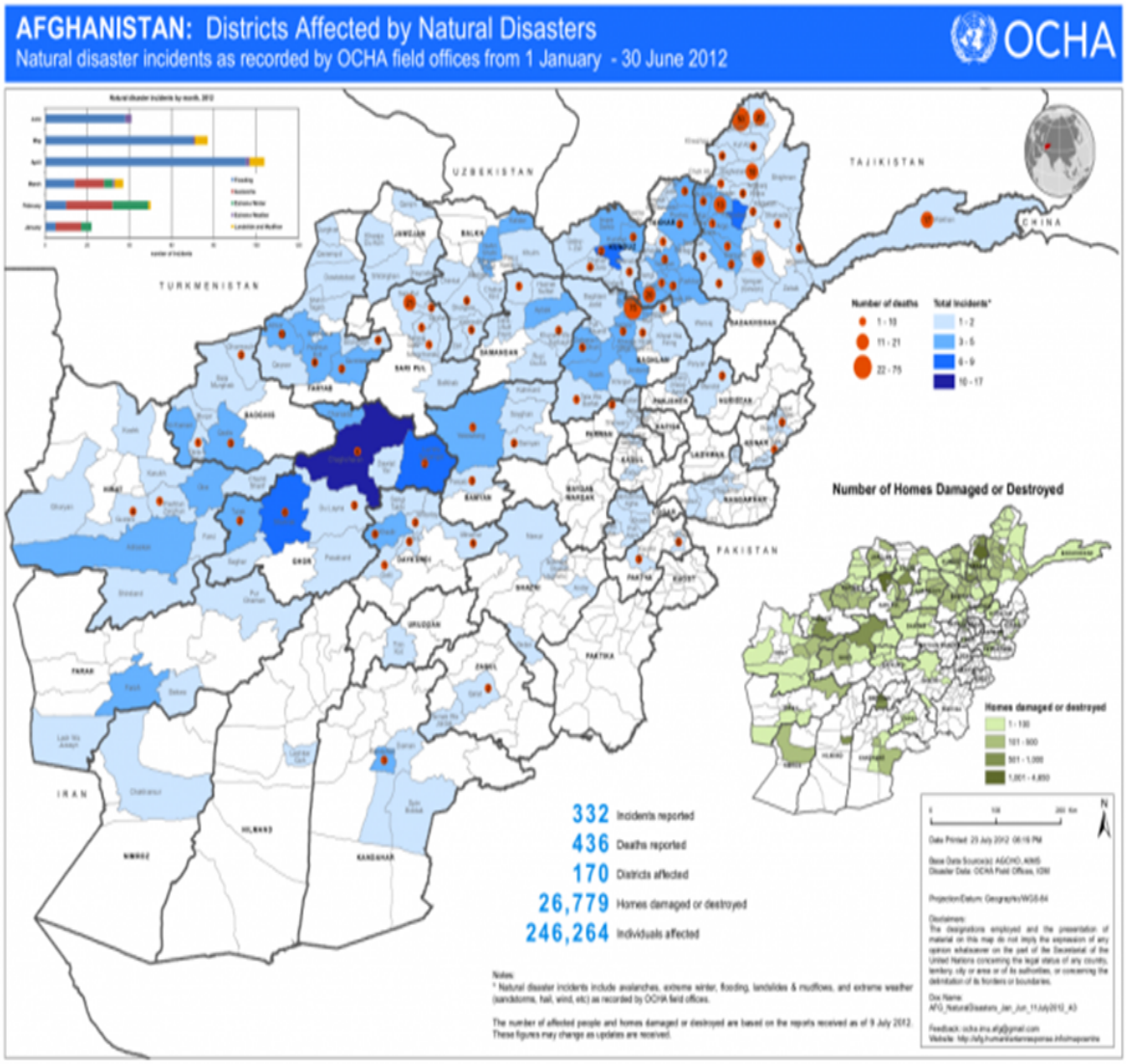


Figure 1: Afghanistan and natural disasters

The technological disasters has affected the country during the last 53 years, among them 30 transport accidents reported killing 971 and affected 289 more people.

Six industrial accidents has been also reported during the mentioned period which has killed 269 people while affected 648 others. Nine miscellaneous technological disasters (Building Collapse, explosion of warehouse and etc…) have been also reported which has killed 229 people while 1,322 others have been affected during the last 53 years.

As a total more than 9.5 million people have been affected by disasters since the 1960s. War and civil conflict has led to adverse effect on the environment thus precipitating greater vulnerability and causing disproportionate levels of loss.

The figures stated above are more likely to be under reported due to the lack of a well-established surveillance system, which could report all killed and affected people. This shortcoming is mainly because of the last more than three decades of conflict and destroyed systems in the country. However by the establishing of Afghanistan National Disaster management Authority (ANDMA) during the last few years the disaster reporting has been improved, as the ANDMA has been performing as a focal point to the United Nations office for Disaster Reduction (UNISDR).

The National Disaster Management Plan (NDMP) of Afghanistan aims to streamline disaster management systems in the country. This includes clearly identifying roles and responsibilities of the National Disaster Management Commission and the Afghan National Disaster Management Authority along with its provincial offices, the Provincial Disaster Management Committee and associated line ministries, NGOs, and International Organizations. The plan lays out operating procedures for risk reduction, response and recovery. It thus lays out principles, structures and procedures for mitigation, preparedness, impact assessment, rescue and relief, and recovery activities. The plan operates within the Law on disaster response, management and preparedness in the Islamic Sate of Afghanistan.

The provisions of this plan primarily apply to a National Emergency Situation, where the capacity of the provincial government has been exceeded and for which the National Commission determines that assistance of the national government is needed to supplement province and local level efforts and capabilities it does not cover conflict related issues such as mine action or civil strife.

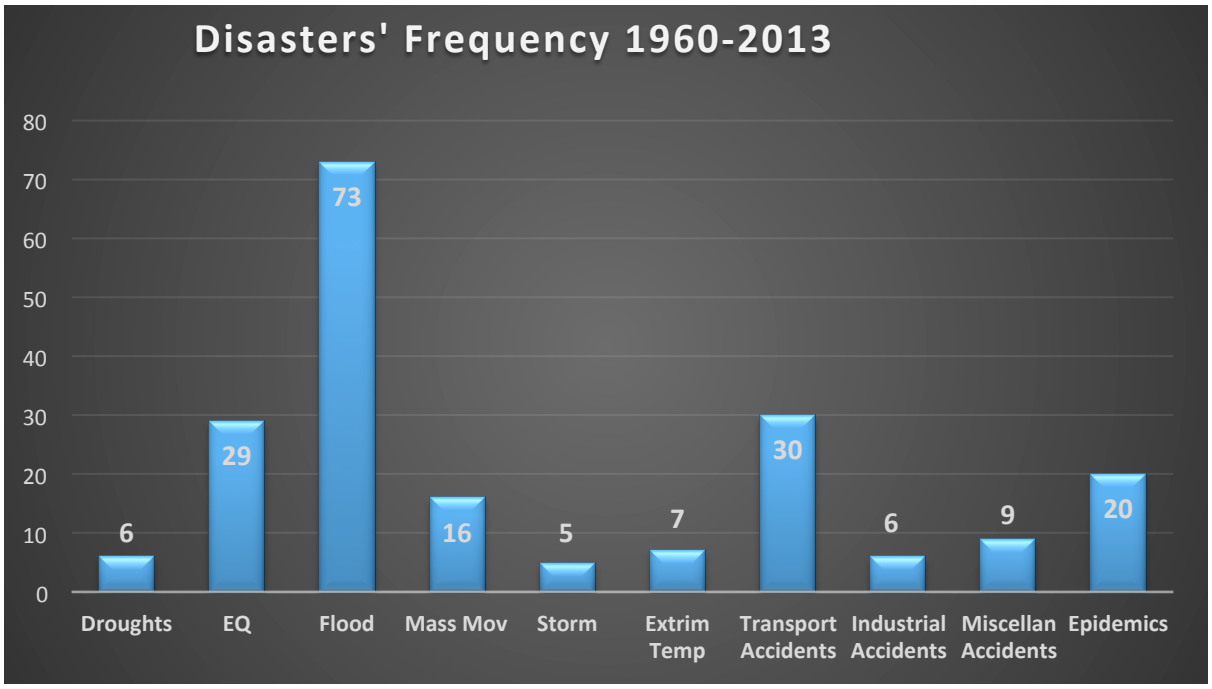
Table 1, below is indicating that Flood with 73 disasters is the most frequent natural disaster, earthquake with 29 disasters, epidemics with 20 and mass movements with 16 disasters are the 2nd, 3rd and 4th frequent natural disasters respectively in the last 53 years.

Disasters' frequency for the last five decades

Years	Droughts	Earthq	Flood	Mass Mov	Storm	Extreme Temp	Epidemics	Transport Accidents	Industrial Accidents	Miscellan Accidents
1960-69	1	0	1	0	0	0	0	0	1	0
1970-79	1	1	3	1	0	0	0	0	0	0
1980-89	0	3	2	1	0	0	0	2	0	0
1990-99	0	10	12	5	1	2	4	6	2	**1**
2000-09	3	12	41	4	3	4	16	14	2	**7**
2010-13	1	3	14	5	1	1	0	8	1	**1**
Total	**6**	**29**	**73**	**16**	**5**	**7**	**20**	**30**	**6**	**9**

Table 1 Disasters' frequency (CRED/EM-DAT)

Graph 1, below shows the frequency of disasters. The numbers of technological disasters are 30 cases for transport accidents and 6 for industrial cases in the last 53 years.



Graph 1: Disasters' frequency (EM-DAT)

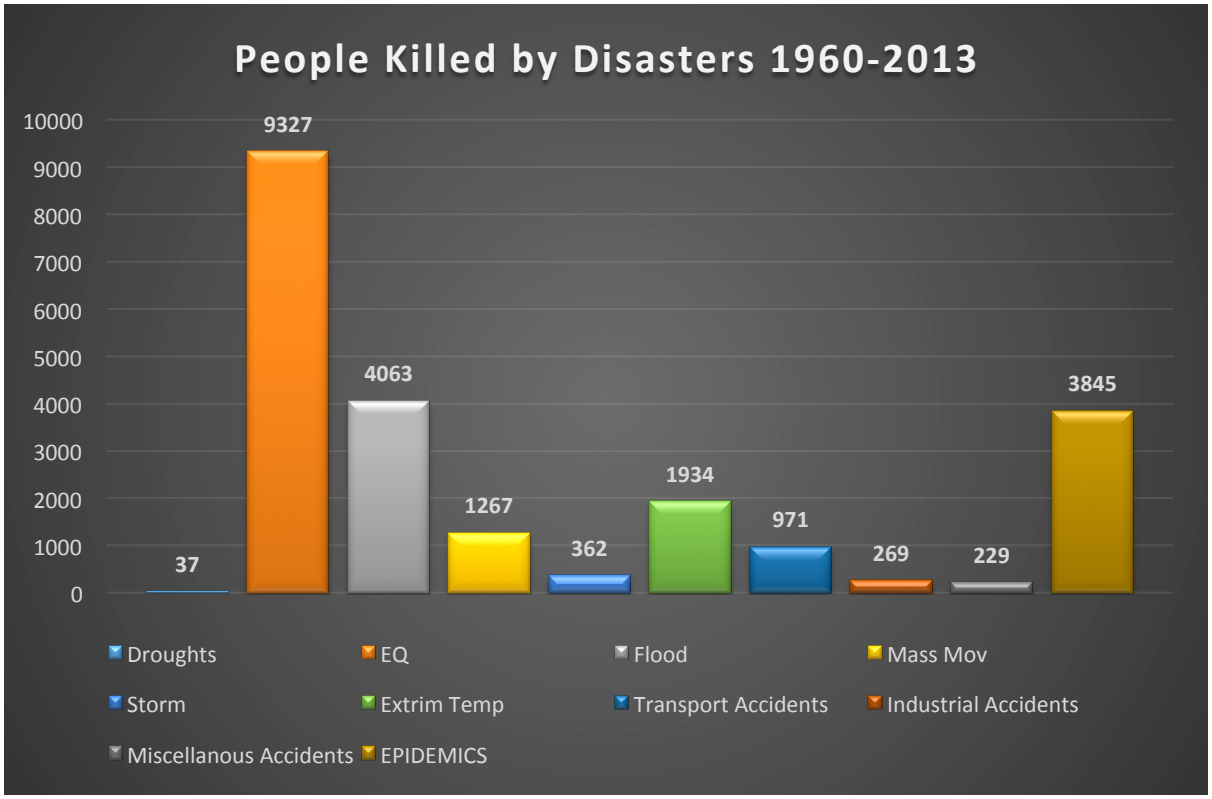
Table 2,below is indicating the earthquake as a leading killer disaster in Afghanistan which has killed 9,327 people, the 2nd killer disaster was flood, killing 4,063 while the 3rd was epidemics by killing 3,845.

People killed by various disasters during 1960-2013

Years	Droughts	Earthqk	Flood	Mass Mov	Storm	Extreme Temp	Epidemics	Transport Accidents	Industrial Accidents	Miscellaneous Accidents
1960-69	0	0	107	0	0	0	0	0	74	0
1970-79	0	50	321	100	0	0	0	0	0	0
1980-89	0	513	0	70	0	0	0	61	0	0
1990-99	0	7426	1990	739	10	224	320	267	100	40
2000-09	37	1236	1175	43	331	1665	3525	366	67	124
2010-13	0	102	470	315	21	45	0	277	28	65
Total	**37**	**9327**	**4063**	**1267**	**362**	**1934**	**3845**	**971**	**269**	**229**
Total killed by all disasters									**22,304**	

Table 2 Total killed by all disasters (CRED/EM-DAT)

The numbers of peopled killed by various types of disaster are reflected in the Graph 2 below



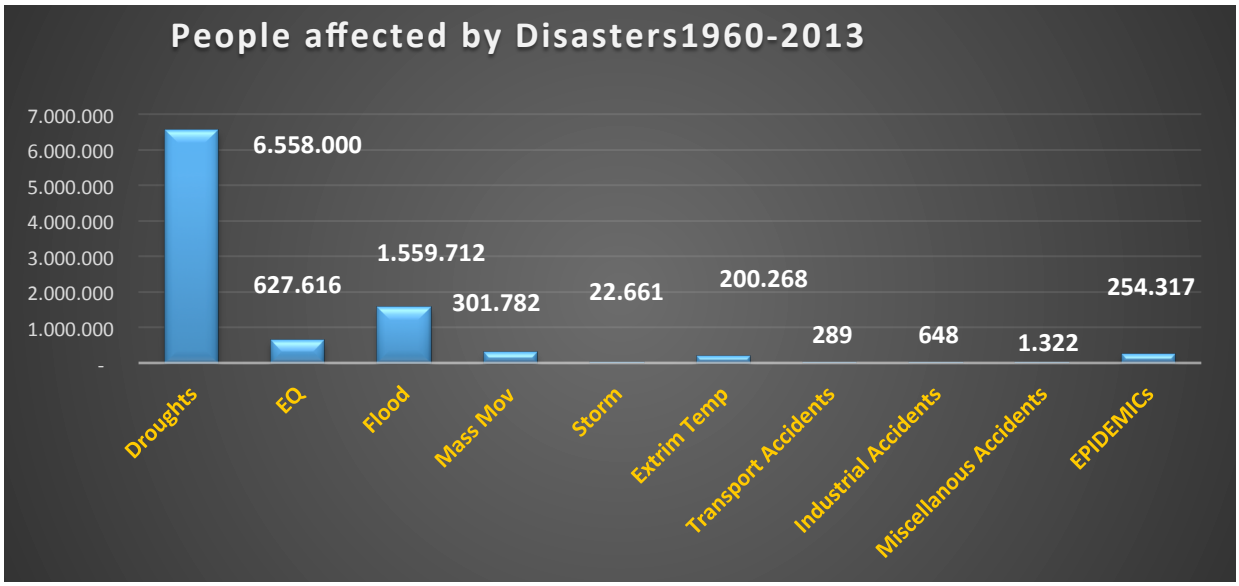
Graph 2: Killed people (EM-DAT)

Affected by Natural and technological disasters during 1960-2013 period

Years	Droughts	Earthqk	Flood	Mass Move	Storm	Extreme Temp	Epidemic	Transport Accidents	Industrial Accidents	Miscellan Accidents
1960-69	48000	0	0	0	0	0	0	0	400	0
1970-79	0	90,000	601,684	0	0	0	0	0	0	0
1980-89	0	72,538	191,000	0	0	0	0	0	0	0
1990-99	0	352,293	182,305	1174	0	200	36,485	0	205	0
2000-09	4,760,000	107,947	159,042	300432	22656	200,000	217,832	200	43	1307
2010-13	1750000	4,838	425,681	176	5	68	0	89	0	15
Total	**6,558,000**	**627,616**	**1,559,712**	**301,782**	**22661**	**200268**	**254,317**	**289**	**648**	**1322**
Total affected by all disasters									**9,526,615**	

Table 3 People affected by Natural and Technological disasters (CRED/EM-DAT)

However looking to the table 3, it clearly state that most of the people have been affected due to droughts while flood and earthquakes are the 2nd and 3rd respectively. Then come epidemics which has affected 254,317 people. The figures of the table 3 has been illustrated below in Graph 3.



Graph 3: Affected people (EM-DAT)

4.2 Impacts on economy:

Though there are less information available to show the economic damage related to the disasters because of the disruption of the surveillance system due to conflict and due to lack of the insurance for properties, however as per the EM-DAT there are few information showing the economic damage for the disasters. During this reporting period 589 million US$ damage has been reported only from top ten natural disasters which includes to 4 disasters of flood, 1 drought, 4 earthquakes and 1 storm.

The disasters together with the conflict has had bad adverse effects on the economy of the country and individuals, the income per person (GDP/Capita) is 1350$ for Afghanistan in 2013, while the GDP/capita for Pakistan is 2,681 and 3117 for Uzbekistan which are both neighbor countries.

4.3 General impacts:

The above mentioned natural and technological disasters together with the last more than 30 years conflict has left visible impacts on the country. Life expectancy rate that despite has been improved since last one decade, however it is still very low with 61 which is the lowest as compared to the six neighboring countries.

Literacy rate, of 38 for adult total (% of people ages 15 and above) which is one of the lowest in the world only better than Chad and Mali.

Maternal mortality which has grossly improved from 1600/100,000 live births to 327/100,000 Live births but is still among the worst figures for maternal mortality in the world. Child Mortality of 99/1000 Live births is a high mortality for the children under five years age, this is also the worst among the neighbor countries.

The above situations are as a result of various factors in the country in which the disasters has also contribution.

Natural disasters:

According to the (CRED,EM-DAT), during the period 1900-2013,the following natural disasters has been most catastrophic individually , (table 4) is showing the top 10 natural disasters in the period of last 113 years. Earthquake in 1998 had killed 4700 people, while epidemics in 2002 killed 2500 as an individual one hazard. For more detail refer to the (table 4) below.

Top 10 Natural Disasters in Afghanistan by numbers of killed, 1900-2013

Disaster	Date	No of people Killed
Earthquake (seismic activity)	30.05.1998	4,700
Epidemic	10.04.2002	2,500
Earthquake (seismic activity)	04.02.1998	2,323
Earthquake (seismic activity)	10.06.1954	2,000
Extreme temperature	05.01.2008	1,317
Earthquake (seismic activity)	25.03.2002	1,000
Flood	28.05.1991	728
Epidemic	01.01.2000	507
Earthquake (seismic activity)	16.12.1982	500
Flood	31.09.1992	450

Table 4: Killed by top 10 natural disasters (EM-DAT)

In term of single natural disasters that affected most of the people during 1900-2013, the drought is at the top 3 of the top 10 list of natural disaster, for more detail refer to the table 5 below.

Top 10 Natural Disasters in Afghanistan by numbers of total affected, 1900-2013

Disaster	Date	No Total Affected
Drought	01.05.2000	2,580,000
Drought	01.07.2006	1,900,000
Drought	01.01.2011	1,750,000
Mass movement wet	13.01.2006	300,000
Drought	01.10.2008	280,000
Flood	01.07.1978	271,684
Flood	01.01.1972	250,000
Epidemic	01.01.2002	200,000
Extreme temperature	01.05.2008	170,684
Flood	01.06.1988	161,000

Table 5: Affected by top 10 Natural disasters (EM-DAT)

Table 6 shows the top 10 economic damages by disaster for the period 1900-2013, in which 1988 flood ,2011 drought and 1991 flood has the leading damages to the country.

Top 10 Natural Disasters in Afghanistan by economic damage costs, 1900-2013

Disaster	Date	Damage (000 US$)
Flood	01.06.1988	260,000
Drought	01.01.2011	142,000
Flood	06.02.1991	60,000
Flood	01.07.1978	52,000
Earthquake (seismic activity)	10.06.1956	25,000
Flood	25.03.2009	20,000
Earthquake (seismic activity)	04.02.1998	10,000
Earthquake (seismic activity)	30.05.1998	10,000
Earthquake (seismic activity)	02.02.1984	5,000
Storm	01.01.2005	5,000
Total		**579,000**

Table 6: Damage for top 10 Natural disasters (EM-DAT)

Summarized Table of Natural Disasters in Afghanistan from 1900 to 2013

Disasters	Types	No of Events	Killed	Total Affected	Damage (000 US$)
Drought	Drought	6	37	6,558,000	142,250
	Ave. per event		6.2	1,093,000	23,708
Earthquake (seismic activity)	Earthquake (ground shaking)	31	11427	629,616	54,060
	ave. per event		368.6	20,310	1,744
Epidemic	Unspecified	7	2775	7,372	-
	ave. per event		396.4	1,053	-
	Bacterial Infectious Diseases	7	340	40,627	-
	ave. per event		48.6	5,804	-
	Parasitic Infectious Diseases	1	-	200,000	-
	ave. per event		-	200,000	-
	Viral Infectious Diseases	5	730	6,318	-
	ave. per event		146	1,264	-
Extreme temperature	Cold wave	5	572	200,200	10
	ave. per event		114.4	40,040	2
	Extreme winter conditions	2	1362	170,752	-
	ave. per event		681	85,376	-
Flood	Unspecified	12	681	793,304	312,000
	ave. per event		56.8	66,109	26,000
	Flash flood	17	838	51,246	4,000
	ave. per event		49.3	3,015	235
	General flood	45	2595	415,162	

					80,000
	ave. per event		57.7	9,226	1,778
Insect infestation	Locust	1	-	-	-
	ave. per event		-	-	-
Mass movement dry	Avalanche	1	100	-	-
	ave. per event		100	-	-
Mass movement wet	Avalanche	11	585	608	-
	ave. per event		53.2	55	-
	Landslide	4	582	301,174	-
	ave. per event		145.5	75,294	-
Storm	Unspecified	3	299	22,656	5,000
	ave. per event		99.7	7,552	1,667
	Local storm	2	63	5	-
	ave. per event		31.5	2.5	-
Wildfire	Forest fire	1	-	-	-
	ave. per event		-	-	-

Table 7: summarized table for natural disasters (EM-DAT)

Technological disasters

According to the (CRED,EM-DAT), during the period 1900-2013,the following technological disasters has been most catastrophic individually , (table 8) is showing the top 10 technological disasters in the period of last 113 years. Transport accident is remained at the top 3 list as an individual one hazard consequence. For more detail refer to the (tables 8, 9, 10).

Top 10 Technological Disasters in Afghanistan for the period 1900-2013 by numbers of killed

Disaster	Date	No Killed
Transport Accident	03.02.2005	104
Transport Accident	10.08.1990	82
Transport Accident	27.04.1993	76
Industrial Accident	12.06.1964	74
Miscellaneous accident	27.10.2010	65
Industrial Accident	16.02.1996	60
Transport accident	14.09.2012	51
Transport Accident	20.03.1998	45
Transport Accident	08.06.2002	45
Industrial Accident	02.05.2004	45

Table 8: Killed by technological (EM-DAT)

Top 10 Technological Disasters in Afghanistan for the period 1900 to 2013 sorted by numbers of total affected people

Disaster	Date	No Total Affected
Miscellaneous accident	29.03.2005	1,000
Industrial Accident	12.06.1964	400
Industrial Accident	16.02.1996	125
Miscellaneous accident	09.08.2002	90
Industrial Accident	19.03.1997	80
Miscellaneous accident	20.03.2004	80
Miscellaneous accident	02.05.2005	70
Transport Accident	06.08.2002	64
Miscellaneous accident	29.09.2000	40
Transport Accident	24.09.2007	40

Table 9: Affected by technological (EM-DAT)

Summarized Table of Technological Disasters in Afghanistan from 1900 to 2013

Disaster	Type	# of Events	Killed	Total Affected	Damage (000 US$)
Industrial Accident	Collapse	2	50	18	-
	ave. per event		25	9	-
	Explosion	4	219	630	-
	ave. per event		54.8	157.5	-
Miscellaneous accident	Collapse	4	151	1055	-
	ave. per event		37.8	263.8	-
	Explosion	4	66	187	-
	ave. per event		16.5	46.8	-
	Other	1	12	80	-
	ave. per event		12	80	-
Transport Accident	Air	17	581	26	-
	ave. per event		34.2	1.5	-
	Road	13	390	263	-
	ave. per event		30	20.2	-

Table 10: Summarized of effects by technological (EM-DAT)

4.4 Disasters and Development

For a long time the cause and effect relationship between disasters and social and economic development was ignored. Ministries of Planning and Finance and other development planners did not concern themselves with disasters. At best, development planners hoped that disasters would not occur and, if they did, were most effectively handled by relief from donor countries and relief organizations. Development programs were not assessed in the context of disasters, neither from the effect of the disaster on the development program nor from the point of whether the development programs increased either the likelihood of a disaster or increased the potential damaging effects of a disaster.

Disasters were seen in the context of emergency response-not as a part of long term development planning. When a disaster did occur, the response was directed to emergency needs and cleaning up. Communities under disaster distress were seen as unlikely places to institute development. The post-disaster environment was seen as too turbulent to promote institutional changes aimed at promoting long term development.

The growing body of knowledge on the relationships between disasters and development indicates four basic themes. The themes are explained as follows:

A. Disasters set back development programming destroying years of development initiatives, Infrastructure improvement e.g. Transport and utility systems are destroyed by a flood.

B. Rebuilding after a disaster provides significant opportunities to initiate development programs.

   - A self-help housing program to rebuild housing destroyed by an earthquake teaches new skills, strengthens community pride and leadership and retains development money that otherwise would be exported to large construction companies.
   - That is 'based on the lesson learned to build back better'

C. Development programs can increase an area's susceptibility to disasters.

   - A major increase in livestock development leads to overgrazing, which contributes to desertification and increased vulnerability to famine.

D. Development programs can be designed to decrease the susceptibility to disasters and their negative consequences.

   - Housing projects constructed under building codes designed to withstand earthquake which result in less destruction during the next earthquake.

Decision-makers who ignore these relationships between disasters and development do a disservice to the people who place their trust in them. Increasingly, around the world, forward thinking Ministries of Planning and Finance with the support of United Nations and Non-Governmental Organization (NGO) officials are assessing development projects in the context of disaster mitigation and are designing disaster recovery programs with long term development needs in mind.

Disruption of Development by Disasters

Disasters can seriously disrupt development initiatives in several ways, including:

a. Loss of resources

b. Interruption of programs

c. Impact on investment climate

d. Impact on the non-formal sector

e. Political destabilization

a. Loss of Resources

Development resources are lost when a disaster wipes out the products of investment or it shortens the life of development investments. The disasters affect development through:

- Impact on capital stock
- Loss of production and provision of services due to disruption and increased cost of goods and services
- The secondary effects of the disaster include inflation, balance of payment problems, and increase in fiscal expenditure
- Other indirect losses, for example: the impact on a country's debt position could be that as the debt service burden increases, the country has less resources available to invest in productive enterprises
- The outcome of these losses of resources include loss of economic growth, delays to development programs, cancellation of programmes, and discouragements to new investment
- There may also be a shift in skilled human resources toward high visibility recovery activity-a diversion from long-term to short-term needs.

b. Interruption of Programs

Disasters interrupt ongoing programs and divert resources from originally planned uses.

c. Impact on Investment Climate

Disasters, especially when they have occurred repeatedly within a short period of time, have a negative impact on the incentive for further investment. Investors need a climate of stability and certainty to be encouraged to risk their money. The disaster further clouds the investment picture when it has caused loss of employment, thereby depressing market demand, and resulting in a stagnation which limits overall growth.

d. Impact on Non-Formal Sector

Disasters have special negative impacts on the non-formal sector where approximate costs of disasters are often underestimated. Disasters depress the non-formal economy through the direct costs of lost equipment and housing (which often also serves as business sites). The indirect costs of disasters include lost employment, and lost income. Sometimes the importation of relief items creates disincentives to producers.

e. Political Destabilization

The stress to a country caused by a disaster often results in the destabilization of the government. This may occur for several reasons. For example, the government may have mismanaged the disaster relief and recovery, leading to discontent on the part of affected communities. Or the survivors may have had unmet expectations which, for whatever reason, translate into some form of protest. The government could also become the scapegoat for problems beyond its control, again leading to its possible downfall.

Development May Cause Disasters

The side effects of development efforts sometimes have disastrous consequences. Development projects implemented without taking into account existing environmental hazards may increase vulnerability to natural disasters.

Some types of development projects commence without fully assessing their impact on the environment. This can occur even in programmes resulting from a disaster, such as reconstruction projects that increase demand for wood to fortify houses. The resulting deforestation can then bring increased vulnerability to mudslides and possibly long-term environmental changes.

Development projects may even consciously force a choice between reducing disaster vulnerability and economic vulnerability. A project's design may require a trade-off between the two and force a decision between the lesser of two evils.

Development Opportunities afforded by Disasters

Few development workers realize the opportunities that disasters can provide in the development field. Disasters often create a political and economic atmosphere wherein extensive changes can be made more rapidly than under normal circumstances. For example, in the aftermath of a disaster, there may be major opportunities to execute land reform programmes, to improve the overall housing stock, to create new jobs and job skills, and to expand and modernize the economic base of the community - opportunities that would not otherwise be possible. The collective will to take action is an advantage that should not be wasted.

Disasters can also highlight high-risk areas where action must be taken before another disaster strikes. The realization of vulnerability can motivate policy-makers and the public to participate in mitigation activities. Disasters may also serve to highlight the fact that the country is seriously under-developed. They can thus bring in funding and the attention of donor communities to apply to long-term development needs. (Henderson, 1990)

5. DISASTERS HAZARD AND VULNERBILITY

Basic Concepts of Hazards and Disasters

Disaster is a serious disruption of the functioning society with widespread human, material, or environmental losses which exceed the ability of affected society to cope using only its own resources. Natural disasters involve largely geological and climatic hazards. In human-made disasters the main direct causes are identifiable human actions. If the event like earthquake, land-slide and others happen with no human or property losses are not called disasters, it is only hazards.

5.1 The hazards

Afghanistan is categorized as one of the least developed countries (LDCs) in the world. The climate is mostly dry with extremes of cold winters and hot summers. The terrain consists mostly of rugged mountains in the central and east, and plains in the north and southwest. Desert covers the south and west of the country. The national economy, which has been badly damaged by decades of conflict, is based mainly on agriculture.

North-eastern part of Afghanistan is vulnerable to medium and large earthquakes, as the country lies along an active tectonic boundary called Indo - Eurasian boundary. Most of the epicenters were in the north eastern part of the country. It covers Baghlan, Badakhshan, Takhar and Samangan provinces (Figure 2).

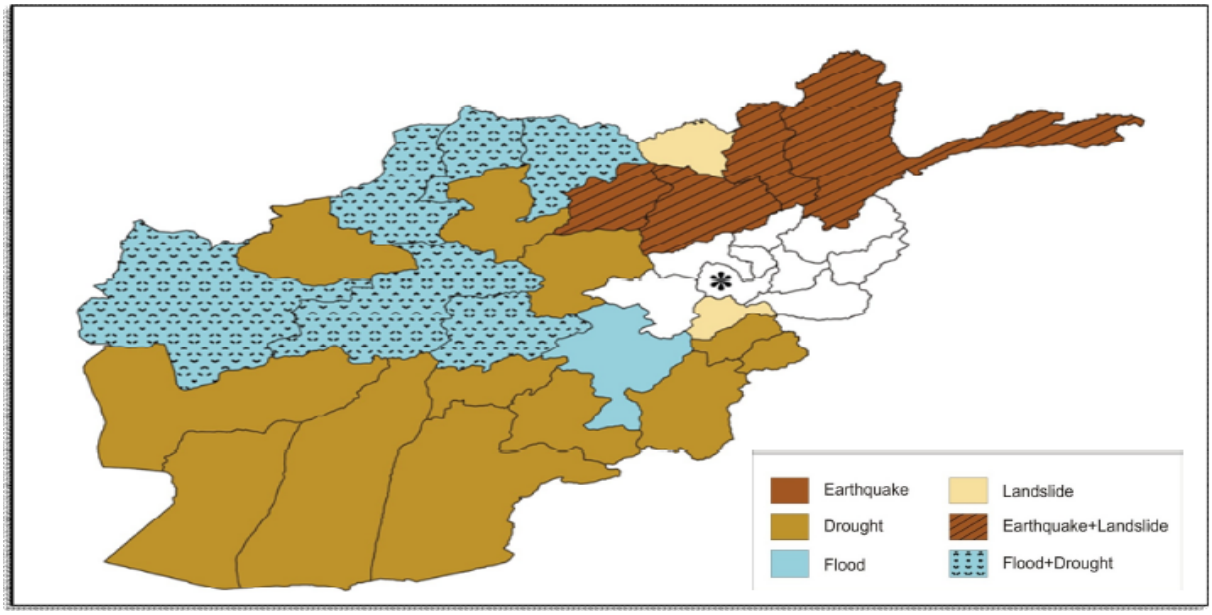


Figure 2 High Hazard Vulnerability provinces of Afghanistan

Historical data shows that Kabul city is also very much vulnerable to earthquakes. This densely populated city is at high risk due to rapid urbanization (leading to unsafe construction), and people living in city are highly vulnerable.

Afghanistan has been vulnerable to the Hydrological hazards importantly floods while mass movements, droughts and extreme weather has been affecting the country as well. In Afghanistan, winter floods start in January and continue till May.

21 out of 34 provinces in the country are vulnerable to floods (Ref. South Asia Disaster Report 2008). The South west part of Afghanistan is highly drought prone, and the Western and central belt is highly flood affected. However the South West and few northern provinces of Afghanistan (Herat, Ghor, Urozgan, Jozjan, Balkh and Faryab) are severely affected by both, flood and drought. With extremes of climate and tough geo-physical conditions, vulnerability of the communities is also high.

In recent decades, this vulnerability has been further aggravated due to conflict and limited development activities. With severe drought conditions as witnessed well below normal rainfall from year 2000-2009.

Drought combined with conflict has created a large internally displaced population that is living in extremely poor conditions. Many communities still depend on meager incomes derived by migrating outside their farmlands. Based on the beneath categories of hazards, there are several provinces which lie under the Multi Hazard High Risk Zone.

There are marked distinctions in hazard patterns. Earthquake and Landslide are of concern in the northern regions. Being mountainous, these regions have poor accessibility further increasing the vulnerability of populations. Central region of Afghanistan experiences floods and droughts recurrently. The southern region is primarily drought prone.

The main hazards that have for centuries adversely affected the lives, property and livelihoods of Afghan people are earthquakes, droughts, floods, landslides, epidemics, extreme winter conditions and avalanches, and sand or dust-storms. While the hazards which has affected the country during the last 5 decades (53 years) are: Drought, Earthquakes, floods, mass movements (dry and wet), extreme temperatures, storms and epidemics.

There are several hazard types for which there is a widespread concern in the Islamic republic of Afghanistan and these hazards can be categorized as follows:

- Natural (Drought, Earthquake, Flood, Epidemics, Mass Movement, storm and Extreme temperature)
- Technological (Transport Accidents, Industrial accidents (Collapse and explosions)
- Man-Made (Wars and Conflict)

Hazard Category	Hazards' group	Events in Afghanistan (1960-2013)	Definition
Natural	Geophysical	Earthquakes, Mass Movement dry	Events originating from solid earth
	Metrological	Storm	Caused by small to meso scale atmospheric processes (in the spectrum of minute-days)
	Climatological	Extreme Temperature, Drought	Caused by meso to large scale atmospheric process(in the spectrum from intra-seasonal to multi-decadal climate variability)
	Hydrological	Flood, Mass Movement (Wet)	Caused by variations in the normal water cycle and/or overflow of bodies of water caused by wind set-up
	Biological	Epidemic, Insect Infestation	Caused by the exposure of living organisms to the germs and toxic substances
Technological	Technological	Transport accidents (Road, Air), Industrial accidents(Collapse, explosion,	System failure, Accidents, spillage, collapse, explosion, fire
Man-made	Wars and conflict	Armed Aggression, Insurgency, Terrorism	

Table 11: Hazards classifications

Particular Hazards and Disasters

The basic characteristics of certain types of disasters and emergencies and appropriate response measures can be structured in the Islamic Republic of Afghanistan as follows:

5.1.1 Earthquakes:

Earthquakes in Afghanistan are mostly abundant in and near the north-eastern part of the country where the effects of the plate collision between India and Eurasia are most pronounced. In this region, tectonic forces have created the mountains of the Hindu Kush and Pamir along with frequent moderate to large earthquakes.

Probability of occurrence can be determined but not exact timing. Forecasting is based on monitoring of seismic activity, historical incidence, and observations. Afghanistan and the surrounding region contain very few modern seismograph stations. As a result, it is difficult

to detect and accurately locate earthquakes. To address this United State Geological Survey (USGS) with collaboration of Kabul University re-established the Kabul Seismic Station in 2006 after a 20-year gap. This station till a critical gap in the global coverage of modern, high sensitivity seismographs and data from it are transmitted in real time to the USGS and its partners.

Data from the station allow us to better determine the location, size and depth of earthquake throughout southern Asia and give us new insight into the characteristics and frequency of Afghanistan's earthquakes.

Factors Contributing to Vulnerability

- Location of settlements in seismic areas
- Structures which are not resistant to ground motion. Not having the earthquakes resistant buildings, having mud-made houses, not respecting the earthquakes resistance during construction, lack of awareness of the public or the factors which has increased the vulnerability of people to the consequences of this hazard.
- Dense collections of buildings with high occupancy. Dense collection of buildings and people in the urban areas are due to increasing insecurity in the rural areas, job opportunities in the urban areas, resources availabilities in term of electricity, schools and etc... In the urban areas, people have densely living in the cities which has increased the vulnerability of the people to the disasters.
- Lack of access to information about earthquake risks.

As a result of these vulnerability factors, the public are exposed to damage or loss of structures or infrastructure, accompanied landslides, high casualties and injuries especially near highly populated areas with less-resistant building. Secondary threats due to landslides, flooding, contaminated water supply, or breakdown in sanitary conditions.

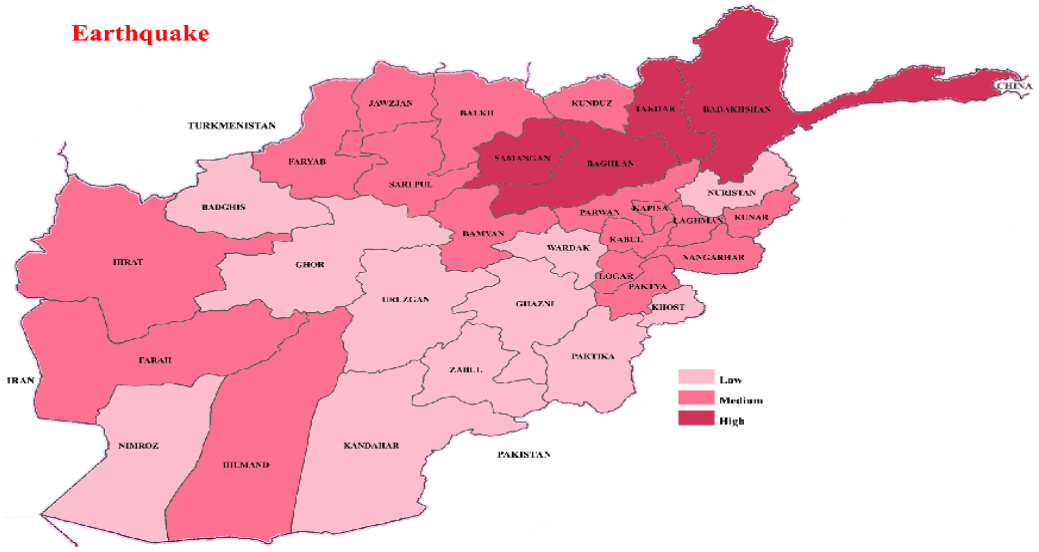


Figure 3: Earthquakes

Possible Risk Reduction Measures:

- Hazard mapping: Recently USGS with the collaboration of Afghanistan Geological Survey (AGS) has developed a preliminary Seismic Hazard Map of Afghanistan. The report and map was unveiled at the Afghanistan Embassy in Washington DC on May 2007. The map will help the government to design new roads, much needed dams and power plants, even schools and clinics**.**

- Public awareness programs and training:
- Assessing and reducing structural vulnerability
- Land use control or hazard zoning, building codes
- Insurance
- Earthquake warning and preparedness programs as a specific preparedness measure

5.1.2 Mass Movements

Along the highways of Kabul-Torkham, Kabul-Tashkurghan-Mazar, Badakhshan, Takhar, Baghlan Kunduz, Balkh, Samangan and Logar the events of landslides are more frequent. Mass Movements may vary in types of movement (falls, slides, topples, lateral spread, flows), also may vary by type as wet (landslides, stone falls, avalanches) or maybe dry in some cases like dry avalanches as happened in march 1993 in the salang region killed 100 people. Frequency of occurrence, extent and consequences of mass movements may be estimated and areas of high risk determined by use of information on area geology, geomorphology, hydrology and climatology.

Figure 4: Mass Movements

Factors Contributing to Vulnerability

- Settlements built on steep slopes, softer soils, cliff tops
- Settlements built at the base of steep slopes, on mouths of streams from mountain valleys
- Roads, communication lines in mountain areas. As most of the highways in Afghanistan are going side by side with the mountains which has made the road unsafe in term of mass movement especially during raining and earthquakes
- Buildings with weak foundations
- Lack of understanding of landslide hazard

As a result of mass movements, there will be damage to anything on top of or in path of mass movements. Rubble may block roads, lines of communication or waterways. Indirect effects may include loss of productivity of agricultural or forest lands, flooding, reduced property values. These events has killed many in the country during the last 53 years. As per the CRED database, 16 mass movements has occurred during the last 53 years which has killed 1,267 people and has affected 301,782 others.

Possible Risk Reduction Measures:

- Hazard mapping
- Legislation and land use regulation
- Insurance
- Community education
- Monitoring, warning and evacuation systems

5.1.3 Floods

Naturally occurring general and flash flooding from intense rainfall or inundations associated with seasonal weather patterns. In contrast to the earthquake and landslides, floods are most common in the south, south-western and eastern regions of the country.

Almost all provinces have been hit by the flood during the last five decades. Zabul, Daykundi, Urozgan, Helmand, Samangan,Nimroz,Jawzjan,Ghazni,Nangarhar,Badghis, Urozgan, Farah, Pakitka, Panjshir, Kapisa,Badakshan,Kunduz,Faryab,Wardak,Kabul, Khost, Kunar, Paktia, Ghor,Parwan, Kandahar,Balkh,Takhar,Saripul,Baghlan,Kapisa, Laghman and Herat are the provinces hit by flood during the last 53 years.

Usually the flash floods are resulted from the heavy raining in the mountainous areas and river floods are resulting from the rivers overflows seasonally and during raining.

Flood forecasting depends on seasonal patterns, capacity of drainage basin, flood plain mapping, surveys by air and land. Warning is possible well in advance for seasonal floods, but only minutes required in case of flash flood

Factors Contributing to Vulnerability

- Location of settlements on floodplains
- Lack of awareness of flood hazard
- Reduction of absorptive capacity of land (erosion, concrete)
- Non-resistant buildings and foundations, especially mud-made houses with weak foundations
- High risk infrastructural elements
- Unprotected food stocks and standing crops, livestock

Floods have been damaging houses, infrastructures, roads, bridges, by washing them away, becoming inundated, collapsing, and impact of floating debris. Landslides from saturated soils and damage is greater in valleys than open areas.

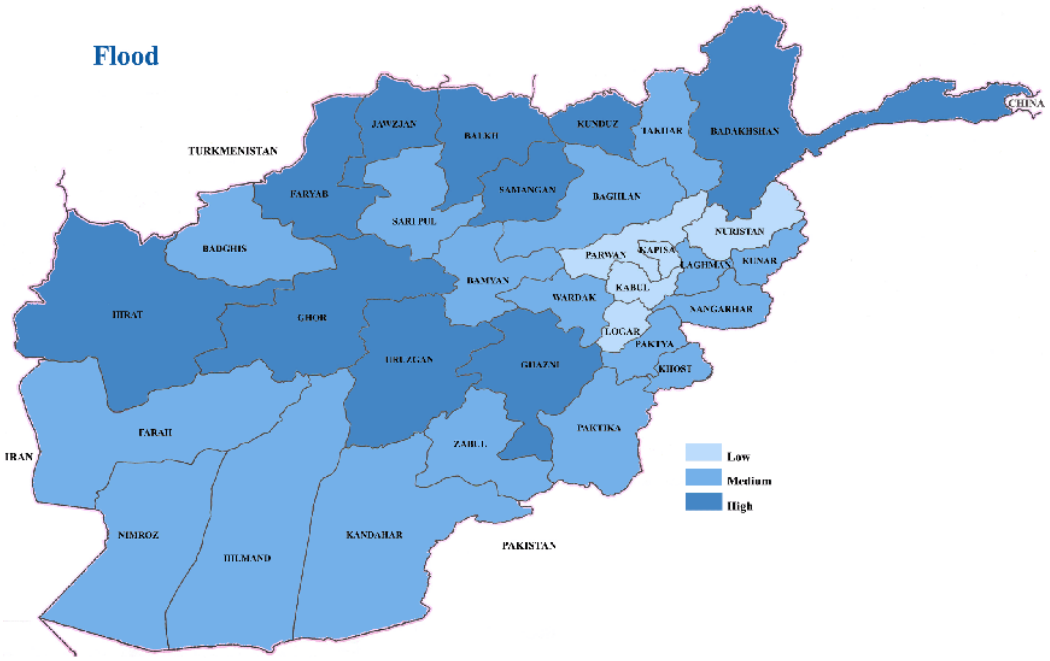


Figure 5: Floods

It is causing deaths from drowning and also serious injuries. It is resulting in possible outbreaks of malaria, diarrhea and viral infections as it is contaminating the drinking water. The flash floods are washing away the agricultural land, crops and food supplies. In addition the Harvests and food stocks may be lost to inundation.

Possible Risk Reduction Measures

- Flood control (channels, dikes, dams, flood-proofing, erosion control), floodplain mapping, land use control.
- Flood detection and warning systems
- Community participation and education
- Development of master plan for floodplain management

5.1.4 Droughts

Droughts are caused by meso to large scale atmospheric process in the spectrum from intra-seasonal to multi-decadal climate variability which is related to long term rainfall deficit. Periods of unusual dryness are normal in all weather systems. Rainfall and hydrology data must be carefully analyzed with influencing factors in predicting drought, however, advance warning is usually possible.

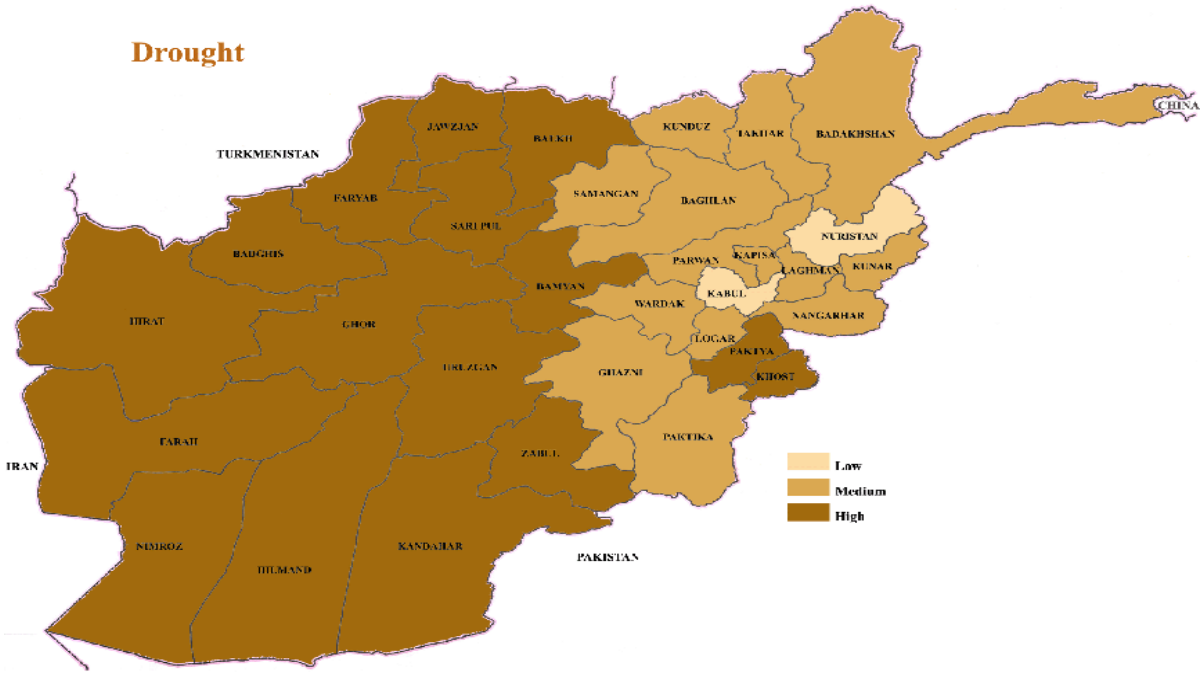


Figure 6: Drought

Factors Contributing to Vulnerability

- Location in an arid area where dry conditions are increased by drought
- Farming on marginal lands, subsistence farming
- Lack of agricultural inputs to improve yields
- Lack of seed reserves
- Areas dependent on other weather systems for water resources
- Areas of low soil moisture retention
- Lack of recognition and allocation of resources to drought hazard

The effects of drought on the public are in term of reduced income for farmers; reduction of spending from agricultural sector; increase in price of staple foods, increased inflation rates, deterioration of nutritional status, famine, illness, death, migration, break-up of communities, loss of livestock.

Possible Risk Reduction Measures

- Drought and famine early warning systems
- Development of inter-institutional response plan

5.1.5 Epidemics

Epidemics are due to exposure to a toxin resulting in pronounced rise in number of cases of parasitic or infectious origin.

It is caused due to unsanitary conditions, crowding, poverty, ecological changes that favor breeding of vector, non-immune persons migrate to endemic disease area, decline in nutritional status and contamination of water or food supplies.

General Characteristics

- Risk of introduction or spread of the disease
- Possible large number of cases
- Severe disease leading to disability or death
- Risk of social or economic disruption
- Lack of adequate professional personnel, needed supplies
- Danger of international transmission

Epidemics may increase due to rise in travel or migration, reports of epidemics may increase due to better medical coverage. Prediction is assisted by epidemiological studies but may be constrained in newly formed settlements or emergency camps.

Factors Contributing to Vulnerability

- Poverty
- Lack of immunity (or vaccination) to diseases
- Poor nutrition, poor sanitation, poor water quality, crowding
- Poorly organized health care delivery
- Epidemics are causing illnesses, deaths, social and political disruption and economic losses

Possible Risk Reduction Measures

- Structuring an emergency health service
- Preparing a contingency plan with inventory of required resources
- Establishing an early warning system through routine surveillance
- Training of national staff in emergency operations
- Intervention measures - Verify and confirm diagnosis; identify cases; find source of epidemic; treat cases and control spread
- Community health education

5.1.6 Deforestation

Deforestation contributes to other hazards and are because of the spreading farming, grazing, fire wood collection, timber harvesting and illegal exporting of woods.

It contributes to other hazards by

- Removing root systems which stabilize soil, acting as a filter and buffer, allowing penetration of water into soil and retaining moisture in soil.
- Removal of leaf biomass and forest products

An increase in global focus on the hazard is expanding data base leading to an increased awareness of the problem and to identifying where the problem exists. Overall, the global trend is decreasing as conservation measures are enacted but destruction of forests has been alarming in Afghanistan.

Factors Contributing to Vulnerability

- Underdevelopment
- Dependence on wood for fuel and income
- Unregulated logging and land clearance
- Rapid population growth
- Rapid expansion of settled or industrialized areas

Typical Adverse Effects:

Deforestation results in loss of free products from the forest such as fruits and medicines, and decline in traditional cultures. It stresses economies which import forest products and are dependent on wood products. It contributes to other hazards, such as:

- Flooding - Deforestation of watersheds can increase severity of flooding, reduce stream flows, dry up springs in dry seasons and increase sediment entering waterways.
- Drought - Removal of roots and leaf canopy can alter moisture levels drying soil and decreasing precipitation.
- Famine - Decrease in agricultural production due to erosion of topsoil and collapse of hillsides may lead to food shortages.
- Desertification - Deforestation and removal of vegetation lead to soil compaction and reduction of land productivity.

- Environmental pollution - Increases contamination of soil and water and reduces carbon dioxide absorption capacity. Burning of forests and decay of trees releases carbon dioxide to the air, possibly contributing to global warming.

Possible Risk Reduction Measures

- Protection of forests through management, legislation, conservancies
- Reforestation
- Education of the communities
- Promoting alternatives to fuel wood
- Soil conservation measures

5.1.7 Desertification

Desertification is contributing to other hazards such as drought, it is basic conducive climatic conditions such as low or uncertain rainfall and higher temperatures as found in dry land areas. It is because of poor land use management practices particularly over-cultivation overgrazing, deforestation and poor irrigation practices.

General Characteristics

- Soil degradation by water erosion, wind erosion and soil compaction
- Degradation of vegetation initially by reduction in density of biomass and then by change of vegetation types to less productive

Global surveillance of dry-lands can be achieved through remote sensing and aerial surveys. As land use increases without measures to conserve soil and vegetation, desertification will likely increase. One estimate claims globally 202,000 square km are decertified each year.

Factors Contributing to Vulnerability

- Low rainfall and high temperatures
- Heavy land use
- Deforested areas
- Poor irrigation management
- Lack of conservation measures

- Poverty and lack of appropriate agricultural technologies

Typical Adverse Effects

- Desertification contributes to other hazards by reducing the productivity of the land. These include drought and famine. Reduced productivity has socioeconomic impacts and may reduce standards of living.

Possible Risk Reduction Measures

- Establish community programs to meet needs and improve practices and institutions
- Increase monitoring of desertification
- Develop policies for sustainable agricultural systems
- Develop agricultural institutions and train personnel
- Promote projects to improve agricultural and livestock production
- Promote soil and water conservation

5.1.8 Pest infestations

It is an increase in pest numbers due to one or a combination of ecological factors including temperature, monoculture of crops, introduction of plants to new locations, introduction of pest species, overcoming genetic resistance in host, overcoming pesticide effects, conducive weather patterns, and migration

General Characteristics

Plants can be damaged in various ways such as consumption of parts, tunneling in stems, attack of root systems, and injection of toxins.

Pest forecasting determines whether application of a pesticide will be cost effective, by examining the stages of development of the crop and the pest and by determine the economic threshold.

Factors Contributing to Vulnerability

- Large numbers and varieties of pests
- Lack of controls on imported plant products
- Constraints on resources to predict and treat pest infestations

- Insufficient crop yields in normal times
- Areas inaccessible to surveillance for pests
- Underdevelopment of agricultural technologies

Typical Adverse Effects

- Crop losses could lead to food shortages, even famine, and stress economic systems.

Possible Risk Reduction Measures

- Integrated pest management employing appropriate methods of physical control, cultural control, crop plant resistance, biological control, legislation, chemical control and possibly eradication.
- Establishing a national plan for pest control
- Training for government personnel and extension to farmers

5.1.9 Transport and Industrial Accidents

Transport and industrial related accidents are caused due to:

- Accidents during the transportation of chemicals, or dangerous fuels (benzenes)
- Accidents between two vehicles, or crashing of a vehicle or an airplane
- Improper waste management of toxic chemicals
- Technological system failures, collapsing of buildings

Incidences of chemical and industrial accidents are expected to increase as industrialization increases in developing countries.

Factors Contributing to Vulnerability:

- Those persons, structures, livestock, crops, and environment closest to the scene of an accident are more vulnerable, however, large scale releases of airborne pollutants may spread for hundreds of kilometers
- One side roads on highways lead to transport accidents
- Lack of safety features or lack of evacuation plan
- Unawareness by vulnerable persons of the potential danger

These accidents causes casualties, many are being killed and injured, destruction to the structures and infrastructure. Transportation accidents damage vehicles and other objects on impact. Industrial fires may reach high temperatures and affect large areas.

Industrial accidents causes contamination of air, water supply and land. Ecological systems may be disrupted even on a global scale.

Possible Risk Reduction Measures

Development of a plan, such as the APELL (Awareness and Preparedness for Emergencies at the Local Level) process, to assist decision makers and technical personnel to improve community awareness of hazardous installations and aid them in:

- preparing disaster response plans
- Hazard mapping
- Placing and implementation of traffic rules
- Construction of 2nd road on highways
- Hazardous materials identification
- Inspection of chemical plants and storage facilities
- Monitoring toxic waste disposal procedures
- Improve firefighting capacity
- Monitoring pollution levels
- Prepare and practice evacuation plans
- Test warning sirens

Other hazards are dust or sand storms, which are exacerbated by the removal of vegetation cover and cause considerable damage to farmland and villages.

Degradation of the fragile physical environment is continuing. For example, only 3 per cent of the land area is now under forest or woodland and soil erosion is widespread.

Afghanistan is a medically high-risk country with chronic poor health care and poor sanitation conditions. There have been outbreaks of infectious diseases, such as cholera, pertussis, acute watery diarrheal syndrome, acute hemorrhagic fever, cutaneous leishmaniasis, acute respiratory syndrome, measles and viral hepatitis.

War and civil conflict during the past more than three decades, as well as environmental degradation, have increased the vulnerability of the Afghan people to natural disasters. The high level and extent of poverty, lack of livelihood and income generating opportunities, chronic health problems, poor state of the infrastructure (especially roads and irrigation systems), and poor water and sanitation systems, add to the burden of natural disasters on the people of Afghanistan. The process of development itself, with no long-term preparedness and mitigation measures in place to reduce people's vulnerability and ensure sustainable development, often exacerbates the impact of disasters.

5.2 Vulnerability

Vulnerability is a broad term that is used variously to apply to people, communities, livelihoods, food supplies, community assets, or property. The term is also used to describe factors that affect the ability of the community or individuals to respond to natural hazards or extreme events. Vulnerability contributes to the severity of hazard impacts and inhibits or slows down effective response.

Vulnerability is the measure of the negative cultural, social, economic, and environmental factors and unsafe conditions that put people at risk of a disaster when hazard occurs. The high level of poverty, lack of livelihood and income generating opportunities**,** chronic health problems, and poor state of infra- structure and very limited knowledge of likely hazards and risks, all contribute to increasing vulnerability of Afghan people in relation to natural hazards. This is further enhanced by rapid urbanization, unplanned developments in town & city areas and difficult accessibility in rural areas. Risk is high in Kabul city. The population of Kabul has rapidly increased since 2001, with this the structural and inherent vulnerabilities have also got multiplied. The health and associated infrastructure is poor. The access is the lowest in more centrally located provinces of Ghor, Diakundi, Urozgan and Zabul.

The Ministry of Rural Rehabilitation and Development (MRRD), with UN assistance, established the Livelihood and Vulnerability Analysis Unit (LVAU), which is charged with promoting systematic and comprehensive vulnerability analysis across sectors and between agencies. LVAU works closely with UN agencies (UNICEF, UNHCR, FAO/WFP, WHO). MRRD also coordinates an Inter-Ministerial Commission consisting of four ministries, namely MOPH, Agriculture, Urban Planning and MRRD. The National Surveillance System (within MRRD) conducts assessments and contribute to more tightly targeted humanitarian assistance. This type of information also provides a basis to better design and implement long-term vulnerability and disaster reduction projects in areas of highest risk.

The establishment of a surveillance facility will allow for continual updates of vulnerability and livelihood situations, and so improve disaster preparedness and response. The results of the Vulnerability Analysis Review were published in September 2002. The Review aimed to:

1. Provide an accessible overview of key issues for decision makers, on the basis of available information; and

2. Promote the national and local coordination of multiple stakeholders as part of the process of jointly identifying information, initiatives, and emerging issues, and their strategic implications.

The Review identified eight vulnerable groups in Afghanistan, which are briefly described below.

The vulnerable groups identified by the LVAU Review are:

1. Critically poor and livelihood insecure households: Of the estimated national population major part are living outside the cities, 25% of the national population are critically poor. The measurement criteria used for insecurity was food (cereal) and to a less extent livestock. Cash for work reduces the risk if food relief is inadequate and does not reach the poor.

2. Critically poor urban households: The percentage of critically poor and insecure urban households is not known, but three categories of urban poor families were defined:

(i) Those living in open spaces;

(ii) Those living in derelict houses; and

(iii) Vulnerable families living in houses but in need of heating assistance.

There is lack of national information about the livelihood strategies and nutritional status of vulnerable urban households. Income and employment generation activities can help support livelihoods for both urban and rural areas. If the focus is on the urban areas only, then the cities can become magnets for vulnerable groups in surrounding regions.

3. Cold Season (winter) vulnerable households: The implementation of "winterization" programme has started for people who are considered as especially vulnerable during the winter due to isolation (accessibility problems for rural areas), as IDPs and returnees, and vulnerable urban population. The Government has recognized that the winter season creates a potential disaster situation for vulnerable groups.

4. Returnees: The economic re-absorption of returnees and their socio-political reintegration is a tough challenge. Livelihood opportunities for rural returnees may be limited, yet failure to create the conditions for the sustainable reintegration of the returnees into rural areas could accelerate urbanization.

5. Internally displaced people: Many IDPs require humanitarian support, and with few income earning opportunities available, the number of highly vulnerable people is very high in the country.

6. The Kuchis: The Kuchi (Nomad) population is very vulnerable to the drought. Their vulnerability is highest in the South and Southwest part of the country.

7. Disabled People: There are an estimated 0.8m-1.0m disabled people in Afghanistan. The high number is due to malnutrition, poor maternal health, inadequate access to health care, and mine accidents (150-300 victims per month).

8. Poppy Growing Households: In 2002, around 65,000 ha of opium poppies were grown, providing many households with their main source of livelihood, credit and source of security. Eliminating poppy growing and replacing it with and more acceptable income sources competes against the needs of the other vulnerable groups listed above and considerably adds to the costs of the Government's development programme.

In Afghanistan, Internally Displaced Persons (IDPs) are more than 10% of total population of Afghanistan. The vulnerability of communities has been further aggregated in recent decades due to the conflict and very limited development activities. As a result, people of Afghanistan have to face frequent household shocks. The prolonged war has not only left nation with direct casualties, but it has also destroyed coping capacity of government as well as communities.

Vulnerability indicators	Laghman	Nangarhar	Paktika	Khost	Ghor	Daikundi	Urozgan	Zabul	Ghazni	Kunarha	Bamyan	Nooristan	Takhar	Kunduz	Sar-e-pul	Badghis	Kandadahar	Helmand	Paktya	Parwan	Kabul	Kapisa	Baghlan	Farvab	Jozjan	Balkh	Samangan	Badakshan	Logar	Wardak	Fararh	Nimroz	Herat	Panisher
Poverty	H	H	H	H	H	H	L	L	H	H	H	H	M	M	M	M	L	L	H	L	L	L	M	M	M	M	M	M	L	L	M	L	M	L
Population density	H	H	L	H	L	L	L	L	M	M	L	L	M	H	L	L	L	L	M	H	H	H	M	M	M	M	L	L	M	M	L	L	L	L
Illiteracy	H	M	H	M	M	M	H	H	M	M	M	M	H	M	H	H	H	H	L	L	L	L	M	M	M	L	M	M	M	M	M	M	L	M
Access to health facility	M	M	M	L	H	H	H	H	M	M	M	M	L	L	M	M	M	M	L	L	L	L	M	M	L	L	M	M	M	M	M	M	L	L

Note - In the above Table, H (High), M (Medium) and L (Low) legends have been allotted based on the following vulnerability criteria:

- Poverty (Poverty Headcount Rate, > 44 % - High, Poverty Headcount Rate, 35 to 44% - Medium, Poverty Headcount Rate , < 35% - Low).
- Population Density (per sq.km), Pop. Density, 100 and > - High, Pop. Density, 40 to 99 - Medium, Pop. Density, < 40 - Low.
- Illiteracy (Illiteracy Rate, < 15%, - High, Illiteracy Rate, 15 to 30% - Medium, Illiteracy Rate, > 30%, - Low).
- Access to health facility (taking > one hour), population % > 75% - High, population % 25 to 75% - Medium, population % > 25% - Low.

Figure 7: Vulnerability Profile of Afghanistan (Province Wise)

CAUSAL FACTORS OF DISASTERS

The magnitude of each disaster, measured in deaths, damage, or costs for a given developing country increases with the increased marginalization of the population. This is caused by problems of land tenure and economic opportunity, and the lack or misallocation of resources to meet the basic human needs of an expanding population. As the population increases, the best land in both rural and urban areas is taken up, and those seeking land for farming or housing are forced to accept inadequate land. These offer less productivity and a smaller measure of physical or economic safety. The following section considers each of these issues.

5.2.1 Poverty

The most important single influence on the impact of a disaster is poverty. All other factors could be lessened if the affected population were not also limited by poverty. Virtually all disaster studies show that the wealthiest of the population either survive the disaster unaffected or are able to recover quickly. Across the broad spectrum of disasters, poverty generally makes people vulnerable to the impact of hazards. Poverty explains why people in urban areas are forced to live on hills that are prone to landslides, or why people settle near rivers that invariably flood their banks. Poverty explains why droughts claim poor peasant farmers as victims and rarely the wealthy, and why famines more often than not are the result of a lack of purchasing power to buy food rather than absence of food. Increasingly, poverty also explains why many people are forced to move from their homes to other parts of their countries or even across borders to survive. Such crisis-induced migration poses considerable challenges both in terms of immediate assistance to the displaced and of longer-term development.

5.2.2 Population Growth

There is an obvious connection between the increase in losses from a disaster and the increase in population. If there are more people and structures where a disaster strikes, then it is likely there will be more of an impact. The growth of population has been so spectacular that it is predictable that more people will be affected by disasters because more will be forced to live and work in unsafe areas. Increasing numbers of people will be competing for a limited amount of resources (such as, employment opportunities, and land) which can lead to conflict. This conflict may result in crisis-induced migration. Such growth occurs predominantly in developing countries, resulting in various contributors to disasters.

5.2.3 Rapid Urbanization

Rapid population growth and migration are related to the major phenomenon of rapid urbanization. This process is also accelerated in developing countries. It is characterized by the rural poor or civilians in an area of conflict moving to metropolitan areas in search of

economic opportunities and security. These massive numbers of urban poor increasingly find fewer options for safe and desirable places to build their houses. Here again, competition for scarce resources, a predictable consequence of rapid urbanization, can lead to human-made disasters. (*For instance, Kabul and other bigger cities in Afghanistan have got influx of rural inhabitants which is leading to social and environmental problems*)

5.2.4 Transitions in Cultural Practices

Many of the unavoidable changes that occur in all societies lead to an increase in the societies' vulnerability to disasters. Obviously, all societies are constantly changing and in a continual state of transition. These transitions are often extremely disruptive and uneven, leaving gaps in social coping mechanisms and technology. These transitions include nomadic populations that become sedentary, rural people who move to urban areas, and both rural and urban people who move from one economic level to another. More broadly, these examples are typical of a shift from non-industrialized to industrializing societies.

5.2.5 Environmental Degradation

Many disasters are either caused or exacerbated by environmental degradation. Deforestation leads to rapid rain run-off, which contributes to flooding. The creation of drought conditions - and the relative severity and length of time the drought lasts - is mainly a natural phenomenon. Drought conditions may be exacerbated by: poor cropping patterns, overgrazing, the stripping of topsoil, poor conservation techniques, depletion of both the surface and subsurface water supply, and, to an extent, unchecked urbanization. However in Afghanistan, deforestation, overgrazing and unsystematic usage of surface and ground water is severely causing degradation of the environment of the country. The compounded effect of these factors causes erosion of top soil which normally leads to flooding.

5.2.6 Lack of awareness and information

Disasters can also happen because people vulnerable to them simply don't know how to get out of harmful way or to take protective measures. This ignorance may not necessarily be a function of poverty, but a lack of awareness of what measures can be taken to build safe structures on safe locations. *(For example in June 2007, there was a flash flood which occurred in north-east of Kabul destroying or damaging dozen of houses due to the inappropriate site selection for housing.)* Perhaps some people did not know about safe evacuation routes and procedures. Other populations may not know where to turn for assistance in times of acute distress. Nevertheless, this point should not be taken as a justification for ignoring the coping mechanisms of the majority of people affected by disasters. In most disaster-prone societies, there is a wealth of understanding about disaster threats and responses. This understanding should be incorporated into any efforts to provide external assistance.

5.2.7 War and Civil Conflict

War and civil strife are regarded as hazards -- that is, extreme events that produce disasters. War and civil strife often result in displaced people, creating complex emergencies. The causal factors of war and civil strife include competition for scarce resources, religious or ethnic intolerance, illiteracy and ideological differences.

6. DISASTER PREVENTION AND RESPONSE STRATEGIES

In order to identify the mitigation and prevention activities at national level and to place it in the policies, so the national disaster reduction plan has been developed:

6.1 National Disaster Risk Reduction Plan (NDRRP)

The objective of National Disaster Risk Reduction Plan (NDRRP) is to identify the mitigation and prevention activities at National level and institutionalize the same, in line with National Disaster Management Policy of Afghanistan. NDRRP will fulfill the need to develop sustainable and comprehensive Mitigation framework to ensure systematic incorporation of DRR elements into development process in order to reduce the risk factors.

National Disaster Risk Reduction Plan is an effort to reduce the impact of disasters on people and property. After the institutionalization of National Disaster Risk Reduction Plan, comparatively lesser people and communities would be moderately affected by natural disasters.

6.1.1 Disaster Risk Reduction initiatives and activities, in line with HFA priorities

Afghanistan is among the 168 countries signatory to the Hyogo Framework for Action (HFA) 2005 – 2015. The overall objective of the HFA is to build resilience of nations and communities to disasters, by achieving substantive reduction of disaster losses in lives, and in social, economic, and environmental assets of communities and countries. In the recent years Government of Afghanistan has made some progress in disaster risk reduction.

Towards the first priority of HFA, which focuses on the DRR institutionalization and mainstreaming, Government of Afghanistan has developed the:

- Afghanistan National Development Strategy (ANDS) 2008 -2013,
- National Solidarity Programme,
- National Area Based Development Programme and
- The National Emergency Employment Programme (NRAP).

The draft National Disaster Mitigation Policy has been also developed. However, there is also a growing need that the existing mechanisms need strengthening in order to make the process truly effective on the ground. For achieving this, National Disaster Risk Reduction Plan will focus on the greater involvement and commitment of province governments and

district administration in delegation of power and resources from Majlis to Shuras for DRR (involving the officials, NGOs, professional bodies).

On the second priority of HFA, which is Early Warning, a comprehensive and precise approach is needed to review and enhance existing early warning mechanisms in the country. The existing system will need focus on building capacity of local community on early warning dissemination and response management.

The issue of using knowledge, innovation & education to build a culture of safety (HFA priority No. 3), has been acknowledged by Government of Afghanistan.

To build the capacity and strengthen research institutions/ organizations/ schools in the country, a detailed capacity needs assessment is needed to identify key areas for enhancing knowledge and capacity building efforts in the country.

To integrate DRR into areas of concern including – poverty, internally displaced population, civil strife and environmental degradation (which is linked with HFA priority No.4), conscious efforts with various agencies and Ministries to address risk reduction concerns are needed.

To strengthen the disaster preparedness for effective response at all levels (as per HFA Priority No. 5):

- The disaster management committees should be functional from Province to District level. And then :
- The respective disaster management plans of all 34 Provinces, and 412 districts should be prepared and finalized.

6.1.2 Strategic Interventions under NDRRP

In line with the overall vision and objectives of the NDMP and the priorities for Afghanistan identified under the HFA, the following strategies are proposed under the NDRRP:

- Assess and monitor risk conditions in the country, especially hotspots
- Time bound programmes on risk reduction in the country
- Continuous training for disaster actors in national and provincial offices
- Promotion of knowledge and awareness products on risk reduction
- Engagement with key national stakeholders on incorporating DRR in development Programming

6.1.3 Proposed time bound approach towards promoting DRR objectives

A time bound programme towards comprising programmes and activities contributing towards goals of the HFA has been proposed herein. 2010 has been taken as the base-line year for assessing existing capacity at national level.

6.2 Key Roles and responsibilities of concerned Ministries under NDRRP

The following roles have been identified for various Ministries under the NDRRP

i. Ministry of Rural Rehabilitation and Development (MRRD)

- ✓ Integration of risk reduction in planning and implementation of development and rehabilitation projects, through close cooperation and consultation with Community Development Councils (CDC) and District Development Assembly (DDA),which helps in vulnerability reduction, poverty eradication and livelihood improvement at the community level
- ✓ Accessibility to districts-villages and inter-village roads, access roads and related passes for movements.
- ✓ Construction of roads through contracting with CDCs taking into consideration vulnerability reduction.

ii. National Environmental Protection Authority

- ✓ Prevent soil erosion, deforestation, overgrazing and rehabilitation of green cover.
- ✓ Conservation of water resources and monitoring of environmental sanitation
- ✓ Assessment of disaster impact on environment
- ✓ Prevention of environmental degradation, monitoring of chemical factories, control of know –how energy production and monitoring of greenhouse gases emission.

iii. Ministry of Energy and Water

- ✓ Take steps for strengthening of flood protection walls and canals before the flood season
- ✓ Keep watch on hydraulic infrastructures and flood protective works
- ✓ strengthening of river banks against flood threats
- ✓ Water regulation and undertaking the implementation of irrigation projects taking into consideration the mainstreaming disaster risk reduction into the development process

- ✓ Ensure efficient management of flood forecasting and improve procedure of flood forecasts including operationalizing Flood Information Centre in the flood season every year.
- ✓ Collect all the information on weather forecast, water level of all rivers and other water
- ✓ Establishing early warning system on sudden water level raising for public alertness

iv. Ministry of Urban Development

- ✓ Preparation of building codes and based on this undertaking practical steps in monitoring of designing, site selection and implementation of the construction of higher buildings and housing resistant to earthquake
- ✓ Design of housing and ensure the implementation of the city master plans taking into consideration the risk reduction
- ✓ Take precautionary steps for the protection of property against possible loss and damage during disaster
- ✓ Prepare technical guidelines for line agencies, NGOs, private sectors, and individuals for all reconstruction activities under rehabilitation programmes
- ✓ Assessment of citizen vulnerability and ensure accountability for prevention of life and property loss

v. Ministry of Education

- ✓ Inclusion of disaster related subjects in the curriculum in schools to capacitate community, especially growing children and youth, about the natural hazards.
- ✓ Undertake school safety initiatives and organize teachers and students, take them to Shuras, as volunteers and inspire them for risk reduction & mitigation.
- ✓ Ensure that construction of all educational institutions in earthquake zones is earthquake resistant.

vi. Ministry of Public Health (MoPH)

- ✓ Preventive measure and surveillance against epidemics diseases and biological events.
- ✓ Develop an emergency preparedness plan within the health sector.
- ✓ Train volunteers on emergency preparedness in line with National Disaster Management Plan such as first aid and preventive measure against diseases in disaster prone areas

- ✓ Carry out technical assessment and stock taking on health infrastructure availability and need which will help vulnerability reduction and strengthening the local communities

vii. Ministry of Agriculture and Livestock

- ✓ Taking preventative measures against the possible impact of drought in the future
- ✓ Establishment, training, and dispatching of veterinary teams with equipment and medicines
- ✓ Integration of risk reduction in agricultural land use
- ✓ Undertaking campaign against plant diseases and locust attacks
- ✓ Vaccination campaign for protection of livestock against contagious diseases.

6.3 National Disaster Response & Recovery Plan (NDRP)

The objective of National Disaster Response Plan (NDRP) is to determine the emergency preparedness and response activities at the National level and institutionalize the same, at local level, in coordination with Afghanistan National Disaster Management Authority (ANDMA).

Response Plan should include all the necessary measures to provide immediate response to affected people by undertaking search, rescue and evacuation measures. The NDRP will also include all the necessary measures to provide immediate relief to the affected people in terms of their essential needs of food, drinking water, health & hygiene, clothing etc.

For the effective and prompt disaster response, the following features will be taken into consideration:

- Convene emergency, preparedness meetings of the National Commission to discuss situation and updates.
- Establishment of cluster approach at national level for sector-wise response to disasters
- Inform, mobilize, coordinate national level humanitarian actors for effective response and recovery
- Ensure early warning issued to areas likely to be affected, is reached
- To carry out the rapid/ quick need Assessment, nodal agency ANDMA will be authorized to use the advance means of transportation/ mobility and the latest techniques, to cover aerial survey, for gathering information.
- Arrange for mobilization and channelization of funding and resources to affected areas.

6.3.1 Emergency Declaration

The declaration of emergency depends upon the nature and size of the disaster. The normal practice is that the province level emergency is declared by the Province Governor will declare the emergency.

In case the emergency is beyond the capacity of provincial management, national level emergency is declared by President of Afghanistan on the recommendations of the National Commission in the event of catastrophic disasters beyond the capacity of the Provincial Government.

Levels of Emergency

Provincial Emergency is the situation which overwhelms the capacity of the district to manage the situation, the district will request for assistance to Province through province office of the ANDMA. In this situation an emergency will be declared by the Governor of the Province. Actions and responsibilities are as under:-

Actions to be taken at Province level:

- Activate Province EOC
- Inform concerned National OC about the situation
- Alert and inform all line departments in the concerned district
- Conduct damage and loss assessment in the affected areas
- Immediately initiate relief work in the affected area
- Share assessment report with PDMC and request for assistance for emergency operation
- Mobilize and deploy resources.
- Make request to PDMC for financial assistance
- Coordinate and facilitate CBOs and NGOs for relief operation

National Emergency Situation In case emergency/disaster is beyond the capacity of Provincial/ regional government, the national emergency situation will be declared by the President of Afghanistan. Appeal will be launched internationally for the assistance. Actions and responsibilities are as under: - Actions to be taken at the National Level:

- Activate National EOC

- Convene meeting of the National Commission
- Support provinces/regions in conducting damage/loss assessment in the affected area
- Share assessment report with National Commission
- Support provincial/regional and district authorities in resource mobilization for relief operation
- Provide technical support to provincial/regional and district authorities for relief operation
- Coordinate with Armed Forces at for assistance
- Prepare situation report on daily and weekly basis and share with relevant stakeholders and President.
- ANDMA to prepare report for National Commission for financial assistance.
- Coordinate INGOs, NGOs, UN and other international humanitarian organization, philanthropists for effective response
- Inform public about the situation through media briefings
- Coordinate with Cluster System for effective response

6.3.2 Emergency Operations Centre (EOC)

Emergency operation center will be hub of all the activities related with disaster response in the country.

Emergency Operations Centers at the Centre, Province and the disaster site are the designated focal points that will coordinate overall activities and the flow of relief supplies from the Centre.

The aim of EOC at the National level shall be to provide centralized direction and control of any or all of the following functions:

- Emergency operations
- Communications and warning
- Requesting additional resources during the disaster phase from neighboring province of the affected area

- Coordinating overseas support and aid

- Issuing emergency information and instructions specific to Central ministries; consolidation, analysis, and dissemination of Damage Assessment data and preparation of consolidated reports.

7. INSTITUTIONAL FRAMEWORK

The institutional framework of disaster management for Afghanistan, comprises a National Disaster Management Commission (hereafter called the National Commission), as the Apex body, chaired by the Second Vice President with participation of relevant ministries. The National Commission is the principal body for setting out national policy direction towards reducing risk of disasters through vulnerability reduction, and responding to emergency situations. Members of the National Commission represent key sectors that have a critical in managing disasters. The Afghanistan National Disaster Management Authority (ANDMA) is the principal executing body at national level acting as the Secretariat for the National Commission. (Figure 8)

International Organizations involved in disaster response, relief, rehabilitation and mitigation engage directly with the respective executing agencies of the Government of Afghanistan, based on the overall direction set by the National Commission and pro-actively coordinated by the ANDMA.

At a province level, the Province level Disaster Management Committees /Commissions (PDMCs) acts as the counterpart to the National Commission. The PDMCs are the vital link between National disaster Management process and sub-national process at Province, District and local level. As per the Article 15 of National law on Disaster response, management and preparedness, PDMCs is headed by the Provincial Governor and supported by the representatives of concerned departments.

The district level implementing agencies are the lowest level formally registered administration. The District Administrator plays the lead coordinating role in heading the DDMC (District level Disaster Management Committee). As per Article 16 of National law, DDMC is headed by the District Administrator, and supported by the allied government officials and respective community representatives.

The District Development Assembly (DDA), Municipalities and other concerned agencies have to provide all the required support to DDMC. At local level the role of NGOs and especially the Community Development Councils (CDCs) role is important. These agencies are directly involved with development and emergency response activities with the community. Mainstreaming risk reduction in development and local governance programmes can best be achieved at the community level. Shuras and other community institutions – community based organizations, schools and health centers have the ability to reach out communities in need of assistance in disasters.

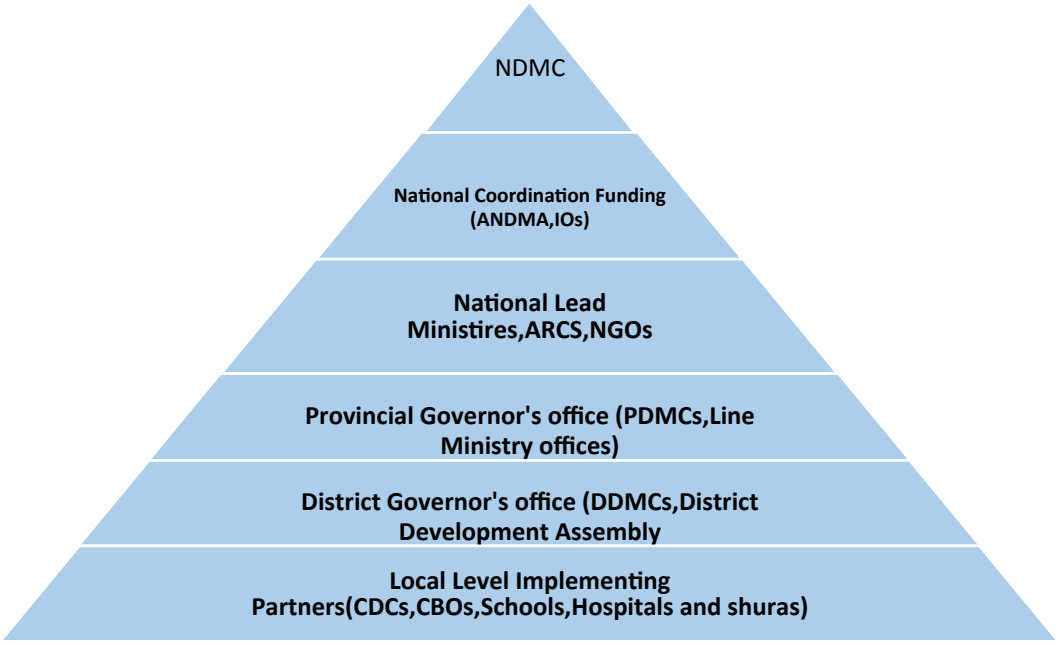


Figure 8: Institutional framework

7.1 Role of National Commission

According to" National Law on Disaster response, management and preparedness" in the Islamic Republic of Afghanistan, the National Disaster Management Commission/National Commission does the management of all disaster related affairs (Article 8).

The National Commission has the following responsibilities and the executive Authority:

- To determine the major directions for disaster preparedness and management
- To convene meeting when any major disaster strikes in the country
- To declare National Emergency Situation in the country, and declare the End of it at the appropriate time
- To adopt measures to save lives and eradicate causes that lead to disasters
- Take steps for prevention, relief, recovery and rehabilitation using the available resources from the concerned Government Ministries and Departments
- Allocate funding to the concerned agencies and province governments from the National Emergency Fund

The National Commission will convene its meeting, when necessary and when any major disaster occurs in the country, at the request of Afghanistan National Disaster Management Authority (ANDMA). The Director of ANDMA is the Convener, and the other members are from concerned ministries.

The following activities will be carried out by the National Commission:

a) Policy Formulation and periodic review

The Commission will be principal agency responsible for national policy on disaster management country. It may consider reviewing the policy based on changing needs and feedback received from the field and concerned agencies from time to time.

b) Supervision and Monitoring

The Commission will hold regular meetings – once in six months during normal times to plan and review risk reduction activities, and preparedness and response capacity of the Government and other International Agencies.

Preparedness meetings will be held regularly before flood, drought and winter season to review measures to test Early Warning systems in the country, pre-positioning vital stocks at strategic locations in the country, availability and capacity of human resources to respond to emergency situations.

During emergency, the Commission will take stock of the situation receiving information on damage and needs assessment and declare National Emergency.

Accordingly, it will task nodal agencies, including Province Governor offices for necessary steps to be taken for responding to the emergency situation.

c) Allocation of Funds from the National Emergency Fund

The National Commission may allocate funds from the National Emergency Fund after receiving recommendations from ANDMA. The Norms of Assistance and transparent means would be used as the basis for allocating quantum of funds.

In order to strengthen the efforts of the National Commission, the Afghan National Disaster Management Authority and the Provincial Disaster Management Commissions in meeting immediate needs of communities affected by disaster of catastrophic scales, it is proposed to set up the National Emergency Fund is also expected. The guidelines for the effective use of the National Emergency Fund have been prepared to enable systematic procedure to be followed for constitution and allocation of the funds. The fund has been bifurcated into two components allowing use for preparedness and risk mitigation activities as well. Investments in such action can significantly reduce the impact of disasters on communities and thus the need for relief assistance.

7.2 Role of Afghanistan National Disaster Management Authority (ANDMA)

According to the law (Article 10) ANDMA is mandated to coordinate and manage all aspects related to disasters and emergency response in Afghanistan, Ministries, Departments, Aid Organizations, Provincial and District Administrations and people are obliged to provide the necessary support to ANDMA in its efforts to all of these, ANDMA and the line ministries require considerable capacity strengthening to carry out their tasks effectively and in a sustainable manner.

The National Disaster Management Plan outlines systems for the ANDMA and its 34 provincial offices to be prepared for and respond to disasters.

The current structure of ANDMA is along three main steams:

- Dealing policy & coordination,
- De-mining and
- Admin & Finance

Policy & Coordination Section handles foreign relations, mitigations, NEOC, Surveys and assessments. The De – Mining Section has specific responsibility of dealing with risk analysis and operations.

The Admin and Finance Section primarily look after the Procurement, Accounts and HR functions.

National Emergency Operations Centre

Based on the disaster management policy and National Plan for Disaster Management in Afghanistan which was approved by the cabinet Advisory committee, the National Emergency Operation Centre (NEOC) was established in Afghanistan National Disaster Management Authority (ANDMA), in 2005. The aim of NEO at the national level is to provide centralized direction and control of any or all for the following functions:

- Emergency Operations
- Communication and warning
- Requesting additional resources during the disaster phase from neighboring province of the affected area
- Coordinating overseas support and aid

- Development of National policies and contingency plans

- Issuing emergency information and instructions specific to Central ministries: consolidation, analysis and dissemination of Damage Assessment data and preparation of consolidated reports.

Provincial Offices

The province offices of ANDMA support the Province Governors and the PDMCs for disaster management in the provinces. The ANDMA through its Province offices, interface with the Governor's office to monitor conditions and coordinate support depending on situations. With time, the capacities of district and local authorities will need be built, making the role of PDMC focused more on coordination, and the Province office of the ANDMA acting as its secretariat rather than direct response in case of sub-province level disasters.

Mobile Rapid Response Task Force

The Mobile Rapid Response Task Force of the ANDMA is expected to augment the response functions at the Province level through the following activities:

- Expedite dissemination of Early Warning

- Arrange to carry out the Damage, Needs and Capacity Assessments with the assistance from Province Disaster Management Committee and allied agencies.

- Provide services for efficient use of resources to humanitarian assistance, such as consolidating, managing and disseminating the information, including situation reports, early warning data and needs assessments.

- Synchronize the local, provincial and national response at the time of disaster, to improvise humanitarian response.

- Support the local, district and provincial governments to secure the impacted area at the earliest.

National Platform

To achieve field level collaboration for implementation of Hyogo Framework for Action, an inter-agency and multi-stakeholder – National DRR platform has been formed.

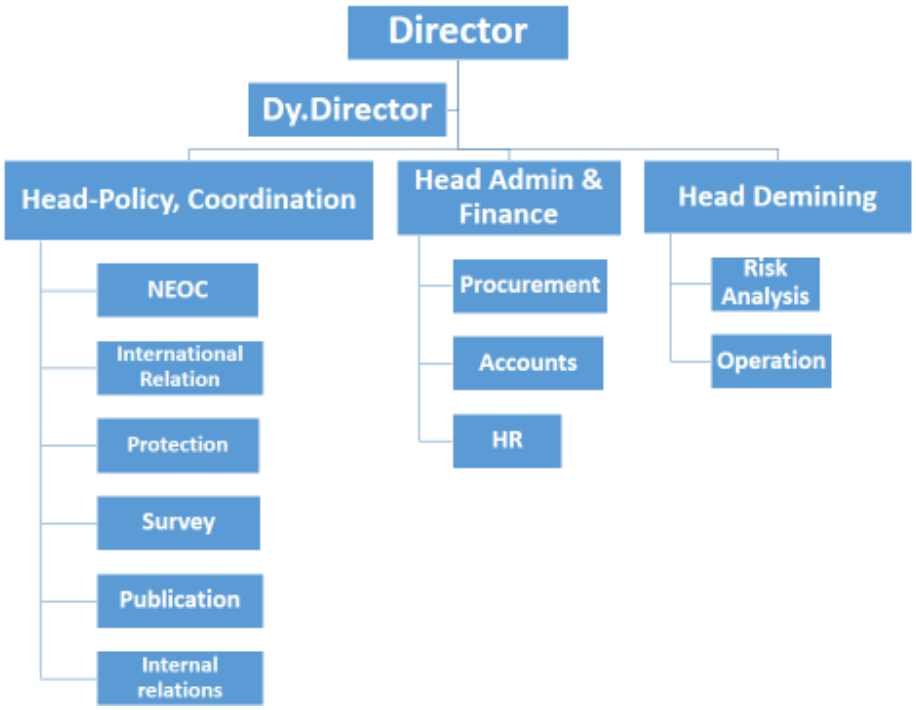


Figure 9: ANDMA Organizational structure

Overall responsibilities of the ANDMA are as following:

1. To convene meetings of the National Commission, serve at its Secretariat
2. Convene periodically the national and provincial platform(s)
3. Mobilize Rapid Response Force to carry out assessments, coordination and provide additional support Province level ANDMA offices in disaster situations
4. Mobilize and facilitate immediate humanitarian assistance to communities affected by disasters
5. To coordinate all the aspects of disaster management with other line Ministries at National level and through the zonal offices at the provinces and districts
6. Adequate and timely recruitment, deployment and retention of qualified and diverse staff
7. Promote Disaster Management Plan at national and provincial level. Systematically engage with all the stakeholders involved in the implementation of the plan
8. Follow up implementation of the guidelines and regular reporting to National Commission

9. Maintain & share Disaster Management Information System

10. Promote capacity building efforts in the country

11. Recommend to the National Commission, as well as monitor use of the National Emergency Fund

7.3 Overall Coordination Mechanism for Disaster Management

The Revised NDMP recognizes need for better agency coordination in disaster management at national and subnational level. This Plan document clearly identifies the scope of functions for the two principal bodies, namely the National Commission and the ANDMA. Their role in coordinating national efforts with other line ministries, international organizations and NGOs is vital to ensure that there is quick and effective assistance to communities in distress, to have the ability to reach out to the communities in the most remote locations yet ensure optimum utilization of resources.

Coordination will be achieved through strong and clear overall leadership by the National Commission, a convening role of the ANDMA and the operational role of the respective line ministries (Figure 10). At the operation level there is likely overlap in activities of various agencies. Towards this, a cluster system has been proposed.

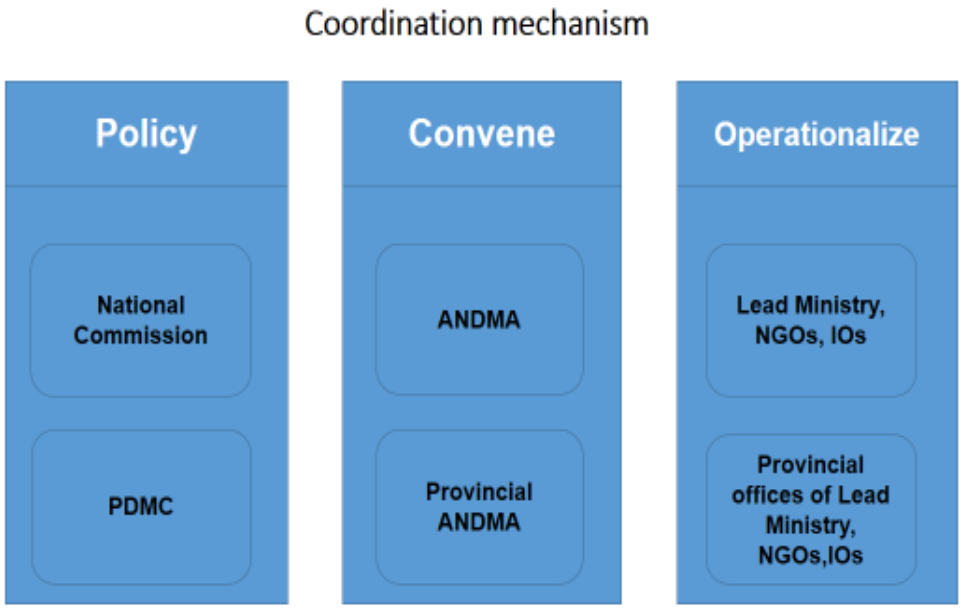


Figure 10: Coordination Mechanism

7.4 Cluster System

The Sector wise Cluster approach is a mechanism to strengthen the humanitarian response and risk reduction, in a collaborative manner. This approach enables to identify and rectify gaps, and enhance the quality in emergency situations, through ensuring greater accountability by nodal ministries / departments and the extended support from UN agencies, International and National NGOs.

The cluster approach encourages the strong partnerships and joint planning amongst all the agencies. This multi sectorial initiative helps in the establishment and maintenance of coordination mechanisms as well as builds capacity of stakeholders.

Under this collaborate initiative; the division of labor has been done based on the respective functions sector wise. All the nodal authorities and allied agencies of respective sectors are instructed to address important issues of inclusion, protection, IDPs (Ministry of Refugees & Repatriation), gender (Ministry of Women Affairs) and environment (National Environmental protection Agency).

Following are the identified key sectors and nodal ministries primarily addressing the disaster management functions.

Shelter:

The key functions of this sector are primarily looked after by Ministry of Rural Rehabilitation & Development (MRRD) and IDLG (Independent Directorate of Local Governance). The other allied agencies extend adequate support for shelter related reconstruction work.

Education:

Ministry of Education is the nodal agency to look after all the important functions pertaining to disaster management in education field.

Health:

Ministry of Public Health is the nodal agency to look after all the important functions pertaining to disaster management in health and nutrition field.

Water & Sanitation:

The key functions of this sector are mainly looked after by the Ministry of Irrigation and Environment (MIE) and Public Works department.

Nutrition:

The MoPH along with the MRRD will be the nodal agency to head this cluster.

Agriculture & Livestock:

Ministry of Agriculture and Livestock will be the nodal agency for all operations related to agriculture and livestock recovery.

Disaster Risk Reduction:

This component to be led by the MRRD (Social Protection Directorate) and the Ministry of Urban Development. Further the Municipalities at local level and ANDMA at national provide the needed support. The Nodal authorities and all allied agencies involved in the clusters will adopt the national and international best practices during the emergency response, recovery and rehabilitation.

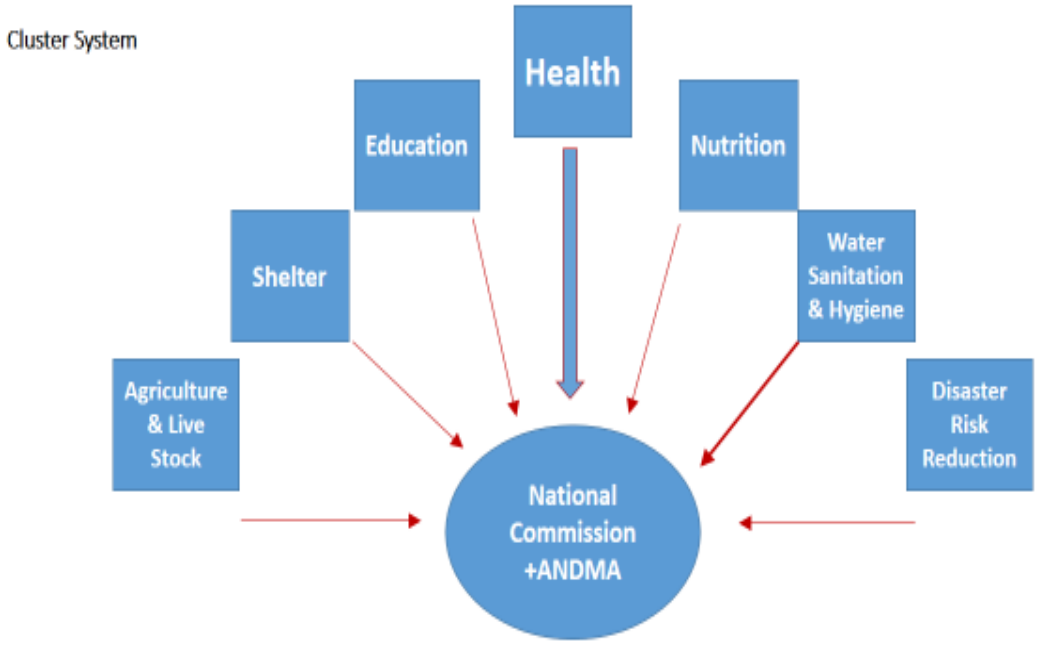


Figure 11: Cluster System

8. CONCLUSIONS

Afghanistan has experienced 166 large scale natural and 45 Technological disasters (CRED, EM-DAT 2013) during the last 5 decades (1960-2013), with a total of 22,304 people killed while almost 9.5 million (9,526,615) other affected. It is important to mention that the last 35 years of conflict has further increased the vulnerability of Afghan people to the hazards which in turn add to disasters' consequences.

Poverty, population growth, rapid urbanization, transition in cultural practices, environmental degradation, lack of awareness and information, low literacy rate and eventually war and conflicts are the factors that has made the Afghan people more vulnerable to the consequences of hazards.

Earthquakes are frequent in the northern parts of the country and often trigger devastating mass movements. Flooding and mudslides are common in the central, western and northern provinces, particularly in the spring when snow starts melting. Extreme winter conditions and avalanches are also a recurrent feature in the mountainous areas.

In the last 53 years Afghanistan has witnessed 6 prolonged droughts, which affected over 6.5 million Afghans while 37 people reported killed due to the droughts.

Meanwhile the country has faced 29 Earthquakes related disasters which has killed 9,327 and affected 627,616 more people. In addition, Afghanistan has experienced 73 Floods, which killed 4,063 and affected 1,559,712 others.

The country has witnessed 16 mass movements (wet and dry) during the past 53 years, which has killed 1,267 people and affected 301,782 other people. Storms in turn has also affected the country with 5 disasters which has killed 362 people and 22,661 people affected. The extreme temperature has also hit the country with 7 disasters in the last 53 years, which has killed 1,934 people and affected 200,268 others.

The 20 epidemics related disaster has been also reported which has killed 3,845 people while affected 254,317 others.

The technological disasters has occurred in the country during the last 53 years, among them 30 were transport accidents which killed 971 and affected 289 more people. Six industrial accidents has been also reported during the mentioned period which has killed 269 people while affected 648 others. Nine miscellaneous technological disasters have been reported which has killed 229 people while 1,322 others have been affected during the last five decades.

In total more than 9.5 million people have been affected and 22,304 others are killed by disasters since 1960.

Though there are less information available to show the economic damage related to the disasters because of the disruption of the surveillance system during long lasting conflict, however the EM-DAT is showing some information about the economic damage of disasters. During this reporting period 589 million US$ damage has been recorded only from the top ten natural disasters.

The disasters together with the conflict has had adverse effects on the economy of the country, the income per person (GDP/Capita) is 1350 $ for Afghanistan in 2013, which is the lowest income per capita as compared to all their neighbor countries.

Life expectancy rate that despite has been improved since last one decade, however it is still very low with 61 which is the lowest as compared to the six neighboring countries.

Literacy rate, of 38 for adult total (% of people ages 15 and above) which is also one of the lowest in the world only better than Chad and Mali.

Maternal mortality which has grossly improved from 1600/100,000 live births to 327/ 100,000 Live births) but is still among the worst figures for mater mortality in the world.

Child Mortality of 99 (per 1000 Live births) is a high mortality for the children under five year's age, this is also the worst among the neighbor countries.

The above situations are as a result of various factors in the country in which the disasters has been contributing.

The figures above may not reflect the real numbers of killed, affected and economic losses due to the weak surveillance system and long-lasting insecurity and conflict, which could be higher considering the vulnerability of the country.

Afghanistan with the support of international community has now the institutional frame work to mitigate disasters, be prepared for and to timely respond and recover. The National Disaster Management Plan (NDMP) of Afghanistan aims to streamline disaster management systems in the country. This includes clearly identifying roles and responsibilities of the National Commission (National Disaster Management Commission) and the Afghan National Disaster Management Authority (ANDMA) along with its provincial offices, the Provincial Disaster Management Committee, associated line ministries, NGOs, and International Organizations. However the questions is, that to what extent these plans and strategies are going to be implemented and how well the responsible ministries, organizations and individuals are taking actions and to what extent the risk for disasters could be reduced.

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