DISASTER MANAGEMENT PLAN

URBAN DEVELOPMENT DEPARTMENT

GOVERNMENT OF HIMACHAL PRADESH

CONTENTS

1. INTRODUCTION

1.1 OVERVIEW OF THE DEPARTMENT

The Himachal Pradesh State is a predominantly Hill State with the total population of 68.56 (6.85 Million) residing in 55673 sq km area. Like any other part of our great country, urbanization is fast increasing and posing variety of problems related to urbanization in Himachal Pradesh as well.

Currently, the urban population of the state is 6.89 Lakhs (0.69 Million) (10.04% of the total population) but it is fast increasing. The state currently has 1 Municipal Corporation (Shimla), 30 Municipal Councils and 22 Nagar Panchayats to provide qualitative municipal services in Urban Areas.

The Urban Development Department of State, in close partnership with ULBs is striving to find innovative and advanced technological solutions to urban problems of the State like; integrated urban transport, Sanitation, Solid Waste Management, Urban Infrastructure, Urban Poverty, Urban Housing, Urban Planning, Financial Sustainability of ULBs and general Urban Governance.

The task is gigantic, but the Department find it to be achievable through the active community involvement and hard work and sincere efforts of all officers and employees of the department.

The Directorate of Urban Development was established during the year 1985-86 to direct, control and monitor the activities of the Urban Local Bodies in the state of Himachal Pradesh. The Directorate has been assigned the responsibility to look after the Legislative, Administrative and Development activities of 50 Municipalities (Local Urban Bodies) i.e. 2 Municipal Corporation, 28 Municipal Councils and 20 Nagar Panchayats which covers 5.59 Lac urban population (2001 census report) which is about 9.2% of the total population of the state.

From 1986 to May 1994, the Directorate was performing nominal regulatory functions which merely relates to the coordination of development works, the release of grants and passing of municipal budgets. Consequent upon the 74th amendment of the constitution and the enactment of 3 new Municipal Acts viz. H.P. Municipal Corporation Act, 1994, Municipal Act, 1994 and H.P Municipal Services Act 1994, numerous Constitutional, Statutory and obligatory functions are entrusted to the Directorate. The 74th Constitutional Amendment envisages greater decentralization of administrative, legislative and financial functions to the Urban Local Government coupled with more and more functional autonomy to all the municipalities.

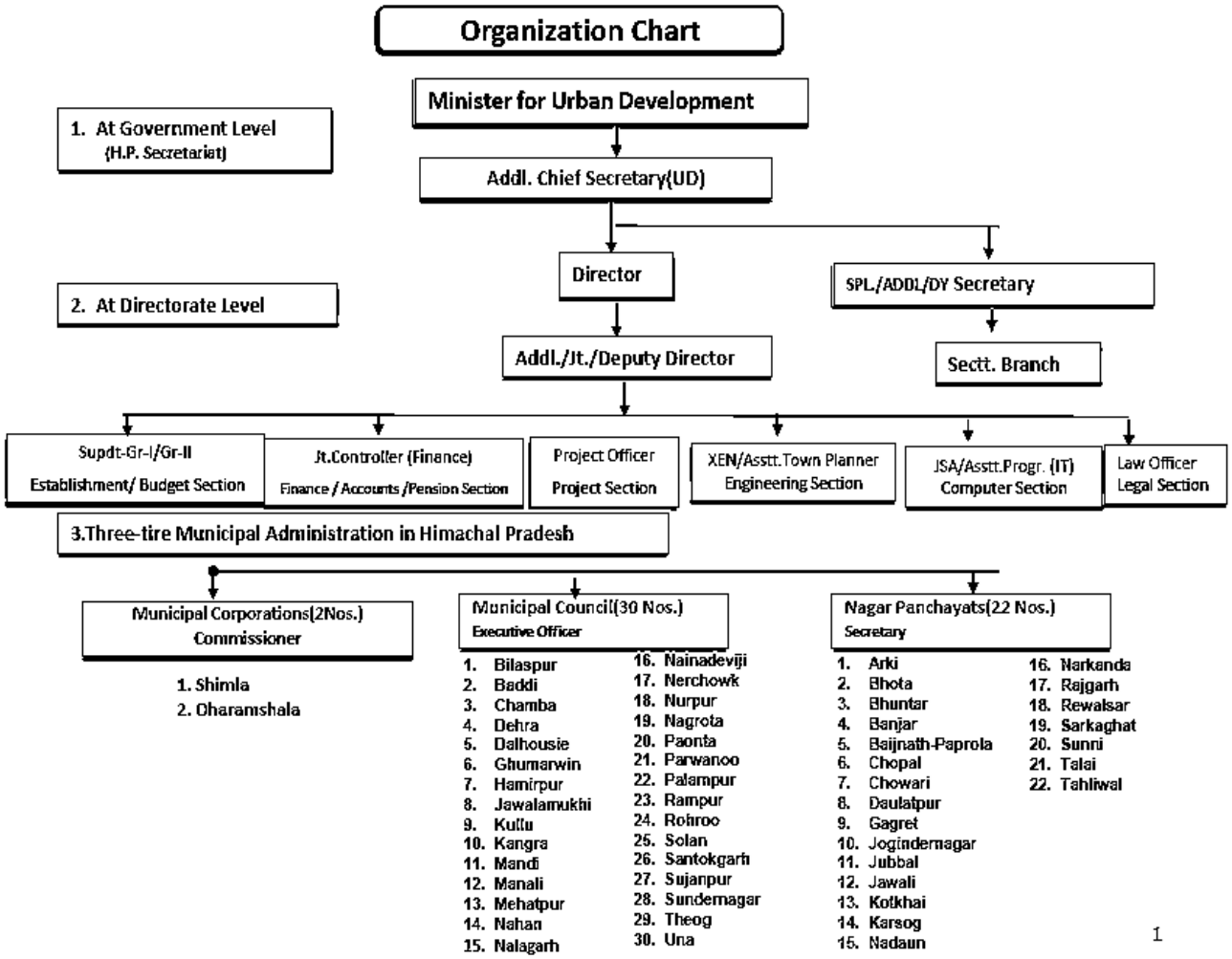
1.2 FUNCTIONS

Main functions performed by the Directorate of Urban Development are: -

- To do periodical Inspections of Urban Local Bodies
- To ensure proper utilisation of Grant-in-aid in accordance with the rules
- Settlement of Audit, PAC and CAG paras
- To monitor the Utilisation Certificates
- To implement the Centrally/State Sponsored Schemes
- To scrutinise the development work estimates.
- To improve the service condition of the Employees of the Urban Local Bodies
- To look into the election matters of Municipalities
- To recommend for amendments in Acts

- To look into the Rules/Regulations and Bye-Laws of the Urban Local Bodies
- To regulate Proceedings of the Urban Local Bodies in accordance with the Rules and Regulations
- To regulating finances of the Urban Local Bodies
- To streamline the tax structure of the municipalities to increase their finances
- To audit the accounts of Income & Expenditure of Municipalities.

Organization Chart of Urban Development Department



1.3 PURPOSE OF THE PLAN

Section 23 of the Disaster Management Act, 2005 mandates that there shall be a plan for disaster management for every State to be called the State Disaster Management Plan (SDMP). Copies of the State Plan shall be made available to the departments of the Government of the State and such departments shall draw up their own plans in accordance with the State Plan. Besides, as per Section 40 of Act every department of the State Government, in conformity with the guidelines laid down by the State Authority, shall draw up their own disaster management plans. The SEC as per Section 22 (2) (c) of the Act would lay down guidelines for preparation of disaster management plans by departments of the State and District Authorities. Further, as per Section 38 (2) (g) of the Act, the State Government shall ensure the preparation of disaster management plans by different departments of the State in accordance with the guidelines laid down by the National Authority and the State Authority.

The basic purpose of departmental DM plan is to manage the risks of disasters before, during and after disasters. The Plan shall be reviewed and updated annually by the department.

The objectives of this plan are to facilitate the UD Department in the following:

- Assessment of the sectoral and departmental risks of disasters in UD Department;
- Undertaking measures for mitigating the existing risks of disasters to UD sector;
- Prevention of creation of new risks of disasters in UD in the state;
- Undertaking preparedness measure;
- Assigning role and responsibilities for various tasks to be performed by the department in accordance with the State DM Policy and State DM Plan;
- Undertaking measures proposed for strengthening capacity-building and preparedness of all stakeholders of UD sector;
- Mounting prompt and coordinated response at various levels.

1.4 SCOPE OF THE PLAN

In accordance with the Disaster Management Act 2005 and Himachal Pradesh State Disaster Management Plan 2012, the plan must include the following:

- Identify the vulnerability of different parts of the State to different forms of disasters in context of the department;
- The measures to be adopted for prevention and mitigation of disasters;
- The manner in which the mitigation measures shall be integrated with the development plan and projects;
- The capacity-building and preparedness measures to be taken;
- The roles and responsibilities of different departments of the Government of the State in responding to any threatening disaster situation or disaster;

1.5 AUTHORITIES, CODES, POLICIES

Section 40 of the Disaster Management Act 2005 provides that there shall be a Disaster Management Plan for every Department of the State. The departmental DM Plan shall be prepared by each department and shall be approved by the State Executive Committee. This plan is prepared under the provisions outlined in the Disaster Management Act 2005.

Table: 1 Provision of DRR/CCA in the Act

#	Act	Provision of DRR / CCA related aspects
1	The Himachal Pradesh Municipal Corporation Act, 1994	• **Functions of the Commissioner** ○ on the occurrence or threatened occurrence of any sudden accident or any unforeseen event or natural calamity involving or likely to involve extensive damage to any property of the Corporation, or danger to human life, take such immediate action in consultation with the Mayor and make a report forthwith to the Corporation of the action he has taken and the reasons for the same as also of the amount of cost, if any, incurred or likely to be

		incurred in consequence of such action, which is not covered by a budget grant; • **Functions of Corporation to be entrusted by the Government** o fire services- Provision of fire hydrants and extinction and prevention of fire; o urban forestry, protection of the environment and promotion of ecological aspects; • **District Planning Committees** o Every District Planning Committee shall in preparing the draft development plan- o have regard to matters of common interest between the Municipalities and Panchayats including spatial planning, sharing of water and other physical and natural resources, the integrated development of infrastructure and environmental conservation; • **Regulation of felling and planting trees**
	The Himachal Pradesh Town and Country Planning Act, 1977	• Land use hazard zoning technique used for planning for new buildings / roads. • Quality standards & guidelines for hazard-resistant construction of the building. • Retrofitting policy for disaster-resistant strengthening of existing buildings. • Retrofitting policy for Non-structural building components (falling hazards). • Coordination & Capacity development. • Education & training on disaster risk management for the staff in HPTCP. • Conduct disaster preparedness programmers (e.g. mock drills, first aid, search and rescue training) Risk-proofing & monitoring. • Safety norms are followed in the construction of buildings. • A risk assessment was done in site- selection and construction of new infrastructures. • Retrofitting of existing buildings.
	Model Regional Town Planning And Development Law, 1985	Section 11: Function and power of Local Planning Authorities 11 a) an existing Land Use Map indicating hazard proneness of the area. 11 b) an Interim Development Plan keeping in view the regulations for land Use zoning for Natural Hazard Prone Areas. 11 c) a Comprehensive development keeping in view the Regulations for Land Use Zoning for natural hazard prone Areas.
	Model & Town Country Planning Act, 1960	Section 4: Function and Power of The Board 4(2) (a) direct the preparation of Development Plans to keep in view the natural hazard proneness of the area by local Planning authorities.

1.6 INSTITUTIONAL ARRANGEMENTS FOR DISASTER MANAGEMENT

Executive Engineer will be the nodal officer at the state level and will be supported by Joint Controller (Finance) will serve as a support agency for regulating relief/ restoration operations. The department will also assist the Municipal Corporations and Municipal Councils to carry out disaster risk reduction activities. Executive Engineer will be the nodal officer at the Municipal Corporation and Municipal Council level to perform emergency support functions.

#	No of buildings
1	Directorate of Urban Development
2	2 Municipal Corporation (Shimla and Dharamshala)
3	30 Municipal Councils
4	22 Nagar Panchayats

1.7 PLAN MANAGEMENT (MONITORING, REVIEW AND REVISION)

DM Plan is a "Living document" and would require regular improvement and updating. As per the National Disaster Management Act 2005, the plan must be updated at least once a year. The Disaster Management Plan prepared by the Department shall be circulated to all its ULB offices. The Plan shall be shared on the Departmental portal. The plan will be updated as and when required and modified plan shall be communicated to the key stakeholders.

For the annual review of the disaster management plan participation of different stakeholders will be ensured by inviting them to workshops. Based on their feedback, necessary changes will also be incorporated into the plan.

The system of Updation:

Table 1.5: Review and updating of Disaster Management Plans.

#	Plan	Who	When	How
1.	State Plan	UD	Pre-monsoon Pre-winter	Workshop Mode
2.	ULBs	ULBs	Pre-monsoon Pre-winter	Workshop Mode

Dissemination of Plan:

Urban Development Department would involve HPSDMA for capacity building at different levels of training and dissemination. The Disaster Management Plan will be disseminated to all ULBs within the State. The content of the plan would be explained through well designed and focussed awareness programmes. The awareness programmes would be prepared in the local language to ensure widespread dissemination up to the community level. Disaster Management Plan will be uploaded on the department website of Urban Development Department. A printed document will be supplied to all the stakeholders. Meetings and seminars will be held to disseminate the Disaster Management Plan.

2. HAZARD, RISK AND VULNERABILITY ANALYSIS

2.1 RISK ASSESSMENT OF HIMACHAL PRADESH

The state of Himachal Pradesh is exposed to a range of natural, environmental and man-made hazards. Main hazards consist of earthquakes, landslides, flash floods, snowstorms, avalanches, GLOF, droughts, dam failures, fires, forest fire, lightning etc. Enormous economic losses caused due to natural disasters such as earthquakes, floods, landslide, avalanche, etc., erode the development gain and bring back economy a few years ago. Most of the fatalities and economic losses occur due to the poor construction practices, lack of earthquake-resistant features of the buildings and low awareness about disasters among people. In order to estimate and quantify risk, it is necessary to carry out the vulnerability assessment of the existing building stocks and lifeline infrastructure.

The entire state is at risk of being affected by a severe seismic event. About 32% of the total geographical area of Himachal Pradesh falls in the very high seismic zone V, while the rest (68%) lies in the high seismic zone IV. Ten out of 12 districts fall in the very high seismic zone. Three districts have over 90% of their geographical area prone to very high seismicity. Two districts have more than 50% of the geographical area with the severest seismic intensity: Chamba (53.2%), and Kullu (53.1%). During 1800–2008, about 70% of earthquakes occurred in three districts, namely, Chamba, Lahul and Spiti, and Kinnaur. Three districts, Solan, Hamirpur and Bilaspur, have less than 1% concentration, whereas in Una district, no earthquake has ever been recorded during this period but that doesn't mean that in future there will be no such events. In recent past, the state has been facing mild earthquakes within short span which itself embarks the risk and gives the scope to assess it for mitigation.

Some of the common natural and manmade disasters experienced in State are followed as per State Disaster Management Plan:

Water and Climate-Related Hazards:

- Cloud Bursts
- Hailstorms
- Cold Waves
- Snow Avalanches
- Droughts
- Thunder and lightning
- Floods
- Snow Storms

Geologically Related Disasters:

- Earthquake
- Landslide
- Rock Falls
- Land Subsidence
- Land Erosion
- Dam Failures / Lake bursts

Chemical and Industrial Disasters:

Specific to industrial belts (Nalagarh, Mehatpur, Baddi-Barotiwala, Kala-Amb and Paonta Sahib)

- Industrial Fires
- Gas & Chemical Leakages

Accidents Related Disasters:

- Forest fires
- Electrical fires
- Urban fires / Village fires
- Building Collapses
- Festival / Fair / Temple Stampedes
- Road accidents / rail accidents
- Boat capsizing

Biologically Related Disasters:

- Epidemics
- Pest attacks
- Food poisoning
- Water Contamination
- Cattle epidemics

Emerging Threats

Climate-induced Hazards:

- Glacial Lake Outburst Floods (GLOF)
- Landslide Dam Outburst Floods (LDOF)
- Flash Floods

Human and animal conflict:

- Monkey Menace

2.2 HAZARD WISE VULNERABILITY AND RISK ASSESSMENT

As per State HVRA report

2.2.1 EARTHQUAKE

As per HVRA Report of the State, building vulnerability assessment in the state of Himachal Pradesh shows that stone masonry and rammed earth building types are the most vulnerable one which may cause the huge loss of life in the state. In last two decades, brick masonry and RC frame construction have been on the rise but the quality of construction was not maintained which resulted in increasing vulnerability.

Traditional construction practices like Dhajji Dewari and Kath Khunni should be promoted as these structures have shown the great capability to resist the lateral forces during strong earthquake also. Vulnerability and damage assessment of buildings represent the areas having a concentration of risk in certain areas. Mitigation planning should be taken at tehsil and district level to improve the building condition.

2.2.2 CLIMATE CHANGE

Climate extremes show that minimum of maximum and minimum of minimum temperatures is consistently increasing in Mid-Century (MC) and End-Century (EC) compared to the Base Line (BL), indicating significant warming up increasing over the Himachal Pradesh districts. Very wet and extremely wet day precipitation is projected to increase for all the districts in MC and EC compared to the BL implying that rainfall and its intensity would increase in the future.

- Percentage of warm days and warm nights is projected to increase while the percentage of cool days and cool nights is projected to decrease for all the districts implying warming up.
- Kullu, Kinnaur and Mandi districts of Himachal Pradesh are expected to get the warmest in MC and EC compared to the BL, while for Lahul & Spiti temperature increase is expected to be the least compared to the other districts.
- Increase in precipitation in MC and EC is projected to be the maximum for Salon, Bilaspur, Hamirpur districts of Himachal Pradesh compared to the BL, while increase in extremely wet days (annual total rain when rainfall is greater than 99th percentile of baseline) is projected to be the maximum for Mandi, Hamirpur and Bilaspur districts.
- Increase in count of very heavy precipitation days is expected to be the maximum for Salon, Bilaspur and Kangra of Himachal Pradesh districts compared to the baseline
- 1 and 5-day extreme precipitation increase is projected to be the maximum for Shimla towards end century

2.2.3 LANDSLIDE

Hazard and Vulnerability mapping are the most vital steps to be conducted so as to tackle the adverse effects of the landslide risk. This exercise was carried out to delineate the areas under different hazard zones and further analyze the vulnerability to landslides in the state of Himachal Pradesh. Comparison of both the results obtained from methodology as adopted in BMPTC Vulnerability Atlas with incidences of past landslides recorded by GSI indicates that Hamirpur, Bilaspur and Una although falling under high to very high hazard area hardly having any incidences of landslides in the past. Similar results are observed in the case of revised methodology as well.

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2.2.4 FOREST FIRE

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2.2.5 FLOOD

Riverine flooding or river floods are caused when a river reaches its flood stage. Water can rise and spill over the banks of the river. The amount of flooding is a function of the amount of precipitation in an area, the amount of time it takes for rainfall to accumulate, previous saturation of local soils, and the terrain around the river system.

Floods are natural phenomena, which can have severe economic, social and environmental consequences. An increased number of people and economic assets are located in riverine floodplain areas. The rising water level may be caused by heavy snowmelt or high-intensity rainfall creating soil saturation and high runoff either directly or in upstream catchment areas.

Locally, soil saturation after prolonged natural recharge may contribute to the severity of the flooding. In Himachal Pradesh, flash flood due to cloudburst is common phenomena. Himachal Pradesh experiences riverine flooding of varied magnitude almost every year and Sutlej and Beas are most vulnerable rivers. All the villages and property inside the floodplain and near close vicinity are in the vulnerable zone.

2.3 ASSESSMENT OF SECTORAL AND DEPARTMENTAL RISKS

As per State HVRA

2.3.1 URBANISATION IN HIMACHAL PRADESH

The Himachal Pradesh is regarded as one of the least urbanized states in the country with only 10.04 percent of the population living in towns and cities. The total urban population of Himachal Pradesh was 6,88,704 in 2011. Shimla is the highest urbanized district in the state where 25 percent of the district population is urban (Census of India 2011). The towns have expanded from the small villages/marketplaces to large settlements. As per Census 2011, there were 59 towns as compared to 36 in 1971.

2.3.2 ADMINISTRATION

Shimla is the only city with a Municipal Corporation. The towns in the state are governed as per three new Municipal Acts-HP Municipal Corporation Act 1994, Municipal Act 1994 and HP Municipal Services Act 1994. The Municipalities are responsible for activities of infrastructure building & improvement, maintaining public streets, bridges, town halls, embankments, drains, drinking water and sanitation, tanks and watercourses, solid waste management, maintenance of schools, hospitals and public institutions.

2.3.3 DEMOGRAPHY

The Shimla, Solan, Kangra and Mandi districts with more than 10% urban population to district population, account for more than two-thirds of the state's urban population. The percentage of urban population has grown from 6.99 percent in 1971 to 10.04 percent in 2011. The number of urban literates stands at 571,133 (55 percent male and 45 percent female). The Urban literacy rate is 91.1 percent (93.42 percent among male and 88.37 among female). The sex ratio of urban Himachal Pradesh is 853 way below the sex ratio of the State (972). Poor sex ratio in urban areas is a concern. Lahaul and Spiti district does not have any urban population although Reckong Peo is being considered as an urban area. Average household size is 4.6.

2.3.4 ECONOMY

The urban centres are not growing at par with urban centres of neighbouring States of Punjab and Haryana. Total working population in urban areas is 270,038 of which the highest working population is in Shimla Town. A total number of main workers in urban areas is 240,392. In urban areas, tourism and trade are growing sectors. The total number of tourists visiting HP was 15,089,406 (Indian and foreigners) in 2011 (State Abstract of HP, 2013).

Per capita income is `47,106. About one-third of the population was found to be Below Poverty Line (BPL): rural-35 percent rural and 7.6 percent urban (HP Fact Sheet-UNICEF, 2009). The number of families in the BPL category is now 24 percent, showing a reduction when compared to the 2009 data (State Abstract of HP, Economics and Statistics Dept, 2013).

2.3.5 INFRASTRUCTURE

There are 53 hospitals in the State, 10 dispensaries, 76 CHCs, 472 PHCs with a total 9,702 beds. Approximately 99 percent of the houses in urban areas are pucca, however, their location on risk-prone areas such as steep hills etc. make them vulnerable if they are impacted by any natural disasters.

Most of the urban areas, especially located on ridges and upper slopes face drinking water shortages. Drinking water availability has been decreasing because of rapid urbanisation over the last two decades. To address issues around drinking water, the Drinking Water Scheme of the Irrigation and Public Health Department is working on water supply facilities and their operations and maintenance in 49 towns. Almost 96 percent of the urban areas have tap water supply. Sewerage facilities are inadequate. 98 percent of households have electricity. About 10 percent of the urban population has access to the internet. The total length of Municipal roads is 750.84 km.

2.3.6 SOCIO-ECONOMIC

A total of 726 urban households across 12 cities (0.55% of the urban population) were interviewed. The questionnaire covered age distribution, income sources, housing, access to basic services and different aspects of vulnerability. Sustainable Rural Livelihood framework was used to analyse the data.

Four capitals were used for assessing the urban household vulnerability. They include Human, Physical, Financial and Social capitals. The natural capital was not taken into consideration since the livelihoods and well-being in urban areas are not directly linked with natural capital.

2.3.7 HUMAN CAPITAL

The Human Capital Index (HCI) is one of the indicators to identify the level of vulnerability of a household. This index is based on three indicators; the highest education level in the household, dependency ratio and presence of members with a disability or terminal illness. Equal weight was given for each of the sub-indicators.

2.3.8 PHYSICAL CAPITAL

Physical capital is one of the most important indicators in urban areas since the households depend on the physical infrastructure for meeting basic needs as well as to use to increase productive time. Physical Capital includes the private as well as public infrastructure and services, which are essential for the well-being of households. These include access to water supply and sanitation, housing, communication. For assessing the vulnerability of households following sub-indicators are used:

- Access to piped water supply
- Access to toilets
- Type of the house
- Age of the building
- Location of the dwelling (steep hill / flood prone area / landslide prone area / near a garbage dump / industrial area),
- Ownership of telephones / mobile phones.

In urban areas, road connectivity and other basic services are fairly well developed, therefore road access and drainage were not considered. Since a significant proportion of the old city areas have buildings of various vintages, the age of the house was also considered. Equal weightage was given for all the six indicators.

2.3.9 FINANCIAL CAPITAL

Financial capital includes the number of incomes as well as earning member to non-earning member ratio. The financial capital was assessed by per capita household income and working to non-working members ratio. Equal weightage was given to both the indicators

2.3.10 SOCIAL CAPITAL

Social Capital includes social relationships and institutions from where households gain social security at the time of need, stress or shock. Often in an event of a disaster, people rely on their networks, groups or institutions for support and for coping with the stress. In the absence of such networks and groups or poor ties, households may become vulnerable. To identify vulnerability based on social capital, membership of any social group and participation in the group is used. Equal weightage was given for two indicators. A total of seven types of social groups were considered.

2.3.11 SAMPLE COVERAGE

A total of 781 urban household samples selected from 12 largest towns in the State covering a population of 4207 (about 0.5% of state urban population). In each city, low, middle, mixed and upper income dominated

areas were identified on maps and samples were chosen from two areas from each group. The survey team also consulted representatives of Municipal Corporation, Councils, Nagar *Panchayats*, and held group discussions with the communities for urban town profiling.

2.3.12 AGGREGATION

The vulnerability of each of the five capitals was analysed at the household level and aggregated to the town level. The reporting is done on poor (lowest 20 percentile) middle (20-80 percentiles upper (top 20 percentile) quintiles based on per capita incomes. This method assumes that the sample households represent characteristics of the city population. The Urban Composite Socio-economic vulnerability index is the equally weighted score of five capitals.

2.3.13 INDEX SCORING SYSTEM AND MAP PRESENTATION

The scoring for the individual index for each capital on a scale of 0-10. The index score of 0 is for the least vulnerable and 10 the most vulnerable. The maps are presented with Green-Yellow-Red palette using a pie diagram for each town. The proportion of households in five vulnerability score groups is shown (with vulnerability scores of 0-2, 2-4, 4-6, 6-8 and 8-10). Dark green represents the lowest vulnerability while Dark red represents the highest vulnerability and yellow colour showing intermediate values. The maps for the bottom (first), mid (2nd to the fourth quintile) and top (highest) quintile, as well as whole own level samples, are presented separately on each plate. Composite Risk Index is presented on the map.

Table 2: Urban vulnerability score of Himachal Pradesh:

Index	Indicators	Scores
Physical	Building age (years)	>40=10; 30-40=6;20-30=4;10-20=2; <10=0
	House type	Kuccha=10;Semipucca=5; Pucca=0
	Dwelling location	Steep hill, Landslide/Flood prone=10;Industrial pollution, Near garbage ground=5, Plains, None =0
	Water Supply Source	River Stream=10; Tanker supply=8; Open Well=6; Hand Pump=4; Stand-post=2; Piped water supply-Pvt connection=0
	Access to toilets	None=10; Community toilet/Shared toilet=5; Household toilet=0
	Mobile phone	Yes=0; No=0
Financial	Per capita annual income (in '000 Rs.)	<9=10; 9-13.6=8; 13.6-18=6; 18-25=4, 25-35=2; >35=0
	Nonworking to working members	ratio. >2=10; 1-2=8;0.75-1=6; 0.5-0.75=4; 0.25-5=2; <0.25=0
Human	Highest education levels in HH	Illiterate=10; Primary=8; Secondary=6; Higher Secondary=4; Graduate=2; Post-Graduate=1; Professional =0
	Dependency ratio	>6=10; 3-6=7.5; 2-3=5;1-2=2.5;<1=0
	Disabled/ terminally ill members	2 or more 10; 1=5; None=0
Social	Social	Membership and participation in seven groups Score of 1 each for membership and participation in each group

2.4 BUILDING VULNERABILITY ASSESSMENT

As per State HVRA

- Building vulnerability assessment in the state of Himachal Pradesh shows that stone masonry and rammed earth building types are the most vulnerable one which may cause the huge loss of life in the state.
- In last two decades, brick masonry and RC frame construction have been on the rise but the quality of construction was not maintained which resulted in increasing vulnerability.
- For 475-year return period of the earthquake, 52% stone masonry buildings and 89% rammed earth buildings may suffer severe damage while only 1% brick masonry will suffer D4 & D5 category of damage.
- 100 and 200-year return period earthquakes will cause mostly economic damage and less number of casualties. 475-year return period earthquakes will cause maximum casualties in Kangra, Mandi, Kullu and Hamirpur.
- The increase of one level of earthquake intensity (from VIII to IX) will cause 30% increase in the numbers of stone masonry buildings affected severely while 2 to 3 times more brick masonry building will suffer severe damage.
- Educational Institute and health facilities which are constructed in last two decades are more vulnerable in comparison to old structures. Retrofitting of critical buildings like schools and hospitals should be the taken-on priority.
- Vulnerability assessment of cowsheds found them highly vulnerable to severe damage due to the absence of mud or no mortar used as a binding material for wall constructions. Conditions of cowsheds have to be improved by introducing light and flexible structures so that livelihood can be protected during an earthquake.
- Lack of knowledge about earthquake safety features in building construction increase the vulnerability of newly built structures also.
- Traditional construction practices like Dhajji Dewari and Kath Khunni should be promoted as these structures have shown the great capability to resist the lateral forces during strong earthquake also.
- Most of the buildings are non-engineered construction. A lot of alteration occur without approval from concerned authorities which make them more vulnerable. It is recommended to develop the web-based decision support system to check the vulnerability of building before permitting the further addition of floor on already existing buildings.
- Inventory of building typology should be updated at least in every decade to get more information on the existing building stock so that risk estimate can be updated more precisely.
- Vulnerability and damage assessment of buildings represent the areas having a concentration of risk in certain areas. Mitigation planning should be taken at tehsil and district level to improve the building condition.

2.5 SECTORAL RISK ASSESSMENT:

Table-3 Sectoral Risk Assessment of the Department and ULBS

Asset / infrastructure at risk	Hazard	Likely impact	Details of Infrastructure / asset
Roads	Flood, Earthquake and Landslide, Road accident, Heavy Snowfall	Road damage/blockage, Human loss	All ULBs
Water Supply and Sewerage System	Flood, Earthquake, Landslide, Climate Change, Heavy Snowfall	Water supply system will be collapsed at the time of major earthquake and landslide, damage to sewerage system and contamination	All ULBs
Buildings (Government and private) including streetlights	Flood, Earthquake, Fire and Landslide	Damage/collapsed	All ULBs
Solid waste	Flood, Earthquake and Landslide, Fire, heavy snowfall	Infrastructure damage, Contamination of drinking water	All ULBs
Parking	Flood, Earthquake, Fire and Landslide	Damage/collapsed	All ULBs

Other than the above-mentioned information all the ULBs have their own buildings. As informed by the department, many buildings lie in different hazard-prone areas of earthquake and are also prone to fire but any kind of safety audit/ risk audit or retrofitting per se has never been done. The risk which these assets of the department have during the time of a disaster is to be considered by the department itself should try to get ready for disaster with the help of various mitigation strategies. Further, Department should assess the potential risks of disasters due to emerging issues like climate change.

2.6 GAPS IN EXISTING CAPACITY:

Most of the buildings are highly vulnerable especially to the earthquake with a lot of non-structural hazards making these buildings to high risks. Hence there is a need to prepare a standard and uniform disaster operation procedure for the department to deal with various situations as well as effective implementation of Buildings Bye-Laws. Human resources of the department need training on management and mitigation of different type of disasters including relief, rescue and rehabilitation. Department also needs to establish a monitoring mechanism at ULBs to check the ULB level Disaster management plans. For this, a pool of resource persons is needed in ULBs to help in the preparation of safety plans. It will also be helpful in the auditing of these plans at grass root level to ensure the implementation of the concerns of risk reduction. Adequate financial powers need to be vested with the ULBs to manage the crisis.

2.7 ASSESSMENT OF PROBABLE DAMAGE AND LOSS

Building Vulnerability Assessment is carried out in three stages i.e. Rapid Visual Screening (RVS), Preliminary Vulnerability Assessment (PVA) and Detailed Vulnerability Assessment (DVA). As detailed vulnerability assessment of every single building is a very expensive and time-consuming process hence department can initially select the school building for PVA especially from the seven highly vulnerable districts of the state subsequently from the other districts. This PVA scoring will be supportive in making a decision that whether the further stage of vulnerability assessment and retrofitting is required or not in the particular building.

Below mentioned the damage assessment of urban areas as per Disaster Analysis and Management report prepared by Economics and Statistics Department:

Pucca houses damaged in urban area

Table: 4 depicts the number of Pucca house damaged in urban areas. The maximum number of Pucca houses damaged were 358 during the year 2011-12 and a minimum number of eight houses during the year 2009-10.

Table 4: Number of Pucca houses damaged in urban areas due to various disasters

#	District	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
1	BILASPUR	0	7	2	2	0	0	0	0
2	CHAMBA	0	0	0	0	4	40	0	0
3	HAMIRPUR	0	0	0	3	17	8	5	11
4	KANGRA	5	4	1	3	3	12	0	4
5	KULLU	0	4	0	0	7	0	0	6
6	MANDI	12	125	5	8	1	6	4	5
7	SHIMLA	29	54	0	0	0	33	3	2
8	SIRMOUR	0	0	0	7	0	0	0	28
9	SOLAN	7	0	0	0	4	0	0	0
10	UNA	7	27	0	0	322	49	0	0
HP		60	221	8	23	358	148	12	56

Any loss / damage assessment for the previous five years for the MC Road:

ULB streets / roads / path is around 580 KM and every year approximately 10% loss occurred due to natural hazards.

3. RISK PREVENTION AND MITIGATION

All risk assessment measures will be considered while developing new projects. The department will conduct the Rapid Visual Screening of Buildings of selected ULBs. Apart from this, the department has also prepared a Building Disaster Management Plan (Annexure-I).

Below table describes the Structural and Non-Structural risk prevention and mitigation measures:

Table 6: Structural and Non-Structural Risk Prevention and Mitigation Measures:

Mitigation Measures	Activity	Authority for implementation
Zoning and Land Use	Ensure that new buildings follow liquefaction, landslide and faulting	MC, TCP, IPH and PWD
Building codes	Should be adopted by community in anticipation of seismic event	MC, TCP, IPH and PWD
Retrofitting	Retrofitting of the selected ULB buildings	Municipal Councils
Capacity Building	Training on Basics of Disaster Management	Urban Development Department HPSDMA, NIT, IIT
	Specialised training like earthquake resistant building, retrofitting etc	
Awareness	Earthquake Safety week	Urban Development Department
Mock drills	Mock drills in all ULBs	ULBs with the support of DDMA and UD Department
Evacuation Plan	Evacuation plan of all ULB Buildings as well as for the community people	All ULBs

Table 7: Matrix of Hazard Specific Mitigation Measures:

Hazard	Structural and Non-Structural Mitigation Measures
Earthquake	• Making all public utilities like water supply systems, communication networks, electricity lines etc. earthquake resistant. Creating alternative arrangements to reduce damages to infrastructure facilities. • Incorporating earthquake resistant features in all buildings at high-risk areas. • Retrofitting of weak structures in highly seismic zones. • Preparation of disaster-related literature in local languages with dos and don'ts for construction. • Wide dissemination of earthquake-resistant building codes, the National Building Code 2005, and other safety codes.

	• Getting communities involved in the process of disaster mitigation through education and awareness. • Undertaking mandatory technical/safety audits of structural designs of major projects by the competent authorities. • Undertaking seismic strengthening and retrofitting of critical lifeline structures, initially as pilot projects and then extending the exercise to the other structures. • Developing an appropriate mechanism for licensing and certification of professionals in earthquake-resistant construction techniques by collaborating with professional bodies. • Developing appropriate risk transfer instruments by collaborating with insurance companies and financial institutions. • Enforcement and monitoring of compliance of earthquake-resistant building codes, town planning bye-laws and other safety regulations. • Networking of local NGOs working in the area of disaster management. • Mock drills at regular interval.
Landslide	• Training of professionals like engineers for landslide mapping, investigation techniques, analysis, and observational practices. • Launching public awareness campaigns on landslide hazard and risk reduction, and sensitizing all stakeholders on landslide hazard mitigation. • Establishing appropriate mechanisms for compliance reviews of all land use bye-laws. • Preparing an inventory of existing landslides, active or inactive, in the ULBs. • Developing an inventory of the existing built environment in areas around existing landslides and in high hazard zones as per the LHZ maps and along strategic roads.
Flood	• Identify the Floodplain areas and ensure no construction in that areas. • Mitigation plan should be in place to safeguard the inhabitants from the flash flood.
Fire	• Fire safety audit should be ensured in all the government buildings including heritage buildings • Mock drills on fire at regular interval • Insurance

Need of Creating Networks of Knowledge:

The Urban Development Department will initiate a knowledge network through creating a 'Himalayan Cities Resilience Network' with the support of HPSDMA, ICLEI, ARUP International Development and Rockefeller Foundation. The network of knowledge institutions bridges the gap between information coordination and sharing. It will bring together knowledge and experiences of disaster practitioners to capture, organize and share this knowledge. Networking of knowledge institutions creates a versatile interface for policy-makers and disaster managers at all administrative levels. This network will also bring in information on different aspects of Urban Risk Management and it will deliver to the Urban Disaster Risk Management practitioners. It intends to learn and share the best practices of cities on Urban Disaster Risk Reduction and Climate Change Adaptation.

4. MAINSTREAMING DISASTER RISK REDUCTION IN DEVELOPMENT

Disaster Management Act has stipulated that DM Plans of the Departments of State Government shall integrate strategies for prevention and mitigation of the risks of disasters with the development plans and programmes of the department.[1]The State Policy on Disaster Management, following the National Policy, prescribed 'DRR Mainstreaming' in the following words:

> *The DRR issues would be mainstreamed in development plans, programmes and policies at all level by all the departments, organisations and agencies. It would be ensured that all the development programmes and projects that originate from or funded by Government are designated with evident consideration for potential disaster risks to resist hazard impact. That all the development programmes and projects that originate from or are funded by Government do not inadvertently increase vulnerability to disaster in all sectors: social, physical, economic and the environment. It would also be ensured that all the disaster relief and rehabilitation programmes and projects that originate or are funded by Government are designed to contribute to development aims and to reduce future disaster risk.*[2]

The Himachal Pradesh State DM Plan 2012 has one full chapter on 'Mainstreaming DM Concerns into Development Plans / Programmes / Projects'.[3] The Plan has proposed strategies for integration and mainstreaming DRR into a few flagships national programmes in the sectors of rural and urban development, education, health and public works department. Some of these programmes have undergone changes in the recent years but the strategic entry points for mainstreaming DRR in development plans remain the same. Concerned Departments may, therefore, incorporate structural and non-structural measures for disaster risk reduction into the projects according to the contexts of local situations within the broad framework and guidelines of the programmes. Therefore mainstreaming may involve innovative adaptation of national programmes according to local contexts for disaster reduction. Many State Governments have made such innovative adaptations which the Departments may like to consider on their merits.

With the abolition of Planning Commission and devolution of higher tax revenue to the States, many central sectors and centrally sponsored plan programmes are undergoing changes. The State Governments shall, therefore, have greater freedom to design state specific development programmes and projects. This will create new opportunities for disaster risk reduction. The Departments are therefore well advised to propose specific programmes of disaster risk reduction in their respective sectors, based on the assessment of risks in their sectors and the likely benefit of such programmes. Every Department of the State Government implements state-level development programmes that provide good entry points for mainstreaming DRR in development. The Departments may, therefore, explore the possibilities of mainstreaming DRR in as many existing programmes and projects as possible. This will ensure that existing development projects are not creating any new risks of disasters; on the contrary, the projects are designed in such a manner that these would facilitate the process of risk reduction without any significant additional investments.

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[1]Section 40(1)(a)(ii)

[2] Himachal Pradesh State Policy on Disaster Management 2011, para 6.1.2, page-25

[3] Himachal Pradesh State Disaster Management Plan 2012, Chapter-IV

Mainstreaming has three purposes:

- To make certain that all the development programmes and projects that originate from or funded by Government are designated with evident consideration for potential disaster risks to resist hazard impact.
- To make certain that all the development programmes and projects that originate from or are funded by Government do not inadvertently increase vulnerability to disaster in all sectors: social, physical, economic and the environment.
- To make certain that all the disaster relief and rehabilitation programmes and projects that originate or are funded by Government are designed to contribute to development aims and to reduce future disaster risk.

The below table depicts the entry points of DRR and CCA into existing schemes:

Table 7: Mainstreaming Disaster Risk Reduction and Climate Change Adaptation in developmental schemes:

#	Name of Scheme	Main Component	DRR Component	Key activities for mainstreaming
1	AMRUT	• Water supply, • Sewerage facilities and septage management, • Stormwater drains to reduce flooding, • Pedestrian, non-motorized and public transport facilities, parking spaces, and • Enhancing amenity value of cities by creating and upgrading green spaces, parks and recreation centres, especially for children.	• Resilience: Incorporation of resilience and securing projects against disasters will be done at the stage of preparation of the SLIP itself, particularly for the vulnerable and the poor, and at the project development stage where disaster-secure engineering and structural norms would be included in the design. This will be again ensured by the States / ULBs while preparing the SAAPs. • The SHPSC may nominate more members on the SLTC from other concerned State Government Departments / Government organisations if considered necessary. The key functions of the SLTC are: ○ Incorporate resilience and secure projects against disasters ○ Ensure that disaster-secure engineering and	• Disaster Resilient Water supply infrastructure Sewerage Treatment Plant, • Rejuvenation of Natural water springs (eg M C Shimla project), • Wider public campaign on Save Water (eg M C Shimla launched a water campaign)

			structural norms are included in the design.	
2	Housing for All	The mission seeks to address the housing requirement of urban poor including slum dwellers through following programme verticals: • Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource • Promotion of Affordable Housing for weaker section through credit linked subsidy • Affordable Housing in Partnership with Public & Private sectors • Subsidy for beneficiary-led individual house construction	**Coverage and Duration:** • The houses under the mission should be designed and constructed to meet the requirements of structural safety against earthquake, flood, cyclone, landslides etc. conforming to the National Building Code and other relevant Bureau of Indian Standards (BIS) codes. **Technology Sub-Mission:** • A Technology Sub-mission under the Mission would be set up to facilitate adoption of modern, innovative and green technologies and building material for faster and quality construction of houses. Technology Sub-Mission will also facilitate preparation and adoption of layout designs and building plans suitable for various geo-climatic zones. It will also assist States / Cities in deploying disaster resistant and environment friendly technologies. • The Sub-Mission will work on following aspects: o Design & Planning o Innovative technologies & materials o Green buildings using natural resources and o Earthquake and other disaster resistant technologies and designs. • The simple concept of designs ensuring adequate sunlight and air should be adopted.	• Ensure earthquake resilient houses, • Training on Earthquake resistant structure for Engineers involved to implement the scheme

3	Swachh Bharat Mission	• Elimination of open defecation, • Eradication of Manual Scavenging, • Modern and Scientific Municipal Solid Waste Management, to effect behavioral change regarding healthy sanitation practices, • Generate awareness about sanitation and its linkage with public health, Capacity Augmentation for ULB's 2.1.7, • To create an enabling environment for private sector participation in Capex (capital expenditure) and Opex (operation and maintenance)	• To construct earthquake resistant toilets and ensure water supply at the time of disaster	• To construct earthquake resistant toilets and ensure water supply at the time of disaster
4	Smart City Mission	• The objective is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions.	**Proposal Level Evaluation Criteria:** • What is the impact of the proposal on the environment and resilience from disasters? (E.g. reducing heat islands in retrofitting) **Smart City Features:** • Applying Smart Solutions to infrastructure and services in area-based development in order to make them better. For example, making Areas less vulnerable to disasters, using fewer resources, and providing cheaper services.	• Emphasis on disaster risk audit at the stage of preparation of detail project reports, • Inclusion of amending of building bye-laws to ensure structural safety as a mandatory reform in the Mission cities to ensure safe habitat development (Both structural safety and fire safety norms), • Training and Capacity Building Programmes for municipal officers on disaster risk reduction, • Strengthening of the compliance

				mechanism at the detail project report submission and appraisal stage in case of infrastructure projects to ensure structural safety, • Emphasis on disaster risk audit at the stage of preparation of detail project reports.
5	Action plan for Municipal Solid Waste Management Himachal Pradesh	• The objective of the MSWM strategy is to create waste-free cities/towns and provide a clean and pollution free environment in the entire urban areas of Himachal Pradesh.	• Pollution free environment	
6	Sewerage Schemes For ULB's Himachal Pradesh		No	
7	Integrated Housing and Slum Development programme	• The basic objective of the Scheme is to strive for holistic slum development with a healthy and enabling urban environment by providing adequate shelter and basic infrastructure facilities to the slum dwellers of the identified urban areas.	No	

4.1.1 MAINSTREAMING DRR IN PROJECT CYCLE MANAGEMENT

The best way to ensure that DRR is mainstreamed into the development projects is to integrate this into the Project Cycle Management (PCM). PCM is the process of planning, organizing, coordinating, and controlling of a project effectively and efficiently throughout its phases, from planning through execution, completion and review to achieve the pre-defined objectives at the right time, cost and quality. There are six phases of PCM - programming, identification, appraisal, financing, implementation and evaluation. The first three phases are the initial planning phases of the project which provide key entry points for mainstreaming. Among the various toolkits available for mainstreaming DRR in project cycle management the following may apply with relative ease in Himachal Pradesh.

4.1.2 MARGINAL INVESTMENT ANALYSIS

Existing investments can be so designed and calibrated that these do not exacerbate the latent risks or create new risks of disasters. Incorporation of elements of risk resilience in the concept, design, management and evaluation of existing and new programmes, activities and projects may necessitate additional investments. The tools of marginal investment analysis are used to determine the effectiveness of such additional investments for disaster risk reduction. For example, roads, water infrastructure and buildings, can be so designed that with marginal additional investments these structures may become resistant to the hazards of earthquake or landslides. The marginal higher costs in earthquake-resistant buildings are 2.5% for structural elements and 0.8% for non-structural elements, but the benefits are higher than the replacement costs of these structures if these collapse in earthquakes.

1. **Multi-purpose development projects**

   The projects can be designed with dual or multi-purpose that can reduce the risks of disasters and at the same time provide direct economic benefits that would enhance both cost-benefit ratio and internal rate of return and justify the costs of investments. One of the most common examples of such multiple purpose development projects are large hydroelectric projects that generate electricity, provide irrigation and at the same time protect downstream locations from the risks of floods. Many innovative multi-purpose projects can be designed that can offset the costs of disaster risk reduction.

2. **Check Lists for disaster risk reduction**

   The government of India issued a notification in 2009 which makes it mandatory for any new project costing more than Rs. 100 crores to have a Check List for Natural Disaster Impact Assessment before it is approved. These checklists provide complete information on the hazards, risks and vulnerabilities of the project. These include not only the probable effects of natural disasters on the project but also the possible impacts of the project in creating new risks of disasters. The costs involved in the prevention and mitigation of both types of impacts can be built into the project costs and accordingly the economics and viability of the project can be worked out. Similar checklists for DRR can be followed in large development projects of the Departments.

   The department will use hazard resilient design for new construction of public and private buildings. The existing Departmental buildings will be assessed for vulnerability. Wherever there will be a need, necessary steps would be taken for retrofitting of buildings. These concerns will be addressed in the future during review and updating of the plans.

   Steps will be taken for preparing information formats and monitoring checklists for monitoring and reporting during a disaster. A critical component of preparedness has been the training of intervention teams, the establishment of standards and operational plans to be applied following a disaster.

5. DISASTER PREPAREDNESS

Measures for Disaster Preparedness:

Disaster preparedness has been defined as 'the state of readiness to deal with a threatening disaster situation or disaster and the effects thereof'. UDD and ULBs shall:

- Identify most vulnerable areas based on HRVA report;
- Develop ULBs contingency action plan based on HRVA;
- Review and update preventive measures and procedures;
- Ask ULBs to check available stocks of equipment and materials which are likely to be most needed during disasters like floods, earthquake and landslide;
- Follow up with all ULBs to update resource inventory;
- Instruct ULBs to procure equipment related to Search and Rescue;
- Instruct the officials within the department, that they can be trained on certain aspects of disaster management which can help in increasing awareness about the subject;
- Instruct ULBs to create a Disaster Management Committee;
- Create awareness and IEC material on construction of Earthquake resilient buildings;
- Identify the local contractors for debris removal and early restoration in post-disaster situation;
- Evacuation plan for all the buildings and fire exit plan to be developed;
- Check the structural layout of all the building layout plans coming for approval;
- Formulate a Disaster Management Cell at State Level.

Further, as per SDMP, Urban Development Department will coordinate with the district authorities to ensure that mitigation measures are included in all development programmes.

6. DISASTER RESPONSE AND RELIEF

6.1 RESPONSE PLAN

6.1.1 MECHANISM FOR EARLY WARNING AND DISSEMINATION

After getting a warning from State Disaster Management Authority or District Disaster Management Authority, information shall be disseminated to the field by the State/ULBs Incident Response Team. Mass media like TV, Radio, and Press should also be included for dissemination.

6.1.2 TRIGGER MECHANISM FOR RESPONSE

After the issue of early warning, ULB officials will explain the detailed response plan at district level meeting of District Disaster Management Authority constituted in every district in conformity with GOI guidelines for planning, coordinating and implementing various activities.

The State and ULB Control room will be activated to function round the clock in the affected district. The State IRT shall furnish the status report about the establishment of the control room at ULB level. The Nodal Officer at the state level will be responsible for providing all kinds of support to the control room at the district level.

6.1.3 RESPONSE PLAN FOR RESPONDING EFFECTIVELY AND PROMPTLY

The Executive Officers (EOs) / Secretaries of non-affected ULBs will prepare 3 separate teams of community volunteers for deployment to the affected areas on the request of State IRT. The first team will be replaced after specified time say 7 days by the second team and so on. All the field staff will be asked to remain at their respective headquarter with necessary preparations as per the standard operating procedure.

The control room will collect, collate and transmit information regarding matters relating to the natural calamities and relief operations undertaken, if any, and for processing and communicate all such data to concerned quarters. The list of volunteers and community resources that are already available should be in readiness to support response measures.

The Control Room shall be manned round the clock during the peak period of disaster till the relief operations are over. For this purpose, one officer, one assistant and one peon will be on duty in suitable shifts. The Officer-In-Charge of the Control Room shall maintain a station diary and such other records as may be prescribed by the department. The particulars of all the information received and actions taken should be entered in the station diary chronologically.

The EO / Secretary shall furnish a daily report to the head of the office on the important messages received and actions taken thereon. The head of the office shall indicate the particulars to be released for public information.

However, there is specific roles and responsibilities given to the Urban Development Department in SDMP which are mentioned below:

#	Roles and responsibilities
1	Main agency to ensure repair and maintenance in the urban areas.
2	One of the executing agency for constructions under implementation of recovery and rehabilitation plans. Responsible for ensuring the mitigation measures while construction or reconstruction of its projects in the state.
3	• Quick assessment of damaged areas and areas that can be used for relief camps for the displaced population, • Locate relief camps close to open traffic and transport links. Provide adequate and appropriate shelter to the entire population, • Coordinate with other ESFs in equipping shelter and relief sites with basic needs of communication and sanitation, • Maintain, provide and procure clean water, • Coordinate with SEOC for proper disposal of dead bodies in the urban areas.

6.2 ROLES AND RESPONSIBILITIES OF THE NODAL OFFICERS:

The nodal officers shall:-

1. Act as the focal point for disaster management activities of the department. The department may ensure that he/she has the mandate to work immediately without waiting for directions from the higher authorities. This will save time.
2. Provide his/ her contact and alternate contact details to SDMA/DDMA and Revenue Department, State and District Emergency Operation Centre, all line departments and agencies.
3. Accountable for any communication/actions related to disaster management of the department.
4. Take lead to prepare the department disaster management plan, Emergency Support Function (ESF) plan and Standard Operating Procedure (SOP).
5. Constitute the Incident Response Team (IRT) in the department as per the need and organize training for members.
6. Help the department to procure the equipment's necessary for search and rescue, first aid kits and disburse the same to IRTs and for the department if required.
7. Provide regular information on disaster or task assigned to him to SEOC/ Revenue Department during and after disasters in consultation with the department head.
8. Attend Disaster management meeting, training, workshops or any related programme on behalf of the department.
9. Identify an alternate nodal officer and build his/her capacity.
10. Set up a control room and assign another official (s) for control room duty as per the need of the department.
11. Identify the staffs for deployment on the site operation centres (on-site control room during a disaster)
12. Consult with the department, and make an arrangement of an alternative communication system for the department.
13. Mobilize resources for disaster response activities as per the resource inventory put in the department DM Plan if it is needed by the department or other line departments.

14. Organize regular awareness programmes in the department.
15. Organize the periodic mock drills at least twice a year as per the suitability of the department and update the plans at all levels and ensure participation of the department in mock drills of other agencies and other departments.
16. Liaison with other departments and functionaries working in the field of DM.

6.3 FORMATION OF THE INCIDENT RESPONSE TEAMS

Incident Response Teams (IRTs) will be constituted at State ULB level to deal with any disaster.

State level IRT for Urban Development Department

#	Name & Designation	Role
1	Joint Director	Chairman
2	Executive Engineer (HQ)	Convener-cum- Nodal officer
3	Project Officer (HQ)	Member
4	Superintend Gd.-I	Member
5	Superintend Gd.-II	Member

6.4 ROLE AND RESPONSIBILITY OF THE STATE INCIDENT RESPONSE TEAM

- To coordinate with SDMA, NDMA, and other concerned Government Departments. Visit the spot and assist the Circle level Response Team for pre-disaster planning
- To prepare a status report regarding the disaster.
- To facilitate execution of orders for declaring the disaster.
- Assess the staff and another logistic requirement for field operation and monitor effectiveness.
- To attend training and refresher courses for how to respond after receiving any information related to the disaster.
- IRT should be familiarized with the SOP/ESF/DM plan of the Department as well as State DM Plan and their roles and responsibilities.
- IRT should prepare and update the DMP periodically by incorporating the views of stakeholders for the effectiveness of the plan.
- To ensure availability of funds at District level to meet contingency expenses
- To develop the media messages so as to update the status of disaster mitigation and response work.
- To monitor and guide the District Response Teams.
- To maintain an inventory of all related guidelines, procedures, action plans, district maps and contact numbers.
- To document the lessons learnt at different stages of disaster management and make suggestions for necessary addition/alteration.
- Make IRT at State level meet at least twice in a year. 1st meeting will be held in the 1st week of January and 2nd meeting on the 1st week of July.

ULB Level IRT: For ULB level IRT members are shown in the below table:

Table 6.2: ULB level IRT

#	Post	Role
1	Commissioner/EO/Secretary	Chairperson
2	As per available Manpower of ULBs	Convener-cum-Nodal Officer
3	As per available Manpower of ULBs	Member
4	As per available Manpower of ULBs	Member
5	As per available Manpower of ULBs	Member

Role and Responsibility of the ULBs level Incident Response Team is:-

- To coordinate with Urban Development Department and DDMA.
- To activate Disaster Management Plan.
- To procure required resources as per incident specific action plan.
- To manage the overall response activities in the field.
- To deploy adequate staff for the response and monitor its effectiveness.
- To attend training and refresher courses to know how to respond after receiving any information related to the disaster.
- To familiarise with the SOP/ESF/DM plan at District and State level of the Department as well as State DM Plan and their roles and responsibilities.
- To prepare and update their ULB level Disaster Management Plan periodically by incorporating the views of stakeholders for the effectiveness of the plan.
- To develop the media messages to update the status of disaster mitigation and response work.
- To collect and store disaster-related information for post-incident analysis
- To visit the affected areas to assess the extent of the damage.
- To propose to the State headquarter for deputation of officials or for new recruitment.

6.5 EMERGENCY SUPPORT FUNCTIONS AND ROLES

To be performed by Urban Development Department as per SDMP

#	ESF	Primary Agency	Secondary Agency	Responsibilities of Primary Agency	Activities for Response	Role of Secondary Agency
1	Sanitation / Sewerage Disposal	Urban Development and Rural Development	Irrigation and Public Health	• Make arrangement for proposal disposal of waste in their respective areas; • Arrange adequate	• Ensure cleanliness and hygiene in their respective areas; • To arrange for the disposal of unclaimed bodies and	• Repair the sewer leakages immediately; • Provide bleaching powder to the primary agencies to

				material and manpower to maintain cleanliness and hygiene.	keeping record thereof; • Hygiene promotion with the availability of mobile toilets; • To dispose of the carcass.	check maintain sanitation
2	Drinking water	Department of I & PH	Department of Urban Development	• Procurement of clean drinking water; • Transportation of water with minimum wastage; • Special care for women with infants and pregnant women; • Ensure that sewer pipes and drainage are kept separate from drinking water facilities.	• Support to local Administration; • Water purification installation with halogen tablets etc.	• To assist the primary agency wherever ULB is associated with the distribution of potable water.

The role of ULBs at the time of disaster is to:

- Maintain the law and order, prevent trespassing, looting etc.
- Evacuate people.
- Recover the dead bodies and their disposal.
- Help health department for medical care for the injured.
- Supply food and drinking water.
- Make temporary shelters like tents, metal sheds etc.
- Support concern departments in repairing lines of communication.
- Restore the transport routes.
- Do a quick assessment of destruction and demarcation of destroyed areas, according to the grade of damage.
- Cordon off severely damaged structures that are liable to collapse during aftershocks.

7. DISASTER RECOVERY AND RECONSTRUCTION

7.1 DISASTER RECOVERY

The process of recovery from small-scale disasters is usually simple. Recovery operations get completed almost simultaneously with the response, relief and rehabilitation. However, in medium and large disasters involving widespread damages to lives, livelihoods, houses and infrastructure, the process of recovery may take considerable time, as the relief camps continue till houses are reconstructed. Often intermediary shelters have to be arranged before the permanent settlements are developed.

7.2 DAMAGE AND LOSS ASSESSMENT

The department/ULBs is assessing the direct loss to the infrastructure and reconstruction which has to evolve to an approach where the indirect losses can also be accessed and addressed at the time of recovery and financial planning.

7.3 DISASTER RECONSTRUCTION

Post-disaster construction provides an opportunity for 'Building Back Better' so that the reconstructed assets are able to withstand similar or worse disasters in future. It is difficult to anticipate such reconstructions as these would depend on the types and location of the disasters and the nature reconstructions to be made, which would be known only after the disasters.

Rehabilitation and Reconstruction Plan:

- Participate in the conduct of structural damage assessments.
- Guide ULBs and line agencies on structural repair works and package development of repair/reconstruction scheme for housing and related social infrastructure.
- Undertake detailed damage assessment of buildings.
- Advise all ULBs for reconstruction/recovery of buildings and community infrastructure.
- Coordinate, monitor progress and prepare a report on repair, reconstruction and strengthening/retrofitting of buildings.
- Prepare estimates and undertake repair/strengthening works.
- Provide technical guidance/guidelines for construction of new buildings to ULBs
- Supervise the civil work activities and ensure safe construction practices are streamlined during Recovery/Reconstruction phase.
- Restore the basic services in ULBs.
- Provision of temporary housing and implementation of R&R package for urban areas.
- Verify the particular land by a certified geologist before planning to construct a new structure.

8. FINANCIAL ARRANGEMENTS

Section 40(2) of the Disaster Management Act stipulates that every department of the State Department while preparing the DM Plan, shall make provisions for financing the activities proposed therein. Normally the funds required for risk assessment and disaster preparedness must be provided in the budgets of every concerned department. Such funds are not very sizeable and Urban Development department will allocate such funds within their normal budgetary allocations from coming budget year for risk assessment and preparedness. Although the department has been directly incurring funds on construction of new and maintenance of old school buildings where the mainstreaming of DRR is essential.

The marginal costs involved in mainstreaming disaster risk reduction in existing programmes, activities and projects of the departments are also not very sizable and the departments may not find it difficult to arrange such funds. Urban Development Department plan will ensure the existing schemes and future activities to make school buildings safer and disaster resilient.

As per the guidelines issued by the Ministry of Finance, Government of India vide Memo No.55(5)/PF-II/2011 dated 06/01/2014 for 10% flexi-funds within the Centrally Sponsored Schemes (CSS) to be utilized, inter-alia, for disaster mitigation, restoration and innovation activities in the event of natural disasters. The Urban Development Department has the scope of using the flexi funds from the CSS like AMRUT, SBM, Smart City Mission and HFA by proper planning and utilization for disaster mitigation which can help to some extent in reducing the risk / vulnerability due to natural disasters to which the state of Himachal Pradesh is highly prone to.

Provision of Funds

There is a need for funds to strengthen the existing facilities both at State level as well as ULB level under the caption "Disaster preparedness" which is not available with the department. Hence, in the annual budget plan for the UD, a mitigation fund need to be created. Department of revenue has suggested keeping 10 percent of all development plan for non-plan budget disaster management issues. A budget provision of Rupees 18.00 Lakh has been proposed to ensure disaster preparedness as indicated below:

#	Activities	Budget
1	Training on Basics of Disaster Management for State officials and Municipal Councils (Two trainings in a year)	1000000
2	Earthquake Safety week	100000
3	Mock drills in all ULBs	200000
4	Rapid Visual Screening (RVS) of important buildings for selected ULBs	200000
5	S&R training for IRTs for ULBs	200000
6	One Day Workshop on Mainstreaming DRR/CCA into developmental programs	100000
	Total	1800000

NOTES