DRAFT

JAMMU AND KASHMIR

STATE DISASTER MANAGEMENT POLICY

GOVERNMENT OF JAMMU AND KASHMIR

Policy Vision

Disaster resilient Communities—Safe and Secure Jammu and Kashmir

Policy Mission

Every place –A safe place
Every house- A secure home
Every individual -wearing a smile
The journey continues to the last mile

Executive Summary

Jammu and Kashmir is having a long history of Natural disasters**.** The state has witnessed many natural disasters especially in the 19th and early 20th century. Owing to its peculiar topography, rugged terrain, extreme weather conditions and above all an underdeveloped economy especially a poor road and communication network, the State has suffered a lot on account of both life and property in the past. In addition to disasters like earthquakes, floods, fires , drought, avalanches and landslides, the State has witnessed many disasters in the shape of epidemics, plague, cholera and famines in the 19th and early 20th century which have taken a heavy toll of human as well as animal population in addition to damage to houses, public infrastructure and crops. Although much information is not available on the occurrence of past disasters in the State, yet there are a few fragmented references where a mention of the different events has been made.

Since the State has suffered heavily on account of natural disasters and still the vulnerabilities are increasing, there have been many initiatives taken up at various levels from time to time. However, the need to have clear cut policy on disaster management was felt badly especially after the National Disaster Management Act, 2005.The policy thus envisages a pro-active approach to disaster management wherein more emphasis is laid on preparedness, prevention and planning in addition to integrating disasters into development. All the stakeholders will be entrusted with adequate responsibility and role to achieve the goal of minimum losses to both life and property. It will be backed by all possible necessary support in terms of resources both financial and human, techno-legal regime, institutional backup, early warnings and forecast system as well capacity building and training. To achieve the objective, efforts will be made at all levels so that hazards do not turn into disasters.

The role of various stakeholders under the umbrella of the State Disaster Management Authority including the govt. departments like Revenue , Police, F&ES, PWD, PHE, I&FC, PDD, CA&PD, Health, Agriculture, MED, IMD etc. shall be specified so as to ensure a quick and prompt response to any disaster whether natural or manmade. Army and security forces will be at the back of the civil administration and efforts will be made to have a more close coordination with the forces. The elements of Disaster Risk Reduction will be incorporated in all the future constructions and all projects /works that incorporate such measures will be given priority. Necessary

modifications/changes in existing laws will also be aimed at to ensure legal backing to disaster resistant safe constructions. Financial institutions will be encouraged to give soft loans on constructions taking up elements of risk reduction. NGOs and CBOs shall be encouraged to launch awareness generation campaigns and programmes on Disaster Management. All possible measures will be undertaken to create, improve and upgrade the infrastructure crucial for disaster management. The Emergency Operation Centres will be made fully operational equipped with latest technical instruments.

CHAPTER I

Jammu and Kashmir-An Overview

Introduction:

Jammu and Kashmir covers the northern most extremity of India and lies between latitudes 32º . 17' to 36º.58' north and longitudes 73º . 26' to 80º .26' east. The state occupies a strategic position in India with borders touching Pakistan in the west, China & Tibet in the north & east and in the south Indian States of Punjab and Himachal Pradesh.

J&K State has a geographical area of 2,22,236 sq. kms comprising 6.93% of the total area of the Indian territory, which includes 78, 114 sq. kms under illegal occupation of Pakistan and 5180 sq. kms illegally handed over by Pakistan to China and 37, 555 sq. kms under illegal occupation of China in Ladakh. As per the Census 2001, the State has a total population of 1, 00, 69,917. The population figures exclude population of areas under unlawful occupation of Pakistan and China where Census could not be taken. Thus in an area of 1,01, 387 sq. kms, 1,00, 69, 917 people inhabit, which forms a density of 99 persons per sq. km. The Rural Urban density of population varies considerably as the same is 75 and 2637 respectively. The total area (1,01, 387 Sq. Kms) of the State is demarcated into 22 Districts having 82 Tehsils (out of which 11 are entirely rural). There are 121 Rural Development Blocks, which are further delimited into 2700 Panchayats, 75 towns and 6652 villages (Census 2001).

The Census operation of 2001 has shown an increase of more than 40 lakhs over the census conducted 20 years ago in 1981. This means on an average addition of more than two Lakh people every year.

Literacy Rate in 1961 was only 12.95% which has increased over a period of 40 years to 54.46% in 2001. However, the corresponding figure as per previous census held in 1981 was 30.64%. The national literacy rate stands at 65.38% as per census 2001.

The State economy is mostly agriculture based where more than 75% people are directly or indirectly dependent on it. Mostly, the people's prosperity or otherwise depends on the success or failure of the agriculture sector.

Physically the state comprises of three distinct regions which correspond with its three administrative Divisions. Of the three divisions Ladakh alone covers about 70% of the total area of the state, Jammu accounts for 19% and the valley of Kashmir accounts for the remaining 11%. The state has no homogeneity with regard to its physical features but represents an interesting morphology.

Morphologically the state is divided into three distinct micro regions which are as follows:-

1) The Outer hill division
2) Jhelum valley division
3) Indus valley division.

The Outer hill division starts from the plains in the south to Pir-panjals in the north. Its topography being rugged and at times it is being called as Kandi. Rainfall in this region is scantly and is more or less dry. Southern part of this division is known as sub-mountainous region and the northern part is known as semi-mountainous region. The average altitude of the former being 369 meters and of the latter it is 1385 meters above the mean sea level. River Chenab forms the main drainage system of the division.

The outer hill division is separated by the Pir-panjals from the Jhelum valley in the south. Near Kulu the central Himalayas bifurcate into two, one going towards the north-western direction and is known as Zanaskar range and the other towards the south-west called as the Dhauleder range. In between these two ranges is the sand witched green valley of Kashmir.

The northern most extremity of the country is the extensive mountainous territory of Ladakh or the valley of Indus. Extending from the Zanaskar in the south to the Karakorum, the Nunkun and the Nanga Parbat in the north, Ladakh is almost a plateau desert and mostly is devoid of vegetation. The average altitude of this division is 3692 meters above the sea level. River Indus which rises from the Mansarowar lake forms the main drainage of the region.

Climate:

The climate of the state differs from region to region on account of great variations in altitude. The tropical heat of the Punjab and the arctic cold of Ladakh are

the extremes, and there are certain places where snow makes the life stagnant for about seven months in a year. In the outer hilly region of the Jammu Province, climate has three main seasons: (i) hot weather from April to June, (ii) a rainy season from July to September and (iii) cold weather from October to March. The altitude of the State rises steeply from 305 metres to 6910 metres above sea level. There are the hot plains of the Jammu Province and the cold dry tableland of Ladakh. The area has different weather conditions at different places because of the lofty mountains like the Pir-panjal, the Zanaskar and the Karakoram that check the moisture-laden winds from entering the valleys.

In summers, the outer plains and the outer hills receive rainfall from monsoon winds while in winters, winds from the Mediterranean cause snowfall and rainfall in the Valley of Kashmir. The moisture-laden winds cause rainfall in the forests on the hills making the temperature to fall in summer; hence, the thickly wooded areas such as Pahalgam and Gulmarg have milder weather conditions than that of Srinagar. Similarly, the climate of the valley of Kashmir is comparatively milder than that of the Outer Plains as it is on higher altitude therefore making it one of the most liked tourist destinations during summer.

As stated above, the unique climatic conditions found in the zone of the Middle Mountains and its valleys, are determined by the altitude, which in turn determines the degree of coolness. Winters are cold and of long duration and with increasing altitude, it gets colder still, till there is snowfall in the higher mountains. Summers, however, are milder but are very short. Winters last from November to March. Spring begins after 15th of March and there is heavy rainfall during the season. Landslides often take place during this season. Humidity in the monsoon season stretching over July and August is as high as 70% and with increasing temperature summers at times become uncomfortable.

In the Kashmir Province there is not much rise in the temperature upto and end of May, but in June-July and August the temperature can rise upto 90º F in shade. After August there is a decrease in the temperature and by the end of October it becomes cold and by January cold becomes intense with the snowfall. The snowy period lasts for 2½ months beginning from Magh (December-January) to middle of Chaitra (March). During winter Dal Lake sometimes gets frozen, enabling people to skat over it. The distinctive features of Kashmir's climate is the absence of monsoon rain, because the monsoons cannot cross the mountains enclosing Kashmir on the south.

Rainfall:

Rainfall in the different regions of the state also varies to a great extent. The annual rainfall varies from 50 to 70 inches in the outer hills regions, from 30 to 40 inches in the Kashmir valley and is less than 10 inches in the frontier districts.

Soil:

The soil of Kashmir is generally classed as clayey, loamy rich and light, peaty and low lying swamps and is of alluvial origin but quite fertile. In the semi-mountainous tracts the soil is indeed coarse. The underlying rocks in this area are loose boulders. The Kandi tracts have a stony soil and give a dry look even during the rainy season. The soil of Ladakh is bare and rocky with bare gravel slopes.

Flora:

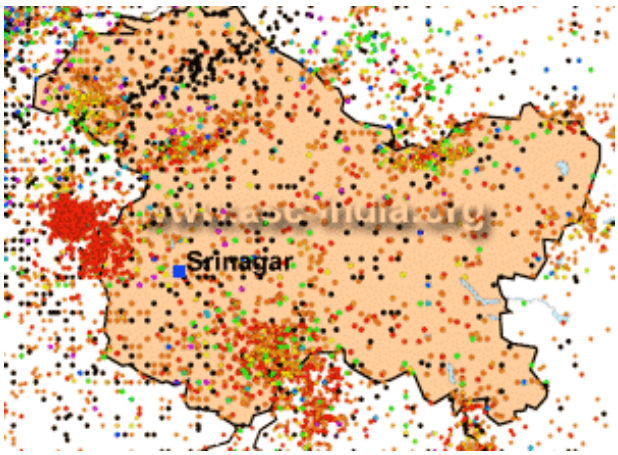
Kashmir is richly endowed by nature as far as forests are concerned, and could be divided into two zones, viz (i) Sub-Himalayan and (ii) Himalayan. The sub-Himalayan zone extended from the foot-hills to 5,000 ft. above the sea, and the Himalayan zone extended upto 11,000 ft.

The sub-Himalayan forests consisted of bamboos, pines and the Himalayan ones had deodar and pine, the fir and spruce and sub-alpine.

CHAPTER II

Disaster Vulnerability of Jammu and Kashmir

Owing to a unique geo political and geographical setting, the State of Jammu & Kashmir has witnessed a multitude of disasters. Ranging from the local incidents of fires upto catastrophic earthquakes, the State has always paid heavily in terms of loss of life and property. However, in the absence of a reliable record and information, most of the events are either partially reported or exaggerated or sometimes not recorded at all.



Vulnerability Hazard Map of J&K with respect to Earthquakes, Floods, Landslides and Avalanches

The state of Jammu and Kashmir is very distinct from the rest of the country with respect to topography, climate, economy, social setting and strategic location. Spread over an area of 222236 square kilometers the state is divided into 3 regions namely Kashmir Valley, Jammu and Ladakh. The state is a multi hazard prone region with natural disasters like earthquakes, floods , landslides, avalanches, high velocity winds, snow storms, besides manmade disasters including road accidents and fires etc. occurring in various parts of the state. The Kashmir earthquake 2005 and the most recent Leh cloud burst and flashfloods are still afresh in our memories which constrained state establishment as well as local authorities and civil society to think and form an effective Disaster Management Policy in the state of J&K.

Within a period of one year (2004-2005) the Indian subcontinent was struck by the two major devastating hazards (Tsunami, Dec'04 and Kashmir earthquake'2005). The earthquake of October 8'2005 devastated Kashmir and northern Pakistan and killed more than 87000 people and injured about 1 lakh. The Kashmir earthquake is claimed to be the most adverse disaster of the century with an adverse impact more than the Tsunami of Dec'04, which affected 52 countries directly or indirectly along the course of Indian Ocean. Prior to 2005 earthquake, J&K was hit by snowstorm in February 2005 which destroyed many country side villages in south Kashmir and inflicted huge loss of human lives, livestock and property. The Himalayan states are prone to these natural hazards and similar other hazards like floods, avalanches, landslides etc. the Natural disaster do not respect the national boundaries. Tsunami of 26/12/2004 and earthquake of 08/10/2005 are latest examples. Some disasters have global impact like tsunami of 2004 while others have regional impact like earthquake of 2005 and still others have local impact like snow avalanches of 2005 in J&K, Landslides of Malpa, and Uttarkashi.

The occurrence of natural disaster can't be stopped but their impact can be reduced. For this purpose there is need to co-operate with each other at all the possible levels, i.e. sharing of expertise in the respective field, monitoring and sharing of the scientific data related to hazards, co-operation in issuance of warnings about floods, avalanches, landslides, dam breaches etc. As far as earthquakes are concerned all the Himalayan countries are equally likely placed with respect to this disaster. Unfortunately we do not have any authentic and systematic past records of seismic activities in entire Himalayan belt except a few fragmentary records of recent past. There are atleast four regions of the Himalaya where earthquakes of magnitude 8 or above are likely to occur in near future. 2005 earthquake of MW 7.6 has released only $1/10^{th}$ of the stress generated within the region and remaining has to go in future great earthquakes. The damage occurred in Uri, Kupwara and Baramulla districts in Kashmir province and in the Poonch town and its surrounding areas are along the line of control. This earthquake was the strongest in over 120 years in the area. Efforts at all levels need to be taken to ensure whatever new structures are built are able to withstand future major earthquakes. In addition , other disasters like floods, avalanches, landslides and snowstorms etc. are also equally detrimental in the Himalayan countries. Since the earthquake and fault movements also trigger landslides in the region, it is also necessary to monitor the landslide activity particularly along the national highways. The need of the hour is to wake up and put in concerted efforts with focused goals to safeguard precious lives from

the clutches of natural disasters. J&K state is prone to these natural disasters besides manmade disasters or anthropogenic disasters including fires. Both the capital cities of the state i.e. Jammu and Srinagar are in Seismic zone IV and V. Landslides along national highways, road accidents, avalanches etc. are the order of the day. Floods have also devastated the life and economy of the state quite frequently. A brief description of some disasters in given as under;

Earthquakes:

The state of Jammu & Kashmir is the western most extension of the Himalayan mountain range in India. Here it comprises of the Pir Panjal, Zaskar, Karakoram and Ladakh ranges. The Main Boundary Thrust (MBT) underlies the Pir Panjal Range and is known as the Panjal Thrust in the region. The Zaskar ranges which are part of the Great Himalayan range are underlain by the Zaskar Thrust. The Kashmir Valley lies between the Pir Panjal and the Zaskar thrusts, making it very vulnerable to earthquakes. Other northern parts of Jammu & Kashmir are heavily faulted. Along the Zaskar and the Ladakh ranges runs a NW-SE trending strike-slip fault, the longest in the Jammu & Kashmir area. Apart from the routine small tremors moderate to large earthquakes have hit nearly all parts of the state. However, it must be stated that proximity to faults does not necessarily translate into a higher hazard as compared to areas located further away, as damage from earthquakes depends on numerous factors such as subsurface geology as well as adherence to the building codes.

Seismic Hazard:

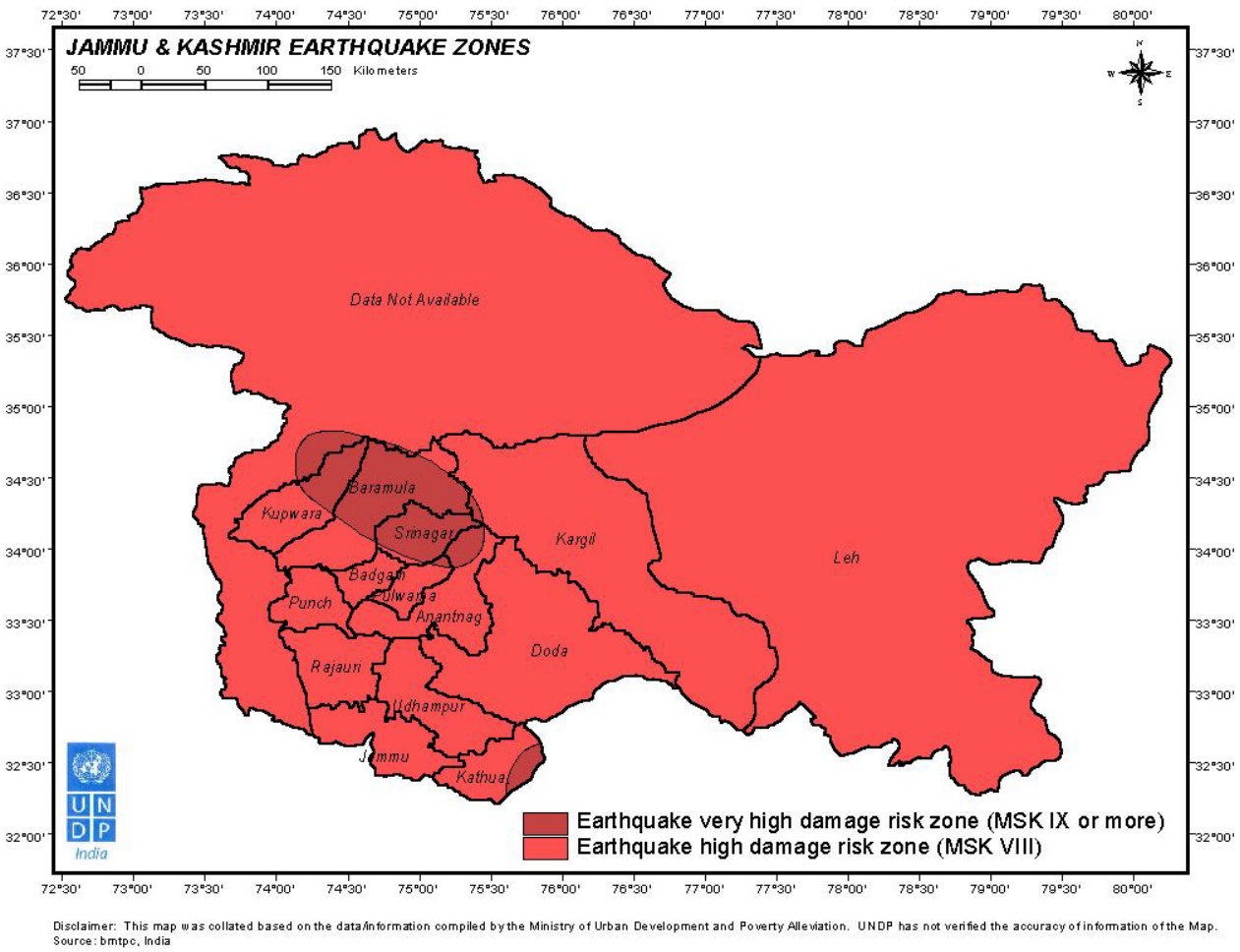


Figure showing Damage Risk Zone in the state of Jammu and Kashmir

Kashmir North and Kashmir South districts lie in Zone V. Gilgit, Chilas, Gilgit Wazarat, Muzaffarabad, Punch, Anantnag, Mirapur, Riasi, Udhampur, Jammu, Kathua, Leh, Ladakh and Tribal Territory districts lie in Zone IV. Since the earthquake database in India is still incomplete, especially with regards to earthquakes prior to the historical period (before 1800 A.D.), these zones offer a rough guide of the earthquake hazard in any particular region and need to be regularly updated. A major earthquake struck the India-Pakistan border on the morning of 8 October 2005. It had a magnitude of Mw=7.6 and was felt strongly in much of Pakistan, northern India and eastern Afghanistan. The earthquake resulted in more than 80,000 deaths in northern Pakistan and adjoining parts of Jammu & Kashmir, India and is by far one of the deadliest in the sub-continent. At least 10 people also died in other parts of north India (including 1 person in the Dehradun region) and 4 in Afghanistan due to this earthquake. Tremors

from the earthquake were felt more than a thousand kilometers away in the Indian states of Gujarat, Madhya Pradesh and Uttar Pradesh.

Landslides:

The most part of the state is mountainous; the topography along with climatic condition and various anthropogenic activities has made the state of J&K vulnerable to the vagaries of nature. Besides earthquakes, landslides are the other geological hazards that are common and peculiar to this state. Landslides are the downslide movement of soil, debris or rocks resulting from natural causes, vibrations, over burden of rock material, removal of lateral supports, change in the water content of rock or soil bodies, blocked drainage etc. In J&K the mass movement varies in magnitude from soil creep to landslides. Solifluction is another type of mass movement that is common on the higher snow covered ranges of the state.

The problem of landslides is common and frequent in J&K. Almost every year the state is affected by one or more major landslides affecting society in many ways. Loss of life, damage to house, roads, means of communication, agricultural land and floods are some of the major consequences of landslides in the region.

Flash floods particularly in Narrow River gorges are the cause of some of the major landslides in J&K. these flash floods trigger landslides in the region eventually jeopardizing the stability of the hill as a whole. The vulnerability of geologically young unstable and fragile rocks of the state has increased many times in the recent past due to various unscientific developmental activities. Deforestation, unscientific road construction and terracing, encroachment on steep hill slopes are anthropogenic activities which have increased the frequency and intensity of landslides.

Flash floods and cloud burst:

Flash floods, short lived extreme events, which usually occur under slowly moving or stationary thunderstorms, lasting less than 24 hours are a common disaster in the state. As a result of the high velocity of the current which can wash away all obstacles in its way, this phenomenon has resulted in enormous loss of life and property in various parts of the region.

Glacial melting due to Global warming is another major cause of flash floods. The major glaciers in the higher mountains are receding at an alarming rate.Glaciers in Jammu and Kashmir are receding at a faster rate compared to other glacial regions in the world. In Suru basin alone, we have lost about 16% of glaciers in the last 40 years. Similarly, we have lost 18% of the Kolhai glacier, the main source of drinking water and irrigation in the valley, during the same period. Climate change is likely to affect a number of sectors, particularly irrigated agriculture, and horticulture and hydropower capacity in the state. Changes in flow magnitudes are likely to raise tensions between India and Pakistan, in particular with regard to reduced water flows in the dry season and higher flows during the wet season. Both parts of Kashmir face the risk of higher frequency of floods and increased threat to hydropower development.

• Recently, Kashmir has been witnessing drastic decrease in the snowfall. This reduction in snowfall together with the fast receding glaciers has resulted in water scarcity for irrigation and hydropower generation in some seasons. The data shows that the magnitude and frequency of flooding has increased in the valley during the last few decades. Coupled with the unplanned urbanization and mismanagement of the Jhelum floodplains, the situation is going to be alarming in near future. One can well imagine the future scenario, with most of the wetlands that used to act as sponge during flooding, being urbanized and converted into concrete landscape.

Over 300 people were killed and property worth crores was damaged in the recent flash floods and cloudbursts in Jammu and Kashmir. As many as 234 people died in Leh and 424 were seriously injured, Rajouri district in Jammu division witnessed 20 deaths followed by Reasi (11), Anantnag (10), Kathua and Poonch (7 each), Doda and Baramulla (5 each), Jammu, Udhampur and Kargil (2 each) and Budgam and Shopian (one each). Baramulla suffered a loss of Rs 61 crore in agricultural sector and Rs 58.22 crore in the horticulture sector, the highest economic loss in the state. Shopian suffered a loss of Rs 10.35 crore in the horticulture sector. In the border district of Kupwara, damage caused due to floods is estimated by the government to be around Rs 75.40 crore.

Avalanches:

Avalanches, river like flow of snow or ice descending from mountain tops are common in the high ranges of the Himalayas.

Some specific features associated with avalanches are:

1. They are common in elevation of more than 3500m
2. Very frequent on slopes of 30-45o
3. Convex Slopes are more prone to this form of disaster
4. North facing slopes have avalanches in winter and south facing during summer
5. Slopes covered with grass are also prone to avalanches

Snow cover on a slope tends to slide down the slope because of gravity. Conditions affecting stability include the gravitational force component of the snow and resisting forces, such as the frictional resistance of the slope or the anchoring effect of shrubs. In general, avalanches are caused when this balance is lost and when the forces exceed the resistance. Avalanches are rarely observed closely since they normally occur during a short time period of one or two minutes.

Avalanches Prone Areas:

The Himalayas are well known for the occurrence of snow avalanches particularly Western Himalayas i. e. the snowy regions of Jammu and Kashmir, Himachal Pradesh and Western Uttar Pradesh. In Jammu and Kashmir higher reaches of Kashmir and Gurez valleys, Kargil and Ladakh and some of the major roads are highly vulnerable.

Floods:

Floods take place quite frequently in Kashmir. An enormous amount of water flows into the valley and the only outlet for the water from the valley is the narrow gorge at Baramulla. Floods generally occur in the summer when heavy rain is followed by a bright sun, which melts the snows. If an embankment is breached or topped, a district which is dry a few hours back becomes a lake after a few hours.

The Jhelum is mainly responsible for floods in Kashmir valley. In ordinary times, it flows gently between its banks, but in times of flood, it overflows its natural banks.

Floods occur occasionally in the Jammu Province. As and when they take place, they are caused by heavy and continuous rains and cause huge losses to property.

Droughts and Famines:

The State of Jammu and Kashmir was lacking in good roads till the great famine of 1877-79. It was only after that famine that the necessity of roads and proper transport network was realized by the Govt. In Kashmir only one crop i.e. rice was raised in the summer. Due to severe winters no crop could be raised resulting thereby in a famine in the valley with the failure of kharif harvest alone. The cause of famine in Jammu was usually different from that in Kashmir. In Jammu, it was generally the result of drought where as in the Kashmir Valley it was due to excessive rains. However, with advancement especially in transport and communication as well as medical sciences, such happenings do not recur any more.

Fires:

Fires have always caused distress to the people of Kashmir in the olden days. All Kashmiris would use Kangri (an earthen pot) in which burning coal is kept to keep the body warm. Historically, Srinagar has suffered most due to fires because of its crowded houses and narrow lanes. There was hardly any road in the city through which fire engines could be brought, neither was any organized fire brigade till 1894. Small pitchers of water were kept at many points as a precautionary measure but these were of little use whenever a fire broke out. A good network of Fire and Emergency Services has been developed all over the State which is being strengthened with every passing day.

Epidemics:

Since the State of Jammu & Kashmir comprises of three distinct zones as such the three different zones have experienced differently so far as epidemics are concerned. The in sanitary conditions prevalent in Kashmir would prove favourable for growth and spread of epidemics. The measure epidemics which caused distress in the State were Cholera, Plague, Small Pox and Influenza etc

Earthquake of 8th October, 2005:

A devastating Earthquake on the morning of 8th Oct. 2005 killed around more than eighty thousand (80000) people on both sides of Kashmir which will be remembered for centuries to come for the loss of human lives and property. It once again flagged the importance of Disaster Response Mechanism to mitigate the sufferings. The loss of life was 80 times more in Pakistan Administered Kashmir than Jammu & Kashmir (India) where 950 lives were lost and property worth crores of rupees suffered

destruction. Luckily, the time of occurrence was in the morning 9.20 a.m. (IST) and most of the people were outside their houses. Although the schools had not opened (as the School timing is generally 10.00 a.m to 4.00 p.m) yet studies reveal that around 40.3% of the deaths comprised of children below 10 years of age thereby depicting their vulnerability.

Despite the fact that the areas worst affected in Kashmir i.e. Uri and Tangdhar are hilly and mostly inaccessible yet the civil administration, the army, the para-military forces, volunteers and last but not the least the NGOs and Civil Society Organizations, all played a commendable role in wiping off the tears of the victims by providing timely relief, medical aid, food, clothing , temporary shelter etc.

Some of the innovations from the governmental side included the village adoption by various agencies both Central as well as the State level and the NGOs. The relief in cash which was distributed in installments included an incentive of Rs. 5000/- (five thousand) only per family for raising a temporary shelter by end of November, 2005. This innovation really worked wonders and more than 80% of the victims erected their temporary shelters by the deadline. This ensured that there was not a single death due to harsh winter reported from any part of the earthquake hit area. The presence of the Army in the affected areas proved to be a great healer for the people as army was among the first responders who managed to airlift hundreds of injured people to the different hospitals in Srinagar and Baramulla. The settlement of relief claims on spot with the introduction of Lok Adalat by the Hon'ble High Court of J&K was yet another innovation wherein number of cases were settled leaving hardly any scope for grievances.

This Quake has however, taught us may lessons especially viz-a-viz the state of preparedness and the need to have in place a comprehensive Disaster Management Plan for different disasters, keeping in view the vulnerability of the state.

The need to have a short term and long term Disaster Risk Reduction strategy, on the one hand making our buildings and structures earthquake resistant and on the other hand, to improve our response mechanism to deal with any such crisis in future, should be the concern of all stakeholders.

Natural calamities, directly or indirectly, tell upon the socio-economic conditions of the region by causing loss of life and property, by reducing the people's capacity for work, and by disturbing the normal rhythm of their life.

During the period from 1840 – 1925, natural calamities accounted for about 161784 human lives, about 17898 cattle heads, and about 18143 houses. Information about the towns is usually correct but the data collected from rural areas are not at all authentic. This is due to the fact that the machinery deployed for the purpose was not properly organized. Moreover, the rural people were superstitious, feared the Government and usually tried to conceal facts. But, whatever be the facts, the loss caused to men and material was heavy, considering the State's population in that period. Such losses obviously affect the social and economic life of the people, and the expected normal progress of the region is seriously retarded.

The economy of the State was based mainly on agriculture, with 80 per cent of the population engaged in it. Many, who were not directly engaged in it, were dependent on it indirectly. Besides the above disasters the State has witnessed disasters in the form of landslides. avalanches, fires, snowstorms etc. With technological advancement, the deaths due to accidents especially the road accidents are now emerging as a disaster despite the fact that the losses and places of occurrence are scattered.

CHAPTER III

Disaster Management Principles,Approach and Strategy

Disaster Management in Jammu and Kashmir

The natural calamities, especially floods, occurred frequently in the state damaging crops to a great extent, thereby causing widespread scarcity of food and fodder in the State. This certainly shook the economy of the State and put the people and Government to hard test. However, these calamities also played a positive role by compelling the Government to adopt new measures for the benefit of the people at large. This is the reason that after independence, Jammu & Kashmir State was amongst the first few states of the Indian Union to enact legislations for Natural Calamities. **The Jammu & Kashmir Natural Calamities Destroyed Areas Improvement Act 1955** was enacted for improvement of towns, villages and other areas destroyed by natural calamities in the State. From time to time many amendments and modifications have been made. However, it was with the enactment of the National Disaster Management Act. 2005 that many initiatives have been launched in Jammu & Kashmir State as well. these initiatives have been taken in order to minimize damage to life and property due to natural disasters.

The State Disaster Management Authority has already been constituted under the Chairmanship of Hon'ble Chief Minister**.** Similarly, the State Executive Committee under the State Chief Secretary has also been constituted. The District Disaster Management Authorities under the respective District Collectors too have been formulated. Several other initiatives have been taken especially after the Kashmir Earthquake 2005, but much more remains to be done.

As a maiden endeavor under the Centrally Sponsored Scheme on Natural Disaster Management for training and capacity building, a Disaster Management Centre has been established in the Administrative Training Institute of the State in the year 2001.

Since Jammu & Kashmir is a **multi-hazard prone State**, it is crucial to have all the stake holders, the Govt. Agencies, the NGOs, the donor agencies and the general masses, sensitized to various issues of Disaster Management**. The state falls in Seismic Zone IV with the districts of Srinagar and Baramulla falling in Zone V (Very High Damage Risk Zone).** This warrants that there is an urgent need to analyze the risks and make a **vulnerability Assessment** within the whole state in general and the most densely populated **urban Centres** in particular.

Principles, Approach and Strategy:

1. As per the Disaster Management Act, 2005 a disaster refer to a catastrophe, mishap, calamity or grave occurrence from natural or man made causes, which is beyond the copping capacity of the effected community. Disaster Management involves a continuous and integrated process of planning, organizing , coordinating and implementing measures which are necessary or expedient for prevention, mitigation, preparedness, response, relief and rehabilitation.

2. A holistic and integrated approach shall be evolved towards disaster management focusing on building strategic partnership at various levels. It will be based on:

a) community participation and involvement,

b) Capacity development,

c) Inter-sectoral coordination,

d) Cooperation with other agencies.

3. The policy objectives shall be based on the following:

- Planning, preparedness and prevention
- integrating disaster mitigation into development planning
- Establishing techno-legal and institutional framework.
- Encouraging traditional wisdom, low cost technology and environmental sustainability
- Developing user friendly early warning system
- Efficient and equitable response and relief for all the vulnerable sections of the society.
- Involving and promoting media partnership for disaster risk reduction.

Institutional and Legal Framework:

As per the provisions of Disaster Management Act, 2005, the Government of Jammu and Kashmir has already notified the constitution of the State Disaster Management Authority, the State Executive Committee and the District Disaster Management Authorities;

State Disaster Management Authority (SDMA):

Headed by the Chief Minister, the SDMA will lay down policies, plans and programmes for disaster management in the State. It will approve the State level plans in accordance with the guidelines of NDMA, coordinate the implementation of plans, recommend the provision of funds and also look after the measures related to prevention, preparedness and mitigation.

The State Government shall be assisted by the State Executive Committee (SEC) headed by the Chief Secretary. The SEC shall also function as the link between NDMA, MoHA and other national and international agencies.

The District Disaster Management Authority (DDMA) headed by the Deputy Commissioner has been constituted in all the districts. The ADC of the district concerned is the Chief Executive officer of the DDMA. The DDMA will act as the planning, coordinating and implementing body for disaster management at the district level and take all necessary measures for the purpose of disaster management in accordance with the guidelines laid down by the NDMA and SDMA.

The local authorities including Urban Local Bodies, Panchayats, Development Authorities etc will ensure capacity building of their officers and employees for managing disasters, carry out relief, rehabilitation and reconstruction activities in accordance with the guidelines.

Financial Arrangements;

The government will constitute the Disaster Mitigation and Response Fund at the State as well as district levels in accordance with the provisions of the Act. However, projects incorporating disaster mitigation measures will be given priority by the Government.

CHAPTER IV

Disaster Mitigation and Preparedness Phase

The Government will adopt a multi-pronged strategy to undertake mitigation measures into all developmental projects, encourage and assist mitigation projects in accordance with the guidelines and give due weightage to indigenous knowledge on disasters and coping mechanisms with special focus on protection of heritage structures. Some of the mitigation measures for earthquakes, floods, landslides and avalanches are given hereunder:

Earthquake Mitigation:

1. Public buildings need to be earthquake resistant by using the Code Bureau of Indian Standards (BIS) for earthquake-resistant designs.
2. In city planning, the load bearing capacity studies of the ground may be undertaken and risk zones identified with respect to the construction of bridges, flyovers and high rise buildings.
3. For important transport and communication segments, standby facility should be provided in earthquake prone areas.
4. Capacity building and training programs in School, colleges and all public sectors viz-a-viz earthquake safety will be undertaken on priority.

Landslide Mitigation:

1. No cutting/ felling of trees on mountain slopes and river catchments will be allowed without any Environment Impact Assessment studies.
2. Afforestation / vegetation cover on wastelands, hilly regions and flood prone areas will be given priority.
3. Forecast and warning systems will be improved/upgraded.
4. Unscientific road construction will not be allowed.
5. Awareness generation among general masses will be encouraged.

Flood Mitigation:

1. Deforestation / clear felling of trees on mountain slopes and river catchments should be stopped or kept to the minimum.
2. Afforestation / vegetation cover on barren and wastelands , hilly regions and flood prone areas should be given priority.
3. Area flood mapping using GIS and Remote Sensing will be prepared to make future preparedness plans.
4. Forecast and warning system using modern scientific know-how will be improved.

5. Proper river bank protection by constructing embankments and using anti-erosion measures will be taken up on a large scale. Involvement of PRIs by taking benefit of schemes like MNREGA will be given priority.
6. In flood prone areas, evacuation capabilities should be enhanced.
7. Construction of residential colonies on river banks and flood plains will not be allowed. Offenders will be dealt under law.

Avalanches Mitigation:

The following actions are appropriate when avalanche hazard prone slopes are identified;

• Advice residents of avalanche risk areas using published maps.

• Afforestation programmes for areas where there is risk of avalanches.

• Trap avalanches by control measures.

• Dispose avalanche potential snow packs by artificial triggering.

• Predict occurrence of avalanches through stability analysis and issue warnings as and when necessary.

• Guidance to residents for emergency evacuation will be provided . In this direction, the concerned agencies will have a close coordination with SASE .

Hazard, Risk and Vulnerability (HRV) Analysis:

HRV analysis and mapping using GIS will be carried out to plan and prepare for disaster mitigation at micro levels. In this direction the concerned Institutions at the State and district levels will be supported in terms of resources.

Disaster Preparedness:

All efforts will be carried out to be in a state of preparedness and the plans prepared in this regard will incorporate the inputs of all the stakeholders for integration into the planning process. It is an admitted fact that only the participation of all the stakeholders, communities and institutions will inculcate a culture of preparedness. All possible care will be taken to adopt a bottom up approach for better understanding and operationalization of the plans. In this direction all the sections of the society in the vulnerable areas will be sensitized towards their role in preventing loss of life and property. The use of ICT will be given due weightage while preparing for a disaster.

Early Warning and Forecasting

Introduction:

The state was appalled by the unprecedented losses of life and property caused by the 8th October, 2005 devastating earthquake in Kashmir and the recent cloud burst in Leh district. If an effective Early Warning System had been in place in the State, hundreds and thousands of lives and property would have been saved. The same stark lessons can be drawn from other disasters that have killed thousands of people in the past few years. Like other Himalayan region, J&K continues to suffer from a plethora of natural disasters like floods, earthquakes, landslides, avalanches and fires etc. that threaten to affect the lives and livelihood of its citizens. Effective Early Warning/Forecasting not only save lives but also help protect livelihoods.

India Meteorological Department (IMD):

Established in 1875, India Meteorological Department is both a scientific and a service department, and functions under the Ministry of Earth Sciences. The primary mandate of the Department is to provide meteorological information with the objective of disaster mitigation due to weather and related disasters. Apart from Meteorology, the Department is also concerned with Agro meteorology, Hydrology, Positional Astronomy, Seismology, Aviation, Flood forecasting and Environmental Monitoring, archive meteorological data and to supply the same to various users.

The Met Centre at Rambagh Srinagar caters to the meteorological needs of the State. Any information related to weather and climate or weather related data of the State can be had from this office. The office functions round the clock for the benefit of the people of the State and the Govt. as a whole.

Establishment of Early Warning System for natural disasters in J&K

Achieving the Millennium Development Goals and building a safer world in the 21st century is only possible when the world more effectively reduces damage from disasters triggered by natural events. It is observed that the effects of such disasters are worsening, mainly due to increasing frequency and severity of many hydrometeorological disasters, partly as a result of global climate change. Global trends

indicate that the exposure of people to disaster risks is increasing due to the growing importance of vulnerability factors. In a state like J&K , the major causes of increased vulnerabilities to natural disasters are: unplanned construction (e.g in Choglamsar area of Leh), poverty, over and unplanned exploitation of natural resource (e.g Dal Lake or deforestation in Gulmarg), unplanned urban growth, conflicts, weak institutional capacities, and climate variability and change and . These emerging trends require that development practice is re-oriented so as to make the State more resistant to natural disasters. This new focus explicitly recognizes the links between Early Warning, Disaster Risk Reduction and Sustainable Development.

Early Warning as a tool of Disaster Risk Reduction:

Early warning has the potential to contribute significantly to minimising losses as an important non-structural component of risk reduction. Warning helps provide the knowledge to identify impending risks, determine their levels and potential impacts, both in terms of people and locations, and guide actions to avoid, reduce or mitigate the effects of those risks when they occur. Early warning plays such a strong role in improving human security because it is one of the most effective measures for reducing negative impacts of threats and risks triggered by natural disastrous events. Early warning and other mitigation interventions are a cost effective way of Disaster Risk Reduction. Early warning, as a branch of risk information, serves several purposes like, disaster protection mechanism, promotes improved environmental management and sustainable livelihoods that are harmonious with the environment through helping increase the security of vulnerable populations and endangered environments.

Present weather Forecasting/Warning System in J&K:

(i) Monitors round the clock weather phenomena of the state.
(ii) Issues forecast twice a day (at 10am and 0800 pm) on daily basis. Forecast is also available on web site (www.imd.gov.in).
(iii) Communicate the same to DD, Radio Kashmir and other stake holders via E-mail/phone.
(iv) Issue weather forecast for Srinagar-Jammu and Zojila Highway.
(v) Provide weather forecast service to state govt. for safe and successful conduct of Amaranth Yatra.

Other weather Services of Met Office Srinagar

(i) Bi-weekly weather forecast for farmers in coordination with SKUAST-J and SKUAST-K.

(ii) Environmental monitoring. Monitoring of Air pollution for Srinagar
(iii) Seismological observatory at Srinagar and Jammu provide earthquake related information of these two cities.
(iv) Supply of meteorological data to various users.
(v) Any information related to weather of J&K.
(vi) General weather forecasting.

The need to have more network of met observatory in J&K:

For any developmental work Hydrology, Hydel Projects, Construction of roads, buildings, forecasting of weather, floods and avalanches etc. it is vital to have real time weather data of those areas like temperature, wind (speed and direction), humidity, precipitation etc. To achieve this, it is essential to have a dense network of observatories. At present, the state has a limited number of observatories. Efforts are on to install as many observatories as possible or a minimum one met observatory in each districts. With the support of the Government of India efforts are on to install one AWS each in all the 22 districts of the State.

However , in order to highlight the future needs of the Met observatories in the State the following demands shall be put forth before the Govt. of India.

(i) One Doppler Weather Radar in Leh, Jammu and Srinagar and one class 1 observatory in each district.
(ii) One rain gauge at least in each tehsil.
(iii) One seismological observatory in each district or at least one each in Pulwama, Baramulla and Kargil.

It is encouraging to note that IMD has sanctioned the following instruments/equipment for the State which will be commissioned in next two to three years.

(i) One C-band Doppler Weather Radar at Srinagar .
(ii) 22 Automatic Weather Stations each district will have one.
(iii)One surface observatory at Leh

Thematic advances and trends:

It is generally recognized that much progress has been made in boosting the scientific basis and technological aspects of warning systems, particularly in the area of application of the Information and Communication Technologies. As a part of modernizing project, IMD is integrating weather forecasting in effective risk

management using the latest available technologies. Various Weather Prediction models are being run at IMD, New Delhi for better out puts and efforts are on to further improve the services.

Vulnerability to disasters is increasing:

Disaster losses, unmitigated, will continue to rise due to increasing vulnerability arising from population growth, urbanization, poverty and inequality, environmental degradation, climate change and variability, lack of mitigation and institutional weaknesses. Hence, perhaps the most basic trend in risk management and early warning is the move from a focus on hazards to emphasis on vulnerability and socio-economic factors. This is part of the gradual but discernible movement towards expanding the scope of formal Early Warning Systems in relation to broader issues of risk assessment and management. This emerging pattern is most advanced for the seemingly intractable problems of earthquake and drought prediction and forecasting.

Lead times is increasing:

In terms of warning systems output, a major trend is that technology is changing the definition and measurement of real time for various hazards. The timescale in which the onset of hazard events can be predicted to allow response to the event has increased by at least 2 days for a Western Disturbance, 1-2 hours for a strong wind. Forecasting of a cloud burst till today is a very challenging job throughout the world. However it is hoped that the early commission of Doppler Weather Radar will definitely help the Department to issue better forecast even for a micro scale weather system like cloud burst.

Use of Information Technologies is expanding:

The past decade has witnessed an explosion in the types, extent and depth of application of communication and information technologies in weather forecasts/warnings. Advances in the application of modern information and communication technologies in warning dissemination are increasing for example, short message text on mobile phones, internet etc. Government will encourage the general public to get benefited through the use of IT in early warning.

Public expectations regarding weather services are rising in J&K:

With frequent disaster events people witnessed in J&K like the recent avalanche in Gulmarg, cloud burst in Leh and several other events people realized the increased exposure to disaster threats. It is also witnessed that due to greater accuracy in weather forecast, there is increasing number of informed public and organizations who want to have better weather information.

Essential elements for an effective early warning

Early warning/forecasting systems need to be well managed

For effectiveness, Early Warning System needs a clear chain of command that ensures that **only one official warning** is given to each affected community and that stakeholders know the official source of the warning to avoid confusion and panic. It is observed that after a disaster there are rumours of more disasters to happen thereby transmitting wrong message. This creates fear in the minds of people. To avoid this, all efforts will made to ensure that only the right message reaches to the people. The messages shall be communicated via TV, Radio, SMS and internet as well as the print media

Warnings are most effective when targeted at **only the people at risk**, however, efforts shall be undertaken so that warnings are issued to **all at-risk groups** or locations within the target area to ensure safety. The warning messages will be the same for all in target areas, but the medium of transmission will be targeted at specific groups. However, messages will be passed through as wide a variety of warning devices as possible to reach all in the target group. Warning messages will be simple, clear and user friendly.

Good preparedness is essential for effective warning:

It is not sufficient to ensure that appropriate and timely warning reaches target groups; it is also essential that the local population knows how to react and what to do in emergencies. This depends on the extent to which warning services are decentralized. Realigning warning systems to addressing community needs implies that warning authorities have to engage communities to know those needs, recognize people's personal contacts, assess risks and manage public expectations of the warning system. All possible steps shall be taken to create awareness among the masses so that they respond quickly.

The preparedness component of the early warning of impending disaster shall as far as possible, be clear, ready and known to end-users. Public knowledge of early warning systems, including response mechanisms, through IEC (information, education and communication) initiatives enhances the success of warning messages. Responses to warnings are most appropriate and effective when the public has received prior education and sensitization about the hazard and people have worked out a response plan in

advance of the warning. To ensure this, the concerned agencies will work in close coordination with the IMD both in Srinagar and Jammu.

To be effective, early warning systems will be people centric and shall integrate four elements (i) a knowledge of the risks faced (ii) a technical monitoring and warning service (iii) quick dissemination of meaningful warnings to those at risk (iv) public awareness and preparedness to act as otherwise , failure in any one of these elements can mean failure of the whole early warning system.

To ensure an effective Early Warning and Forecasting System in the State, the following two aspects will be dealt on priority:

(i) Clear chain of command among various agencies.

(ii) Decentralization of early warning practice.

Techno-Legal regime.

1. Institutional and regulatory Framework:

Appropriate institutional and policy frameworks for risk reduction are essential to minimize human, material and environment losses from disasters and to reduce vulnerability to them. Disaster related legislation and regulatory frameworks are key to creating an enabling environment for disaster risk management by setting out the legal rights and duties of citizens as well as the duties of the State and other stakeholders in giving them protection. Policy statements can be undermined by lack of legal backing and accountability is more easily enforced where legal obligations are in place. However, enacted legislation frequently lacks enforcement. The main reasons for this include limited resources and capacities available, unclear designation of responsibilities for enforcement , lack of incentives and disincentives including penalties to promote the application of disaster risk management and reduction measures.

Moreover, policies and legislative measures are weakened by the absence of adequate means of carrying them out. For this, appropriate institutional frameworks and arrangements are needed. These comprise all organizations or institutions with a recognized role to play in disaster risk management, the mechanism for coordination between them, their human resources, funding, equipment and supplies, leadership and effectiveness,. Institutional development is therefore a vital part of the risk reduction process. Awareness of disasters and risks and commitment to dealing with them, must be incorporated at all levels within institutions. Responsibility and authority must be clearly defined within organizations and sufficient resources allocated. Because organizations are run by people, the general level of understanding, capacity and commitment must be increased by information sharing and training at all levels.

The basis legal framework for effective management of disaster has been provided under the Disaster Management Act 2005 and implementing body in the district besides preparing disaster response plans for the district implementation of National Policy and areas in the district, laying down guidelines for prevention of disaster, monitor the implementation of disaster management measures, etc.

There is a need to have a District Management Authorities at the Divisional level also which can coordinate and monitor disaster management plans and response measures and act as planning, coordinating and implementing body in a division of the State. Since there no enabling provision in Disaster Management Act, 2005 for establishment of Divisional Management Authorities, the Divisional Commissioners of the states be empowered to monitor and coordinate disaster relief and rehabilitation measures in case of disaster affecting more than one district by the SDMA through State Disaster Management Plan Guidelines. Thus, of the components of the State Plan to be laid down by the SDMA should authorize the Divisional Commissioner to monitor and coordinate disaster management and response plans and review the implementation of relief and rehabilitation measures in case of disasters affecting more than one district.

2. Need for Monitoring at Divisional Level

3. Prevention and reduction of Vulnerability of disasters:

As they say that disasters like earthquakes floods and cyclones do not kill people but inadequately designed and badly constructed buildings do. It is, therefore, essential to ensure safe construction of new buildings and retrofitting of existing buildings with safety measures so as to prevent or minimize the losses from such disasters. The observance of Earthquake guidelines and Building Codes will be made mandatory in all laws related construction of buildings. The safety measures and observance of guidelines and codes shall be made mandatory at two stages i.e. for new construction and for the existing building.

3.1 Safety of new constructions/buildings: It will be mandatory for all new constructions to comply with the building codes of Bureau of Indian Standards and guidelines issued by NDMA, SDMA and DDMAs from time to time. All laws relating to erection, construction or renovation of buildings shall be suitably amended to synchronize then with disaster mitigation regimes and to make it obligatory on every citizen to employ safety measures in their buildings against seismic, flood, landslide and other disasters. The practice of compromising with disaster safety regimes need to be made a penal offence besides making such buildings liable to demolition. These laws shall also provide for strong compliance mechanisms and strict enforcement. It shall be made obligatory for every authority empowered to grant permission for any sort of construction to ensure that such permission is granted only after complying with safety measures. The authorities who are are charged with the duty of monitoring the construction buildings will be responsible for any lapse or laxity in observance of safety measures on the part of the person undertaking such construction.

3.2 Safety of existing/old buildings: Loss of life and property cannot be prevented unless all buildings, new as well as old, are made resistant to disasters. Retrofitting of existing/old buildings and bringing them in sync with disaster safety measures and BIS building codes is a big task as it would be fairly costly to employ such safety measures in old buildings as compared to the new constructions. Besides, as a natural tendency, people may not be as enthusiastic to spend substantially on protection of their old buildings as they would be in case of new buildings. Therefore, there is need to have a plan to have all old buildings retrofitted with safety measures in a phased manner starting with highest vulnerable zones including school buildings and hospitals and culminating with relatively least vulnerable areas. Such a plan could compromise of some incentives and subsidies for people who employ safety measures in their old buildings with a given time frame. Banks and financial institutions shall be persuaded to extend soft loans with lease possible interest rates to people for retrofitting their old buildings. Suitable provisions shall be incorporated in building related laws and regulations to make it obligatory for every person and every department of the Government to employ safety measures in old buildings. Failure to do so within the period specified in this bhelaf shall make the owner or occupier of such buildings or the concerned Government department liable to punishment including demolition of the building.

4. Strengthening of legal Framework: Review of building relating laws:

There are many laws in force in the State which directly or indirectly regulate the construction of buildings. All such laws shall be reviewed and re-looke3d at for ensuring safe construction regime so as to prevent loss of life and property during disasters,. Enactment of existence of a law alone is not enough unless a strong enforcement mechanism is not in place,. Enforcement and observance of safety laws will be ensured by strengthening the Institutional frameworks and making them accountable and answerable. The following laws and rules make there under require review and re-look

4.1 The Jammu and Kashmir Control of Building Operations Act 1988.

4.2. The Jammu and Kashmir Natural Calamities Destroyed Areas Improvement Act, Samvat 2011.

4.3. The Jammu and Kashmir Municipal Act, 2000.

4.4. The Jammu and Kashmir Housing Board Act, 1976.

4.5 The Jammu and Kashmir Development Act 1970.

4.6 The Jammu and Kashmir Electricity Act 2010 and the Jammu and Kashmir Waster Resources (Regulation and Management) Act 2010. Two important pieces of legislation have been enacted by the State Legislature recently namely the Jammu and Kashmir Electricity Act, 2010 and the Jammu and Kashmir Water Resource (Regulation and management) Act 2010. Construction of dams and water reservoirs are essential activities under both these laws. Collapse of or any damage to a dam or a reservoir can cause as much devastation and destruction in the catchment area as an earthquake or a cloud burst. Therefore, enough protective mechanisms and safety measures are required to be undertaken in the construction of dams and reservoirs. The rules under both these Acts are yet to be framed. The Power Development Department and the Public Health Engineering Department will be impressed upon to put in place adequate provisions regarding safety measures in respect of dams and reservoirs while framing the rules under these laws.

5. Land Use Planning and Management:

Today's society becomes ever more rapidly vulnerable to natural disasters due to the concentration of populations in cities and towns. Vulnerability has increased due to growing urban populations, environmental degradation, and a lack of planning and land management. Environmental disasters in many cases are the result of misusage of natural resources by human being. They take place especially because of the negative impact of the over-exploitation of natural resources. The utilization of unsuitable areas for construction further enhances vulnerability which needs to be guarded against through appropriate compliance mechanisms. Land planning and management provide various tools to prevent natural hazards. Therefore, a more active role of planning and land management is necessary and it has to support a sustainable settlement development and as sustainable land use on consideration of the different public and private interests because of their important influences on environmental disasters. The quantity and the quality use of land resources are determined as the central indicator of the guiding principle for sustainable settlement development. In case of expanding settlements the land consumption and land use have to be taken into account carefully. The structure and the density of the settlements and new building areas have to be optimized so that the consumption of agricultural land and open spaces and also of energy for traffic purposes is low. Review of master plans and zonal plans by the concerned authorities is highly essential. As far as new settlements are concerned, the future land use is to be assessed keeping in view the anticipated intensity of development.

The Government is contemplating to formulate a land use policy in the State. The Government has already taken note of the reckless and indiscreet conversion of agricultural land for non-agriculture purposes like construction of buildings, colonies, shopping malls and other business establishments is an unplanned manner.

6. Training and Technical support:

The mitigation and prevention of disasters cannot be ensured unless the people living in vulnerable areas are sensitized and made aware about safe construction practices. Besides, the objectives of safe constructions and observance of building codes, guidelines, safety regimes etc. can be achieved only when engineers, architects, builders, contractors, construction workers, masons and carpenters are trained in this field. Therefore, Government shall arrange for training of these people in disaster related safety procedures and mechanisms. Engineering Departments of the Government, Universities, Engineering Colleges, IMPA and non-governmental organizations shall be roped in to impart training to the concerned engineers and artisans in batches so that more and more people are equipped with the knowledge and technique of safe construction procedures,. Necessary steps will be taken to provide technical support and procedural know-how to common people about safe constructions.

7. Conclusion:

The following measures will be taken to strengthen the techno-legal regime for better disaster risk management and reduction of vulnerability:

i) Institutional development with recognized roles to play in disaster risk management and defined mechanisms for coordination between then, their human resources, funding, equipment and supplies.

ii) In the absence of enabling provisions in the Disaster management Act, 2005, necessary provisions shall be incorporated in the Policies and guidelines to be made by the SDMA for active involvement of Divisional Commissioners in disaster management particularly for monitoring disaster response, distribution of relief, rehabilitation measures and coordination with different District Management Authorities in case of disaster being spread over more than one district.

iii) Review and amendment of laws and rules relating to constructions and buildings to make it mandatory for observing building codes and disaster relatr3ed safety measures, guidelines of NDMA, SDMA and DDMAs in respect of new constructions,. For this purpose, the rules and regulations framed under the Jammu and Kashmir Control of Building Operations Act 1988, the Jammu and Kashmir Natural Calamities Destroyed Areas Improvement Act, Samvat 2011, the Jammu and Kashmir Municipal Act, 2000, the Jammu and Kashmir Housing Board ACT 1976 AND THE Jammu and Kashmir development Act, 1970 shall be reviewe3d and suitable amendments recommended.

iv) Efforts shall be made to ensure that all existing/old buildings are made safe by retrofitting of safety measures in a phased manner. For making such retrofitting obligatory, necessary provisions will be incorporated in the above mentioned laws and rules framed there under.

v) Incentives, subsidies, financial help or ensuring soft loans with marginal interest rates from banks and other financial institutions for people to enable them to retrofit existing buildings shall be encouraged.

vi) Laws relating to safe construction regime shall be strictly implemented and enforced and the authorities responsible for enforcement of such laws and monitoring of construction activities shall be made personally responsible for non-implementation or non-observance of such laws.

vii) Adequate safety mechanisms will be put in place in respect of construction of dams and reservoirs while framing rules under the Jammu and Kashmir Electricity Act 2010 and the Jammu and Kashmir Water Resources (Regulation and Management) Act 2010.

viii) Laying down of effective land management and land use policy taking a balanced view of housing needs of the people and the adverse impacts of settlement expansions viz-a-viz vulnerability of environmental disasters.

ix) Taking of appropriate steps for sensitization of people living in vulnerable areas and spreading of awareness about safe construction procedures.

x) Institutionalizing the training of engineers, architects, designers, builders, contractors, masons, carpenters and other artisans in safety measures and procedures.

xi) Providing of technical support and engineering know-how to people for making their buildings resistant to disasters.

CHAPTER V

Disaster Response Phase

Disaster Response

A quick and effective response reduces the loss of life and property. Integrated with a caring approach for the special needs of the vulnerable sections the arrangements need to ensure a proactive and synergized approach in dealing with any disaster. This can be ensured through a well informed and prepared community, trained manpower and special equipment. The government will ensure to develop its own response potential progressively and train and equip the state response forces, community preparedness, training and creation of response catches at various levels.

Standard Operating Procedures:

SOPs will be developed for all agencies concerned in accordance with the State plan. SOPs for search and rescue activities, medical assistance and casualty management, evacuation, restoration of basic services, etc. will be devised for quick response to any disaster.

Incident Response System:

The Incident Command System (ICS) which is now being modified as Incident Response System (IRS) will be strengthened and professionalized to organize various emergency functions in a standardized manner while handling any disaster. Special incident management teams will be constituted at various levels.

Medical response:

All efforts will be made to ensure a quick emergency response system during a disaster. Medical teams will be constituted and trained with adequate infrastructure in the form of advanced specialized ambulances and critical trauma care facilities. The teams will be trained in triage. Mobile medical hospitals with other resources will also be part of the emergency medical units. Care will be taken to ensure post disaster management of health, sanitation and hygiene services to prevent outbreak of any epidemics.

Livestock Care:

Livestock both domestic and wild are exposed to the effects of disasters. Efforts will be made through the concerned agencies mainly Animal & Sheep Husbandry Department, Department of Wildlife Protection, etc. to ensure safety of animals.

Partnership with Media:

Media has been found to be a one of the key agencies involved in educating the people during all the stages of disaster management. Media, both print and electronic, disseminates information which helps the public to respond accordingly. All efforts will be made to involve media before, during and after a disaster.

CHAPTER VI

Recovery and Rehabilitation Phase

Disaster Recovery and Rehabilitation Phase:

Disaster relief and rehabilitation is considered to be an effective tool of ensuring socio-economic safety and security of the effected persons as such, the relief needs to be prompt, sufficient and standardized. In this direction the various guidelines on standards of relief prepared by various agencies including Sphere India guidelines on Minimum Standards of humanitarian assistance will be adopted.

Temporary Shelters

The DDMAs will identify various temporary shelters as per the disaster vulnerability of their districts. These may include any public building, schools, colleges, religious building (mosque, temple, etc). However, care will be taken to locate the temporary shelters as per pre-decided locations to avoid any confusion. All possible efforts will be made to ensure adequate supply of drinking water and bathing, sanitation and health care in the temporary shelters.

Relief Supplies:

SOPs will be put in place to ensure procurement, packaging, transportation, storage and distribution of relief items in an organized and transparent manner. All possible efforts will be made to procure and store the relief items at the affected divisional/district headquarter as the case may be.

Reconstruction

Reconstruction programmes will be undertaken in consultation with the government agencies , effected community, NGOs and the corporate sector. Extra care will be taken to ensure that whatever constructions come up after a disaster, all disaster resistant safety features are incorporated so that the investments last longer. No compromise, whatsoever, will be made with the quality of constructions. In this regard the building codes specified for a particular area will be adopted in letter and spirit.

CHAPTER VII

Training and Capacity Building in Disaster Management

Training and Capacity Building in Disaster Management:

Awareness generation, education, training, research and development is the key to minimise impacts of disasters. Training has been found to be the most effective tool of reducing vulnerabilities. It will be endeavor of the government to create a trained cadre of officers/officials of different departments who are directly involved in disaster management. In this direction the role of various institutions needs to be highlighted since disaster management involves multi-stakeholders and as such needs to be dealt with accordingly. The Universities, Engineering Colleges, Polytechnic Colleges, Medical Colleges/Regional Institutes of Health and Family Welfare, Revenue Training Institute, SK Police Academy/Police Training Centres, etc will be roped in to impart training to the various stakeholders. In addition chapters on disaster management will be included in the syllabi of different classes both professional and academic on the pattern of CBSE. The Disaster Management Centre of J&K IMPA will be strengthened /upgraded in terms of infrastructure and manpower. Subsequently a State Institute of Disaster Management will be established with the mandate to conduct training and capacity building programmes, document various disasters and conduct research and development activities.

CHAPTER VIII

Role of various Organs of the Government

CHAPTER IX

Role of NGOs and CBOs

ABBREVATIONS

ANNEXURES