TRAINING REPORT

SAFE HILL AREA DEVELOPMENT

15th -17th June 2022

Jointly Organized by

Himachal Pradesh Council for Science, Technology & Environment (HIMCOSTE), Shimla, Himachal Pradesh

In collaboration with

National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India, New Delhi

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PROGRAM TEAM

DAY ONE (15TH JUNE, 2022)

Chief Guest

Sh. Lalit Jain
Director (Env. Sci. & Tech), GoHP & Member Secretary, HIMCOSTE, Shimla

Conveners
Dr. Amir Ali Khan, Associate Professor, NIDM, Delhi
Dr. S.S. Randhawa, Principal Scientific Officer (HIMCOSTE), Shimla HP

Program Coordinator

Ms. Yogita Garbyal, Young Professional, NIDM

HIMCOSTE Team

Sh. Gopal Jain (Scientific Officer), Mr. Harish Bharti, Ms, Aditi Panatu (Scientific Professional), Sh. Rajneesh Sharma (Data Entry Operator) Mr. Mohit Verma (Project Assistant)

SECOND DAY (16TH JUNE 2022)

Guest Lectures

Sh. K.K. Nanta
State Town Planner Department of Town & Country Planning, Shimla H.P

Dr. Ashish Kapoor,
Scientist, CSIR-CBRI Roorkee, Uttarakhand

Dr. S.K. Negi
Chief Scientist, CBRI Roorkee, Uttarakhand

THIRD DAY (17TH JUNE 2022)

Program Chair
Dr. Amir Ali Khan, Associate Professor, NIDM

Chief Guest for the Valedictory Session

Ms. Kiran Bhadana, IAS
Special Secretary NPP & Power, NCES and Industry, GoHP

ABOUT NATIONAL INSTITUTE OF DISASTER MANAGEMENT (NIDM), DELHI

The National Institute of Disaster Management (NIDM) was constituted under an Act of Parliament to play the role of a premier institute for capacity development in India with the vision to create a Disaster Resilient India by building the capacity at all levels for disaster prevention and preparedness. The efforts in this direction that began with the formation of the National Centre for Disaster Management (NCDM) in 1995 gained impetus with its redesignation as the National Institute of Disaster Management (NIDM) for training and capacity development. Under the Disaster Management Act 2005, NIDM has been assigned nodal responsibilities for human resource development, capacity building, training, research, documentation, and policy advocacy in the field of disaster management. Both as a national Centre and then as the national Institute, NIDM has performed a crucial role in bringing disaster risk reduction to the forefront of the national agenda. The Institute believes that disaster risk reduction is possible only through promotion of a "Culture of Prevention" involving all stakeholders. The Institute works through strategic partnerships with various ministries and departments of the central, State, and local governments, academic, research and technical organizations in India and abroad and other bi-lateral and multi-lateral international agencies.

ABOUT HIMACHAL PRADESH COUNCIL FOR SCIENCE, TECHNOLOGY & ENVIRONMENT (HIMCOSTE), SHIMLA

The Himachal Pradesh Council for Science, Technology & Environment, is the nodal agency for the promotion of Science & Technology and creation of Environment Awareness in the State. The Council was established at Shimla by Govt. of Himachal Pradesh on January 3, 1986 under the country wide programme of the Department of Science & Technology, Govt. of India to promote Science & Technology in the State. Some of its main objective includes advising State Govt. on Science, Technology & Environment related issues & interventions; to develop, demonstrate & transfer appropriate technologies for the State and exchange scientific knowledge from National & International scientific institutions/organisations for the development of the State; to create and strengthen science & technology facilities in the State; to establish linkages with Universities and R&D Institutions and to provide consultancy services in successfully demonstrated/developed technologies.

INTRODUCTION

Training programme on *"Safe Hill Area Development"* is organized by Himachal Pradesh Council for Science, Technology & Environment (HIMCOSTE), Shimla in collaboration with National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India, New Delhi. This training program was organized at State Agriculture Management & Extension Training Institute (SAMETI), Mashobra, Shimla from 15 to 17th June, 2022 from 10:00 am to 5:00 pm for a total duration of seven hours. The sessions generated highly interactive, easily understandable points of action and implementation by individuals having responsible role in ULB, as Govt. stakeholder or as any responsible citizen. The course highlighted the importance of building resilience, preparedness, and mitigation measures to achieve the resilient urban environment through city disaster management planning.

Objectives of the Program

The training programme would help to provide:

- To increase awareness of the key stakeholders on the need for adoption of building bye-laws, codes and earthquake resistant construction and planning standards.
- To highlight the challenges faced by planners, architects and engineers and showcase examples of ongoing faulty construction practices in Himanchal Pradesh in earthquake safety aspect.
- To promote retrofitting technique and understand the concept of build back better through past events, lessons and experience sharing of hilly areas with emphasis to Himachal Pradesh.
- Sensitization at State level by sharing and disseminate experiences, knowledge, information, innovations, and ideas on safety of structures to create a safe built environment for hilly region.

SCOPE

This training programme aims to provide opportunities to local administrators to enhance safety preparedness actions and bring resilience to their built environment against disasters for hilly regions. Hill regions are usually seemed to have large rural built environment with booming population and increasing tourist pressure having limited land resources with fragile geology and environment makes it highly susceptible to hazards. This also makes the awareness and capacity building as the main areas to stay focused on, to reduce the risk and vulnerability

of such area. The training programme will help generate detailed discussion on hazards vulnerability and risk profile of Himachal Pradesh State, seismic safety mitigation measures followed by good construction practices, debate on retrofitting techniques, experiences gained from HP State Govt. initiatives. These three days training programme intends to sensitize, institutionalize, and promote traditional constructional information, knowledge, and innovation for seismic stability of the built environment comprising of residential and commercial buildings and critical infrastructure like hospitals and schools etc.

BACKGROUND

Disasters and human survival have a long history of rivalry and co-existence. However, the occurrences were not as frequent and with fanatic regularity as it is now. The impact of disasters on economic well-being and human suffering has increased alarmingly. Disasters not only disrupt normal life but also play havoc on lives and livelihoods of the people. Haphazard developmental works, rapid industrialization, increase in population, lack of adequate policy measures, etc., has all contributed towards increased occurrences of disasters. Natural and manmade disasters often result in loss of lives, cause injury to people, and lead to loss of livelihoods and damage and destruction of property, assets, and infrastructure.

Himachal Pradesh is exposed to several kinds of disasters regularly. Frequent disasters hamper development of the State. Earthquakes, landslides, cloud-bursts, floods, avalanches, forest-fires, droughts etc. caused tremendous loss to the State. Landslides and flash floods ate the most common disasters in Himachal Pradesh which cause immense loss of life and property. Frequent flash floods in the last few years have baffled both meteorologists and common man equally. Himachal Pradesh been hit by a series of massive natural calamities like the earthquake in 1905 (Kangra), 1955 (Lauhal-Spiti) & 1975 (Kinnaur), landslides in 1968 (Kaliasaur), 1982 (Solan Nala) & 1995 (Kullu) and the disastrous cloudburst in Kullu in August 2003, Prominent among the Satluj and Beas basin's calamities are massive and violent flash flood in river Satluj during the night on July 31, 2000, cloudburst and flash flood in the Beas in September, 1995, and cloudbursts that wreaked havoc in the Rohru and Wangtu areas in Kinnaur district in 1997.

Earthquake, quite devastating and sudden in nature, is one of the most common types of disasters that hit the State. Seismologists have categorised Himachal Pradesh in Seismic Zones IV and V, highly prone to earthquakes. Statistically, more than 250 earthquakes of magnitude above 4.0 on the Richter scale, including 51 with magnitude above 5.0 have rocked the State during past century. As far as geographic area of occurrence of earthquake is concerned,

Chamba, Kullu and Manali fall in the highest seismic Zone i.e., Zone-V and are most prone to disastrous earthquakes. Block-wise, Kangra is most sensitive to earthquakes. Cloudbursts are common to all hilly areas but the States of Himachal Pradesh and Uttarakhand are most affected due to topographical conditions. Most of the damages to properties, communication system and human casualties are a result of flash floods. The topography enhances the devastation.

The unplanned construction of hydel power projects, roads and large-scale mining/quarrying have put a severe strain on the delicate and fragile ecology of Himalayas gifted with lush green landscape and fascinating environment. Nathpa Jhakri Hydel project and some other projects have already experienced such events. With removal of forest and vegetative cover, the destructive action of water gets further pronounced. The barren steep rocky slopes that absorb little water facilitate quick runoff. The excavated materials disposed of carelessly on hill slopes besides damaging the green cover, trees, and agricultural land, are carried down during heavy rains causing siltation and consequent reduction in the storage capacity of the reservoirs.

HIMCOSTE in collaboration with NIDM, conducted 3 days training on *Safe Hill Area Development* from 15 to 17 June 2022 as per schedule attached at Appendix 'A', details of participants are at Appendix 'B' and training programme feedback & evaluation sheet is at Appendix 'C'. In this training, the sessions were majorly taken by faculties of both organizations with other external resource persons.

PROGRAM AGENDA

Following are the detailed agenda of the training workshop:

Training programme on

"Safe Hill Area Development"

Organized by

Himachal Pradesh Council for Science, Technology & Environment (HIMCOSTE), Shimla

In collaboration with

National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India, New Delhi

June 15-17, 2022

Venue– State Agriculture Management & Extension Training Institute (SAMETI), Mashobara, Shimla H.P.

Inaugural Programme

09:30AM-10:30AM	**Registration of Participants**
	Inaugural Ceremony
10:30AM-10:35AM	Welcome Address by ***Dr. S.S. Randhawa, Principal Scientific Officer (HIMCOSTE), Shimla***
10:35AM-10:45AM	Documentary
10:45AM-10:55AM	Remarks by ***Dr. Amir Ali Khan, Associate Professor, NIDM***
10:55AM-11:10AM	Address by Chief Guest ***Sh. Lalit Jain, IAS*** ***Director (Env. Sci. & Tech) GoHP & Member Secretary, HIMCOSTE, Shimla***
11:10AM-11:25AM	Tea Break
11:25AM-01:00PM	Basic Concept of DRR and need for Safe Hill Area Development ***Dr. Amir Ali Khan, Associate Professor, NIDM***
01:00PM-02:00PM	Lunch Break
02:00PM-03:30PM	Local Hazard Profile and Recent Significant Disasters in Himachal Pradesh ***Dr. S.S. Randhawa, Principal Scientific Officer (HIMCOSTE), Shimla HP***
03:30PM-03:45PM	Tea Break
03:45PM-05:00PM	Recent initiatives for RR and Safe Hill Area Development ***Sh. Vijay Singh*** ***ICT Specialist SDMA*** ***Navneet Yadav,*** ***Project Director, NGO-Doers, Sector-6, Kangnadhar, New Shimla***

Training programme on

"Safe Hill Area Development"

June 15-17, 2022
Venue– State Agriculture Management & Extension Training Institute (SAMETI), Mashobara, Shimla H.P.

Day 2
16 June, 2022

10:00AM-10:30AM	***Recapitulation –Ist Day***
10:30AM-11:45AM	Safe Hill Area Development in Himachal Pradesh-Experience and Initiatives ***Sh. K.K. Nanta, State Town Planner*** ***Department of Town & Country Planning, Shimla H.P.***
11:45AM-12:00PM	Tea Break
12:00PM-01:00PM	Challenges of Safe Hill Area Development– a Civil Engineering Perspective ***Dr. Ashish Kapoor, Scientist*** ***CSIR-CBRI Roorkee, Uttarakhand***
01:00PM-02:00PM	Lunch Break
02:00PM-03:30PM	Challenges of Safe Hill Area Development– a Civil Engineering Perspective ***Dr. Ashish Kapoor, Scientist*** ***CSIR-CBRI Roorkee, Uttarakhand***
03:30PM-03:45PM	Tea Break
03:45PM-05:00PM	Challenges of Disaster Safe Housing in Hill Areas of Himachal Pradesh ***Dr. S.K. Negi, Chief Scientist*** ***CSIR-CBRI Roorkee, Uttarakhand***

Training programme on

"Safe Hill Area Development"

June 15-17, 2022
Venue– State Agriculture Management & Extension Training Institute (SAMETI), Mashobara, Shimla H.P.

Day 3
17 June, 2022

10:00AM-10:30AM	***Recapitulation –2nd Day***
10:30AM-11:45AM	Group work on way forward for Safe Hill Area Development in Himachal Pradesh ***Sh. Amir Ali Khan, Associate Professor, NIDM*** ***Dr. S.S. Randhawa, Principal Scientific Officer (HIMCOSTE), Shimla, H.P.***
11:45AM-12:00PM	Tea Break
12:00PM-01:00PM	***Group Assignment and Presentation***
01:00PM-02:00PM	Lunch Break
02:00PM-03:00PM	**Participants Training Evaluation Exercises**
03:00PM-03:15PM	Tea Break
03:15PM-04:30PM	***Valedictory Ceremony*** Chief Guest **Ms. Kiran Bhadana, IAS** **Special Secretary NPP & Power, NCES and Industry, GoHP** ***Certificate Distribution***

SUMMARY OF THE SESSIONS

DAY-1 (15TH JUNE, 2022)

Inaugural Session

The program was started by welcoming all the participants and dignitaries by Dr. S.S. Randhawa, Principal Scientific Officer (HIMCOSTE), Shimla. He welcomed and honoured the chief guest of the training program Sh. Lalit Jain, IAS Director (Env. Sci. & Tech) GoHP & Member Secretary, HIMCOSTE, Shimla with a flower bunch, Himachali Cap and Shawl. He also honoured the Program Convener Dr. Amir Ali Khan, Associate Professor, NIDM and Program Coordinator Ms. Yogita Garbyal, Young Professional, NIDM Delhi with Shawl and Topi. Additionally, representatives from several departments received a briefing from Dr. SS Randhawa on the goals and plans of action for the next three days. Ms. Aditi Panatu, Scientific Professional SCCC, Shimla, handled the stage compering and overall management of the three-day training programme.

Sh. Lalit Jain, IAS Director (Env. Sci. & Tech) GoHP & Member Secretary, HIMCOSTE, Shimla, welcomed all the participants in his inaugural speech. He shared his past experiences and success stories related to disaster management by giving examples of various devastating incidences that happened in the State's history. He highlighted that there is an urgent need to conduct such training workshops in the State so that the people of the State should be aware of disaster preparedness and its management. He also mentioned the major issues faced during the developmental activities in the State and what could be the best measures to overcome them. After his inaugural speech, he took the introduction of each participant, explaining to the target audience their experience in handling any such responsibility related to disaster management in their past work experience.

Dr. Amir Ali Khan, Program Convener, shared the basic concept of DRR and the need for safe hill area development. He shared the role of NIDM, its objectives, aims, and responsibilities. He then asked the most common urban issues faced by the participants in their districts and said the permanent solution can only be achieved through risk reduction. Dr. Amir Ali Khan talked about the government's objectives as well as risks and vulnerabilities at the national level. He stated that calamities have increased dramatically in recent years, resulting in significant economic losses. He discussed disaster risk reduction and management, disaster safe construction, and the causes of many catastrophes, such as population growth, haphazard

or poorly planned urban expansion, the development of exposed hilly terrain, inexperience, and overexploitation.

He placed a strong emphasis on fire safety precautions for both residential settings and important facilities like hospitals and schools. As a fundamental safety measure, he also advised everyone to be familiar with fire extinguisher usage, extinguisher kinds, evacuation plans, and protocols, among other topics. In his talk, Dr. Khan discussed capacity, coping skills, acceptable risk, and resilience. He went on to discuss the types and severity of disasters as well as where we are at in that stage. Through many examples and case studies, he described the disaster management cycle and its components, such as search and rescue, relief, rehabilitation, reconstruction, and the idea of building back better. The actions he mentioned as being the most crucial to reducing susceptibility were preparation, mitigation, and prevention. He discussed early warning systems and hazard mapping, as well as structural and non-structural mitigating techniques. In his talk, the presentation was also a very participatory event where many questions were asked and Dr. Khan responded.

Dr. S.S. Randhawa, Principal Scientific Officer, HIMCOSTE Shimla, gave a presentation on Local Hazard Profile and Recent Significant Disasters in Himachal Pradesh. The presentation started with a very brief introduction of hazards, disasters, and their incidences in Himachal Pradesh. He discusses the different seismic zones of Himachal Pradesh and their vulnerability to earthquakes. He mentioned that before the foundation of any structure in State it is very important to know whether the zone is safe for construction or not. He also discussed previous earthquake incidences in the State and the major one was the earthquake of Kangra. Some of the recent natural hazards in the State were also discussed, which included the landslides of Boh, Bhagsunag, and course change of rivers at Rajol, Sheelha, and Bhater. He spoke on the Himalayan glaciers, their vulnerability, and hazards in the State. The initiative taken by the State Centre on Climate Change (SCCC) for the monitoring of these hazards, landslides, glacier lakes and GLOFs (Glacier Lake Outburst Flood) in the State. The SCCC has worked on the number of vulnerable lakes in all the basins of major rivers in Himachal Pradesh. He stated that the SCCC has been continuously monitoring the Parechhu Lake, which is highly vulnerable and hazardous to the state, as well as the Gepang Gath Lake. He made the point that safe hill area development in the State could be accomplished using the available resources by citing several instances of disasters in the State.

DAY 2 (16TH JUNE, 2022)

Sh. K.K. Nanta, State Town Planner, Himachal Pradesh

The second day of the training started with the recapitulation of the day one activities, any queries, and suggestions from the previous session. The first guest speaker of the day was Sh. K.K. Nanta, State Town Planner, Himachal Pradesh. The programme started with the honouring of guest speaker with a Himachali cap and shawl by Dr. S.S. Randhawa, PSO, State Centre on Climate Change, HIMCOSTE Shimla. After his brief introduction, he speaks on the topic "Safe Hill Area Development in Himachal Pradesh—Experience and Initiatives." He shared the current scenario of the State with respect to the vulnerabilities and issues related to the development activities in the State. The participants were actively involved in the presentation because most of them had queries in different fields, which were answered and appreciated as well. He also mentioned how the developmental activities in the State have been improved by quoting various examples and success stories. He also suggested that there is a need to make people more aware of technology, especially during the foundation of any structure. He also highlighted that if any structure has some challenges, like any type of risk, that can also be improved by the latest technology and trained masons. It was like a brainstorming session with a lot of questions and answers.

Dr. Ashish Kapoor, Scientist, CSIR-CBRI Roorkee

Dr. Ashish Kapoor, Scientist, CSIR-CBRI Roorkee, Uttarakhand. Dr. Kapoor was welcomed and honoured by Dr. S.S. Randhawa, PSO, State Centre on Climate Change, HIMCOSTE Shimla, with a Himachali cap and shawl. After his welcome and brief introduction, he frequently started his presentation on the Challenges of Safe Hill Area Development—a Civil Engineering Perspective. He started his presentation with the basic concepts of disaster, threat, and vulnerabilities, and other basic technical terms. He presented the slide pictorially showing how any structure appears in any hilly terrain and where we could improve the problems. He demonstrated in a fascinating manner how some traditional structures could still withstand the prevailing earthquake shaking in the past. What is the technology and materials they have used in their buildings to make them earthquake resistant? In his research, he also mentioned that in the historical buildings they used radially available materials along with standardised technology. This is the only presentation in the three-day training programme where the technical experts from the departments cleared their doubts and it was the most active session of the workshop.

He highlighted that any micro analysis during the foundation of any structure can be helpful in combating the risk or vulnerabilities in the future. They have the best technology and engineers who are progressively working on earthquake resistant buildings, which includes training of mesons, workshops, and awareness. He explained the difference between the construction materials available on the market and the materials we are using. Dr. Kapoor also mentioned that the preliminary analysis should be done, especially at the village before the foundation of any structure, because their analysis can be helpful in determining whether the land is suitable for earthquake resistant construction. It was really a brainstorming session for all the participants, with a lot of solutions to the number of questions raised by the participants.

Dr. S.K. Negi, Chief Scientist, CSIR-CBRI, Roorkee

The third guest lecture of the day was delivered by Dr. S.K. Negi, Chief Scientist, CSIR-CBRI, Roorkee, Uttarakhand. His presentation was on the architectural and planning challenges of disaster-safe housing in hilly areas. His main attention was on the challenges related to disasters in Himachal Pradesh. He explained the different types of natural hazards in the hilly areas and the challenges associated with them. In response to these harsh development conditions, numerous vernacular practises and styles have evolved with local materials and indigenous techniques to fulfil the needs of people, which cause minimal damage to the environment and are sustainable. The factors influencing building in hilly settlements were also mentioned in the presentation. He briefly explained the architecture of Himachal Pradesh and construction techniques using local materials. By quoting many examples of traditional construction in Himachal Pradesh, he explained how we can use these traditional construction techniques in making modern structures. He also highlighted the proposed techniques, which are already in use. He discussed the horizontal and vertical layout of the buildings, slop, the ardency of buildings, and plan types for houses. His presentation was concluded with the following points:

- A scientific approach should be adopted for providing appropriate technology based on a detailed analysis of the available options and cost analysis.
- Several innovative materials and construction techniques have been developed for a wide variety of applications in buildings, especially in low-cost mass housing programmes in rural and semi-urban areas.
- These materials and techniques are effective, affordable, and easily adoptable.
- Adoption adds to improvement in the hill’s environment as well as improvement in the quality of life of the people.

- These technologies can be implemented using local labor, improving the economy.
- Skill-development
- Bylaws for NBC and Building

DAY 3RD (JUNE, 2022)

The third day of the training programme started with the recapitulation of the day 2 activities by Dr. Amir Ali Khan, Associate Professor, NIDM. The main objective of the day was to do a group exercise on various identified topics. Six groups were constituted and different topics on safe hill area development in Himachal Pradesh were assigned to each group. The basic materials for the group exercise we provided, like pens, charts, markers, etc. All participants were actively engaged in the group exercise, and after lunch, each group presented their work along with problems. Every group presented their work in a professional way along with issues, gaps, and suggestions. This exercise was beneficial to all stakeholders because such inter-departmental conversation or discussion through a training workshop was rare. Members from different groups also highlighted that we should continue to conduct such workshops in the future on different themes or issues so that the inter-departmental gap can be filled and transparency can also be maintained. Every group was patiently listened to by Dr. Khan and other participants. The group also gave explanations wherever necessary. In conclusion, this group discussion was fruitful and was the main activity of the third day of the training program.

After this exercise, the next session was the valedictory ceremony. The chief guest for the valedictory ceremony was Ms. Kiran Bhadana, IAS, Special Secretary, NPP & Power, NCES and Industry, GoHP. She was welcomed and honoured by Dr. SS Randhawa, PSO, HIMCOSTE Shimla, with a Himachali Shawl and a Flower Pot of Peace Lilly. A slight interaction was also there with the participants; some of them were familiar with her because she has already served many departments in the State. She appreciated the work done by the NIDM and HIMCOSTE Shimla and by the participants in the State. She also mentioned that we should try to organise such a training workshop in the future to have all the stakeholders on a platform and to discuss problems at a table. After her enlightening words, certificate distribution was done to each participant present in the three-day training workshop. At last, Dr. S.S. Randhawa, Principal Scientific Officer, gave his vote of thanks to all delegates along with warm wishes.

KEY TAKEAWAY POINTS OF THE TRAINING PROGRAMME

- The capacity, vulnerabilities, and resource availability of the town must be evaluated.
- In addition to increasing the intensity and frequency of catastrophes, climate change influences health, transportation infrastructure, and lifeline facilities. Due to this, the effects of disasters and those of climate change must be combined.
- Cities that are rapidly expanding have a rising number of structures that are sub standardly built or poorly maintained, which causes avoidable fatalities. Although urbanisation is inevitable, efficient urbanism is necessary.
- Create a disaster risk reduction action plan to lessen the possibility of harm, fatalities, and financial loss in the event of a hazard or catastrophe.
- The Emergency Operation Center's importance for efficient coordination and communication should be there.
- The significance of a thorough risk analysis in creating a city development plan.
- With the aid of robust infrastructure and funding systems, as well as by understanding vulnerabilities, potential causes and effects, economic and social impacts, mitigation plans, preparedness, and response, one can resist and reduce risks by concentrating on urban planning and sustainable development.
- To increase knowledge, it is important to promote building regulations and construction methods that adhere to the requirements established by the relevant authorities.
- By using disaster risk management techniques, such as a fire detection and safety alarm system with automated water sprinklers to douse the flames, risks can be reduced.
- Installation of fire pumps in potential locations to facilitate the dispatch of emergency services.
- Encourage the use of fire-resistant building materials, water-powered fire extinguishers inside the structure, and public education about evacuation procedures.
- To lower the amount of risk, a community or organisation should develop its human resources or social infrastructure. Establish financial institutions and infrastructure to withstand calamities and aid.
- To reduce the risk of urban flooding, the best drainage and sewerage schemes must be implemented.
- zoning and shielding the watershed and natural drainage systems from habitation.

- hotspot analysis, service prioritisation, and development activity prioritisation.
- Everyone should be familiar with their local location, the current water level, and city danger maps. To assess the impact, it is important to determine the population density.
- High-rise structures and all school buildings should have automatic smoke and fire alarm systems built in.
- To strengthen the resilience of our school infrastructure, we should pursue preventative strategies for new building.
- To further protect outdated essential infrastructure from earthquake risk, retrofitting procedures should be undertaken for identified old and weak structures such as columns and joints.

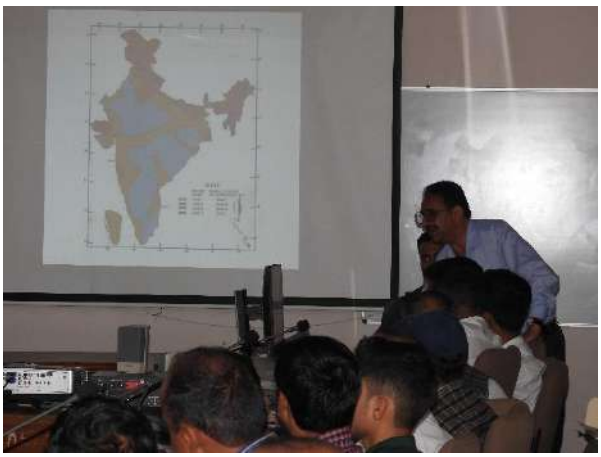
Training Programme on "Safe Hill Area Development" held from June 15-17, 2022 jointly organized by National Institute of Disaster Management (NIDM), Ministry of Home Affairs, New Delhi and Himachal Pradesh Council for Science, Technology and Environment (HIMCOSTE) Vigyan Bhawan, Shimla H.P.

PHOTO GALLERY

Day 1 (June 15th 2022)

Inaugural Session

Technical Sessions



Day 2 (June 16th 2022)


Safe Hill Area Development

Day 3 (June 17th 2022)







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• Induction of case study
• Risk Identification of Exposed Area and Challenges
• Potential Threats Due to Risks
• Risk reduction/Solutions


Safe Hill Area Development

PARTICIPATION DETAILS

Total 49 participants joined the training programme from different departments of all districts of Himachal Pradesh. List of participants is given below:

Sr. No.	Name	Designation	Name of the Department	E-Mail ID/Mobile No.
A	**DEPARTMENT OF RURAL DEVELOPMENT & PANCHAYATI RAJ**			
1	Sh. Avinesh Ghizta	Junior Engineer	RDD	gheztaavi87@gmail.com 98051-72150
2	Ms. Urmil	Junior Engineer	RDD	urmilkullu@gmail.com 9418066821 / 89882-30821
3	Sh. Padma Dorje	Junior Engineer	RDD	padma.dorje79@gmail.com 78074-76727
4	Pratam Singh	Junior Engineer	RDD	Singh22pratap@gmail.com
B	**STATE DISASTER MANAGEMENT AUTHORITY**			
4	Mr. Ritesh Kumar	T&CB Coordinator	SDMA	heerrk77@gmail.com 94183-54106
5	Sh. Rajan Kumar	T&CB Coordinator	SDMA	rajan.sharmanov1991@gmail.com 94597-79314
6	Sh. Narender Kaith	T&CB Coordinator	SDMA	naren.kaith@gmail.com 70189-31071
7	Dr. Neha Sharma	T&CB Coordinator	SDMA	nehashar05@yahoo.com ddma-shi-hp@gov.in 9857379886
8	Sh. Gaurav Mehta	Documentation Coordination	SDMA	gaurav.undp@gmail.com, ddma-shi-hp@gov.in 86799-68648
9	Mr. Nitin Sharma	T&CB Coordinator	SDMA	sdma-hp@nic.in
C	**MASTER TRAINER CHAMBA DISTRICT**			
10	Ms. Kanupriya Bhalla	Junior Engineer	Master Trainer Chamba District	kanupriyabhalla@gmail.com 77839-00008, 88941-71133
11	Sh. Arun Chauhan	Junior Engineer	Master Trainer Chamba District	chauhanarun1219@gmail.com 98178-08319
12	Sh. Ravinder Kumar	Junior Engineer	Master Trainer Chamba District	ravinder.kala69@gmail.com

13	Sh. Deepak Sharma	Assistant Engineer	Master Trainer Chamba District	deepaksharmachamba@gmail.com 94180-85880
14	Sh. Rajeev Soni	Junior Engineer	Master Trainer Chamba District	paritoshsoni1998@gmail.com 94180-85889
D	**DEPARTMENT OF TOWN AND COUNTRY PLANNING**			
15	Sh. Akshay Kumar	Assistant Town Planner	TCP	akshay.upmanyu@gmail.com 82192-67407
16	Smt. Jyoti Thakur	Assistant Town Planner	TCP	jtplanners89@gmail.com 98058-72993
17	Miss Shagun Sharma	Planning Officer	TCP	shagunsharma0011@gmail.com 89685-84775
18	Sh. Prakash Rajta	Sr. Planning Draughtsman	TCP	prakashrajta@gmail.com 94180-76719
19	Sh. Ankush Kumar	Junior Draughtsman	TCP	ankushattri777@gmail.com 98059-56883
20	Sh. Sourav Kumar	Junior Engineer	TCP	sourabhnegi123@gmail.com 78766-21307
E	**JAL SHAKTI VIBHAG**			
21	Er. Neeraj Thakur	Junior Engineer	JSV	94186-47333 thakur.neeraj28@gmail.com
22	Er. Mast Ram Bragta	Junior Engineer	JSV, Theog	9816026247 hpirrg@rediffmail.com
23	Er. Bhag Singh Thakur	Junior Engineer	JSV	82190-12306 Bhagsingh10109@gmail.com
24	Er. Anish Kumar	Junior Engineer	JSV	82191-82240 Kumaranish906@gmail.com
25	Pankaj Chadwal	Junior Engineer	JSV, Hamirpur	civiler7@gmail.com
F	**HIMACHAL PRADESH PUBLIC WORKS DEPARTMENT**			
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