

TRAINING PROGRAMME REPORT

EARTHQUAKE RISK MITIGATION AND MANAGEMENT

(October 17-21, 2022)

Jointly Organized by

**Department of Geography and Disaster Management,
University of Kashmir, Srinagar**

&

**National Institute of Disaster Management (NIDM)
Ministry of Home Affairs, GoI, Delhi**

Venue: Gandhi Bhawan, University of Kashmir-Srinagar

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1. Organizing Team

Patrons

Shri Taj Hassan, IPS
Executive Director
National Institute of Disaster Management (NIDM)
Ministry of Home Affairs, Delhi

Prof. Nilofar Khan
Vice Chancellor
University of Kashmir
Srinagar

Convenors

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Prof. Pervez Ahmed
Head, Department of Geography
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Coordinators

Ms. Yogita Garbyal
Young Professional, NIDM

Dr. Javeed Ahmad Rather
Sr. Assistant Professor, UoK

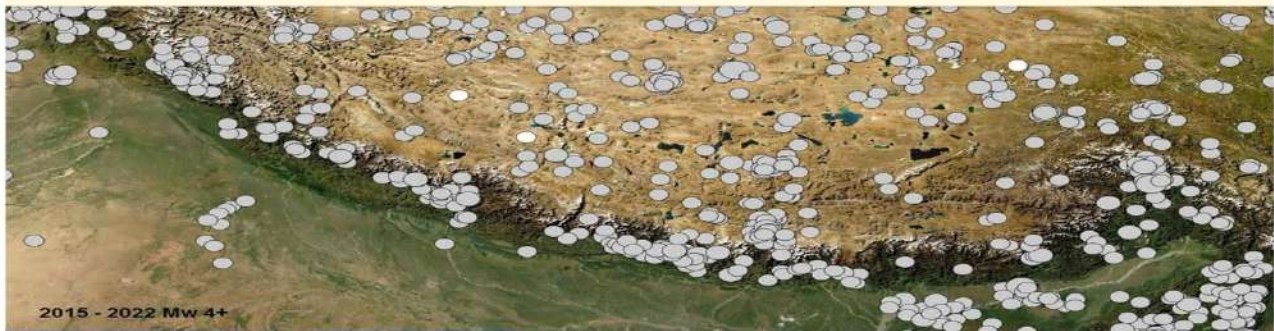
2. Programme Flyer



One Week Training Programme
on
Earthquake Risk Mitigation and Management

17 – 21 October, 2022

Venue: **Gandhi Bhawan, University of Kashmir**



PATRONS



Prof. Nilofer Khan
Vice Chancellor
University of Kashmir



Shri Taj Hassan, IPS
Executive Director
NIDM, MHA-GOI

RESOURCE PERSONS



Dr. Vineet K. Gahalaut
Chief Scientist
NGRI-CSIR, Hyderabad



Dr. Imtiaz A. Parvez
Chief Scientist
CSIR-FPI, Bangalore



Prof. T. Vijay Kumar
School of Earth Sciences
S.R.T.M. University

CONVENORS



Prof. Pervez Ahmed
Dept. of Geography &
Disaster Management
University of Kashmir



Dr. Amir Ali Khan
Associate Professor
Resilient Infra. Division,
NIDM, MHA-GOI



Prof. A. R. Dar
Dept. of Civil Engineering
NIT, Srinagar



Er. Iftikhar A. Hakim
Chief Town Planner
Kashmir



Prof. B.S. Bali
Dept. of Earth Sciences
University of Kashmir

COORDINATORS



Dr. Javeed A. Rather
Sr. Assistant Professor
University of Kashmir



Ms. Yogita Garbyal
Young Professional
NIDM, MHA-GOI



Dr. Aijaz A. Masoodi
Dept. of Civil Engineering
NIT, Srinagar



Dr. Hamid Sana
Jet Propulsion Laboratory
NASA

Jointly Organised by: Department of Geography and Disaster Management, University of Kashmir

&

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

3. Introduction

The Training Programme on “Earthquake Risk Management and Mitigation” was conducted for five days, particularly for officials from the Government Departments like SDMA, DDMA, Higher Education, Housing and Planning, Geology and Mining, Irrigation and Flood Control, NGOs, Urban local bodies and people from academia of Jammu and Kashmir (UT) from October 17-21, 2022. This in-person programme was organized by the Department of Geography and Disaster Management, University of Kashmir in collaboration with National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India. Keeping in view the high susceptibility of Kashmir region to earthquake hazard, this programme was primarily designed for the academicians/ faculties/teachers and Research Scholars engaged in the activities related to earthquake and disaster management, as well as, the State Government officials and people from NGOs working in the field of Disaster Management. The sessions throughout the entire programme generated a pool of knowledge and future plan of action on the problem under discussion by individuals having huge scientific research and field-based experience as well as a responsible role while being part of the government-driven initiatives in different capacities. The key learnings from the training programme were building people’s capacities, designing and constructing earthquake resistant structures, implementation of building codes/ building by-laws, acquiring indigenous knowledge and solutions for earthquake resistant infrastructure, comprehensive risk assessments, micro-zonation studies and equally important raising a culture of earthquake hazard and disaster resilience.

4. Objectives

The training programme would help to:

1. provide an in-depth knowledge about the principles, concepts and practices for earthquake risk mitigation and management.
2. enable the participants learn from the past lessons of the earthquake disasters.
3. promote owner driven initiatives to build resilience in rural and urban housing for earthquake safety.
4. contribute to the development of capacities, knowledge and skills of professionals and academia for effective management of earthquake hazard situations at local level.

Target audience

The primary target audience of training were officials from SDMA, DDMA's, urban housing and development, Municipal Corporation, Higher Education, Jal Shakti, as well as Academicians, Researchers working on earthquake hazard management and people from NGOs etc. who are directly or indirectly responsible for earthquake risk mitigation and management.

5. Scope

Jammu and Kashmir is a multiple hazard and disaster-prone region. In a place like J&K, where more than 50% of its population lies in most severe seismic zone V, the impact of disasters is always aggravated. The importance of capacity building for earthquake risk mitigation and management have been revealed more clearly in recent years where integrated approach and involvement of all stakeholders including community felt most effective for sustainable development.

Past learning from Kashmir 2005 earthquake shows earthquakes are a major threat to lives, livelihoods, and economic development of the country. Natural disasters severely hamper the progress and achievements of sustainable development while, at the same time, physical infrastructure that we are constructing may itself constitute a source of risk in the event of future disasters. This is particularly true in the case of earthquakes, where the majority of victims are killed by their own collapsing houses. With growing population, urbanization and unauthorized colonies, earthquake risk mitigation becomes a pressing issue for all of us and should be undertaken on a comprehensive basis. The ongoing shift in built environment should be managed in a way that during transition from traditional practices to new technology, earthquake risk reduction efforts remain sustainable.

Basic Course Learning Units

Contents of the course would touch upon following aspects, to achieve the objectives:

1. Basic Concept of Disaster Management,
2. Disaster Risk Reduction and Resilience.
3. Basic concepts of earthquake risk mitigation
4. Earthquake resistant rural housing.
5. Earthquake risk mitigation for urban sector.
6. Earthquake risk assessment and preparedness at local level.
7. Post-earthquake long term recovery and reconstruction strategies.
8. Emergency preparedness during an earthquake
9. Earthquake related fire safety
10. Group Exercise/presentation/mock drill

The training programme was conducted by the Deptt. of Geography & DM, UoK & NIDM; the sessions covered according to the agenda were taken by distinguished scientists/professors from various academic and research institutions/ Universities like NGRI Hyderabad, CSIR-PFI Bangalore, NIT Srinagar, SRTM University, JPL-NASA as well as the faculties of both the conducting organizations

6. About National Institute of Disaster Management (NIDM)

The National Institute of Disaster Management (NIDM) was constituted under an Act of Parliament with a vision to play the role of a premier institute for capacity development in India and the region. 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. 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. NIDM provides Capacity Building support to various National and State level agencies in the field of Disaster Management & Disaster Risk Reduction.

7. About University of Kashmir

The University of Jammu and Kashmir was founded in the year 1948. In the year 1969 it was bifurcated into two full-fledged Universities: University of Kashmir at Srinagar and University of Jammu at Jammu. The University of Kashmir is situated at Hazratbal in Srinagar. Over the Years University of Kashmir has expanded substantially. It has established Three Satellite Campuses at Anantnag (South Campus), Baramulla (North Campus) and Kupwara Campus to make higher education more accessible to people living in remote areas of Kashmir valley. The University is committed to provide an intellectually stimulating environment for productive learning to enhance the educational, economic, scientific, business and cultural environment of the region. It has been constantly introducing innovative/ new programmes to cater to the needs and demands of the students and the society.

The *Department of Geography and Disaster Management* is one of the pioneer Departments of Geography in the country. It offers MA./MSc. in Geography and MA./MSc. Disaster Management besides Doctoral Programmes in the concerned subjects. The Department is DST-FIST Sponsored and UGC-SAP (Level-II) Assisted Department.

Objectives:

- To develop a high level understanding of the subject matter in all the vital sub-fields of Geography.
- To get a broad holistic picture of regional Development with particular reference to Jammu & Kashmir.
- To develop the Competence to facilitate development of inter-disciplinary approach for an easy shift over from curricular work to research activity which would be able to help the process of socio-economic development of Jammu & Kashmir state.
- To develop sufficient level of competence in the use of tools & techniques of regional analysis.

8. Programme Schedule

Day 1 – 17.10.2022 (Monday)

TIME (IST)	SESSION	
10:00 am – 11:00 am	Registration	
11:30 am – 1:00 pm	Inaugural	
		DIGNITARIES
	Welcome Address	Prof. Pervez Ahmed Head, Dept. of Geography and Disaster Management & Programme Convenor (UOK)
	Introduction to the Training Programme	Dr. Amir Ali Khan Programme Convenor (NIDM)
	Guest of Honour	Dr. Vineet. K. Gahalaut Chief Scientist, NGRI, Hyderabad
	Special Guest of Honour <i>(Virtual Mode)</i>	Shri Taj Hassan (IPS) Executive Director NIDM, Delhi.
	Presidential Address by Chief Guest	Prof. Nilofer Khan Hon'ble Vice Chancellor University of Kashmir
	Vote of Thanks	Dr. M. Shafi Bhat Senior Assistant Professor University of Kashmir
01:00 pm – 2:00 pm	Lunch Break	
TIME (IST)	TOPIC	RESOURCE PERSON
2:00 pm – 3:00 pm	Earthquake Risk Mitigation and Management – with special reference to J&K	Dr. Amir Ali Khan Associate Professor Resilient Infra. Division NIDM, MHA-GOI

3:00 pm – 3:30 pm	Tea Break	
3:30 pm – 5:00 pm	Paleo-seismic Signatures of Kashmir	Prof. Bikram Singh Bali Head, Department of Earth Sciences University of Kashmir
Day 2 – 18.10.2022 (Tuesday)		
TIME(IST)	TOPIC	RESOURCE PERSON
10:00 am – 11:00 am	Earthquake Hazard Assessment in India & Adjacent Areas	Dr. Imtiaz A. Parvez Chief Scientist CSIR-FPI Bangalore
11:00 am – 11:30 pm	Tea break	
11:30 am – 01:00 pm	Site-specific Earthquake Hazard and Micro-zonation Studies- a Case Study for Kashmir Basin	Dr. Imtiaz A. Parvez Chief Scientist CSIR-FPI Bangalore
01:00 pm – 2:00 pm	Lunch Break	
2:00 pm – 3: 00 pm	Earthquake Hazard in Himalaya-I	Dr. Vineet K. Gahalaut Chief Scientist NGRI, Hyderabad
3:00 pm – 3:30 pm	Tea Break	
3:30 pm – 5:00 pm	Earthquake Hazard in Himalaya-II	Dr. Vineet K. Gahalaut Chief Scientist NGRI, Hyderabad
Day 3 – 19.10.2022 (Wednesday)		
Field Visit to Hydropower Plant and Earthquake Affected Area		
Day 4 – 20.10.2022 (Thursday)		
TIME(IST)	TOPIC	RESOURCE PERSON
10:00 am – 11:00 am	Intra-plate Earthquakes	Prof. T. Vijay Kumar S.R.T.M. University

		Nanded, Maharashtra
11:00 am – 11:30 pm	Tea break	
11:30 am – 01:00 pm	Earthquake Preparedness	Prof. T. Vijay Kumar S.R.T.M. University Nanded, Maharashtra
01:00 pm – 2:00 pm	Lunch Break	
2:00 pm – 3: 00 pm	Major Role of Civil /Structural Engineers in Mitigation of Earthquake Disasters	Prof. A. R. Dar National Institute of Technology, Srinagar
3:00 pm – 3:30 pm	Tea break	
3:30 pm – 5:00 pm	JTFR project-initiatives for upgradation of disaster management in Jammu & Kashmir	Er. Iftikhar A. Hakim Chief Town Planner, Kashmir
Day 5 – 21.10.2022 (Friday)		
TIME(IST)	TOPIC	RESOURCE PERSON
10:00 am – 11:00 am	Seismic Hazard Scenario of Kashmir Himalaya	Dr. Hamid Sana Jet Propulsion Laboratory NASA
11:00 am – 11:30 pm	Tea break	
11:30 am – 01:00 pm	Earthquake Resistant Structures	Dr. Aijaz A. Masoodi National Institute of Technology, Srinagar
01:00 pm – 2:00 pm	Lunch Break	
2:00 pm – 3: 00 pm	Participant Feedback	

Valedictory Session

TIME (IST)	TOPIC	DIGNITARIES
3:15 Pm – 05:00 pm	Welcome Address	Dr. Javeed Ahmad Rather Programme Coordinator (UoK)
	Proceedings of the Training Programme	Prof. Pervez Ahmed Programme Convenor (UoK)
	Special Remarks	Dr. Amir Ali Khan Programme Convenor (NIDM)
	Guest of Honour	Dr. Nisar Ahmad Mir Registrar University of Kashmir
	Special Guest of Honour	Prof. Farooq A. Masoodi Dean Academics Affairs University of Kashmir
	Presidential Address by Chief Guest	Mr. Nazim Zai Khan (IAS) Secretary to Government Department of Disaster Management, Relief, Rehabilitation and Reconstruction
	Presentation of Memento to Mr. Mumtaz Ahmad Pir ACR Baramulla	
	Certificate distribution among the participants	
	Presentation of Memento to programme coordinators Ms. Yogita Garbyal (NIDM) Dr. Javeed Ahmad Rather (UoK)	
	Vote of Thanks	Dr. M. Shafi Bhat Senior Assistant Professor University of Kashmir

9. Training Programme Summary

DAY 1 (17/10/2022)

Inaugural Session

A week-long training programme on ‘**Earthquake Risk Mitigation and Management**’ was held from on October 17-21, 2022, jointly organized by the Department of Geography and Disaster Management, University of Kashmir and National Institute of Disaster Management, New Delhi.

Prof. Nilofer Khan, Vice-Chancellor, University of Kashmir chaired the inaugural session of the workshop.

Prof. Nilofer Khan in her presidential address on the occasion highlighted that the academic institutions have a larger responsibility to help develop a disaster-conscious and disaster-resilient society by undertaking collaborative endeavors like the present workshop. Stressing on creating grassroots awareness on disasters.

Prof. Nilofer Khan said more varsity departments could be roped in for such collaborative programmes in future to address concerns of the public related to disasters, from the disciplines like social science, law, humanities, home science and others.

Dr Amir Ali Khan (Associate Prof. NIDM) who was also the convenor of the training programme, spelt out the objectives of the week-long activity, including communicating to the participants from academia and different government departments the need to “face the emerging challenges vis-à-vis earthquake mitigation and management.” He underlined the importance of seismic-micro zonation of vulnerable areas like Kashmir region to incorporate the same in the respective master plans of urban centers in particular for the overall better developmental activity.

Prof. Pervez Ahmed (Head, Dept. of Geography and Disaster Management) who was also the convenor of the training programme from the University of Kashmir side, in his inaugural speech highlighted that a mixed group of participants has been chosen for the current workshop in view of the “specific need” to acquaint them with new challenges in areas of earthquake mitigation and management. He said these include teachers from colleges, government functionaries, research scholars and students.

Prof. Pervez also said that this Training programme is designed to help UT, and national level agencies at the helm of affairs to obtain the knowledge, tools and support that they need to plan and implement the earthquake risk mitigation strategies.

Prof. Vineet K Gahalaut, Chief scientist, NGRI, Hyderabad also shared the dais and his views on the workshop theme, while **Dr. Nisar A Mir**, Registrar, University of Kashmir also joined the inaugural session deliberations. **Dr. Javeed A Rather** conducted proceedings of the inaugural session, while **Dr. Mohammad Shafi Bhat** delivered the vote of thanks. **Ms. Yogita Garbyal**, Young Professional, NIDM briefed participants about different works done by NIDM during the training programme as well as shared the step-wise procedure for successful registration on the NIDM training portal.

During the five days of training programme, there were 10 technical sessions comprising of 13 lectures and one session was dedicated for participant’s feedback, wherein each participant was given chance to speak on their overall experience during the training programme. During this session participants applauded the organizers for conducting such a training programme and provided valuable suggestions. One whole day was devoted to field visit to Uri. The resource persons were from CSIR-FPI Bangalore, NGRI Hyderabad, SRTM University Maharashtra, NIT Srinagar, Town Planning Organization J&K , JPL-NASA, NIDM and University of Kashmir.

Day-1 Technical Sessions

Speaker: Dr. Amir Ali Khan, Associate Professor, Resilient Infrastructure Division, NIDM

Topic: Earthquake Risk Mitigation and Management – with special reference to J&K

Dr. Amir Ali Khan, NIDM, New Delhi accentuated the participants about the earthquake preparedness scenarios of the valley especially after the catastrophic Kashmir Earthquake 2005, the community involvement in all phases of disaster management, collaborative efforts and planning at different levels etc.. He emphasized on making more efforts to design and implement DRR strategies and measures, which necessarily need to be communicated to community, so as, to make them participative for ensuring protective and preparedness measures are adopted at the community level. The lecture was very interactive and informative as participants were fully involved in the whole lecture by asking questions as well as providing solutions/answers to different situations/questions posed to them. Dr. Amir also made an embellishment on Success Stories from Bihar towards DRR, in his concluding remarks he contemplated upon that Academia plays an important role in sensitization of masses towards DRR.

Speaker: Prof. Bikram Singh Bali, Head, Dept. of Earth Sciences, University of Kashmir

Topic: Paleo-Seismic Signatures of Kashmir

Prof. B S Bali talked about Palaeoseismic Signatures in Kashmir Valley, where he discussed that Dykes and sills are present in Kashmir karawas which provide every indication of an earthquake. There are sand beds overlaid by clay bed which can be the cause of minimum 6.5 magnitude earthquake. According to Prof. Bali the shortening across Kashmir Himalaya is due to India-Eurasia convergence and the Karewa sediments of Methawoin Member and Pampur Member possessed appropriate geological conditions for the formation of paleoliquefaction features and all the observed paleoliquefaction features are interpreted to have seismogenic origin.

The study of Prof. Bali represents paleoseismic investigation of paleoliquefaction features from which the estimated “energy center”, “magnitude” and “Peak ground acceleration” of a paleoearthquake can be inferred but the “Causative Paleoearthquake” is “unknown”. He opined that Back analysis of paleoliquefaction features (dikes) suggest that the magnitude of paleoearthquake that induced the observed liquefaction features was estimated to be of an order of $MW = 6.2$ and was associated with peak ground acceleration ranging from 0.27 g to 0.83 g. The obtained results from the “Back Analysis” of paleoliquefaction features bear significant uncertainties and should not be used in seismic hazard analysis. Despite significant uncertainties in “Back Analysis” of paleo-liquefaction features for estimating “energy center”, “magnitude” and Peak ground acceleration of a paleo-earthquake, the scientific problem has its own “charm”. Prof. discussed the difficult technical aspects of his work in a very lucid way so that the participants gain maximum out of his lecture and stay up to date.

Day 2 (18/10/2022)

Speaker: Dr. Imtiaz A. Parvez, Chief scientist, CSIR-FPI, Bangalore)

Topic 1: Earthquake Hazard Assessment in India & Adjacent Areas

Topic 2: Site-specific Earthquake Hazard and Micro-zonation Studies- a Case Study for Kashmir Basin

Dr. Imtiaz A. Parvez made the participants aware about some fundamental aspects of Plate Tectonics and contemplated that 90% of earthquakes are on plate boundary, which he explained by elastic rebound theory. In his later part of the talk, he discussed about two important approaches of earthquake predictions and Seismic Hazard Analysis, estimated misorientation angles of broadband seismic sensors of the Kashmir-Zaskar network and their effects on anisotropy determinations and great-circle-path deviations were also discussed.

The misorientations were calculated from the difference between backazimuths of Rayleigh waves and those of the great-circle-arcs connecting the source and receiver. Waveforms of global Rayleigh waves extracted from the records of 13 broadband seismographs in the Kashmir-Zaskar region of Northwestern Himalaya, and 3 others around the region, were also discussed to evaluate the misorientation errors in each of these sensor installations. Three of the 16 were found to have orientation errors between ± 5 and 10° with respect to the geographic north, 4 between 10 and 16° and the remainder with $< 5^\circ$. These misalignments had resulted in leakage of a substantial amount of energy in the transverse component receiver functions which, after correction, led to sharper amplitudes and polarities. According to Dr. Imtiaz, the SKS-derived azimuths of the fast component were found to be quite sensitive to instrument misalignment, suffering $\sim 16^\circ$ shift from a $\sim 15.5^\circ$ error in orientation. A notable observation revealed by misalignment corrections was the substantial, up to 20° , off-great-circle arc deviations even along shorter path arrivals from regional events, offering a qualitative ordination of the region's heterogeneities. The paper also presents probability distribution functions of the estimated power spectral density of ambient noise at each station compared with global high and low-noise models and near-source earthquake models. The results of his research provide a first-order assessment of small earthquake detection capability of this network, down to M1.0, also confirmed by some of the smallest events located.

Speaker: Dr. Vineet. K. Gahalaut Chief Scientist, NGRI, Hyderabad

Topic: Earthquake Hazard in Kashmir Himalaya

Dr. Vineet K Gahalaut made a detailed presentation on Earthquake Hazard in Himalaya, wherein Dr. Gahalaut talked about the Global Seismic Hazard Assessment Program (GSHAP) and pointed out some pervasive Causes of Earthquakes in the Himalayan Region.

He discussed two Case Studies of Latur and Bhuj Earthquakes with the participants, which raised an hour long discussion between the participants and the panelists. According to Dr. Gahalaut The ~800 km long Aravalli–Delhi Fold Belt is characterized by small and occasionally moderate magnitude earthquakes, he is of the opinion that intraplate earthquakes occur in response to the relative motion between the Marwar and Bundelkhand cratons, whose interaction in the geological past led to the origin of ADFB. The well-demarcated faults on the eastern flank of the ADFB (e.g., the Great Boundary fault) appear to be inactive, while on the contrary, faults on the western flank with poor geomorphic and geological expressions appear to be active. The diffused nature of earthquakes, their focal mechanisms, and regional stress regime suggest that the earthquakes occur on planes that are subparallel and oblique to the trend of the ADFB on the eastern flank through predominantly reverse and strike-slip motion. As the focal depth of earthquakes extends up to ~40 km, he infer the entire crust to be seismogenic. Within the Delhi region, the observed seasonal variation in the annual frequency of seismicity appears to imply that they are influenced by monsoonal precipitation that clamps (or unclamps) preferentially oriented faults.

Dr. Gahalaut pointed out that while the Delhi region experienced a fair number of earthquakes in early to mid-2020, this seismicity was within the range of background seismicity. Building on this point, he also note that the current activity might not be considered precursory, as such clustered activity in time in the ADFB has occurred on several occasions in the past. Based on both historical documentation and modern instrumental records, the possibility of future moderate magnitude earthquakes cannot be ruled out in the ADFB region. This underscores the need to improve the seismic network uniformly, along and in regions adjacent to the ADFB to ascertain whether earthquakes occur all along the ADFB and whether the seismicity in the Delhi region is anomalous or not.

Dr. Gahalaut sought a more careful and thorough analysis of the archived literature which according to him will also help in identifying past earthquakes with as much quantification as possible. In the afternoon session of the day

Speaker: Dr. Muzaffar Ahmad (Ex. NDMA Member & Presently Consultant UNICEF and Advisor to Government of Bihar)

Dr. Muzzafer talked about Disasters in India and Initiatives taken for Disaster Risk Reduction and highlighted the importance of Micro-seismic zonation of the Valley, he discussed some of the lessons learnt from Uri Earthquake and Leh Cloud Burst wherein he emphasized the role of awareness and Capacity building through the Bottom-Up Approach.

Day 3 (19/10/2022)

Field Tour to Uri, Baramulla J&K

On the third day of the training programme, a Field Trip was specially arranged for the participants to the Hydro-electric Power (HEC) Plant and 2005 Kashmir Earthquake Affected Areas of Uri Tehsil, Baramulla, J&K. The field trip visit sites were purposely chosen so that the participants get a first-hand experience about various dimensions of disaster management processes and information on operational aspects of earthquake risk management and safety protocols. The buses left University campus in the wee hours for the said trip. An expert team including people from UoK and NIDM also accompanied participants to the affected areas to provide first-hand information on the geological aspects and share details about the impact of the October 8, 2005 earthquake in the Uri region.

Several areas of Uri along the National Highway (NH1) such as Boniyar, Kenchen, Bhagna, Nalusa, Rampur, Darah Goolan, Mahura, Nambla, Salamabad were visited to understand the terrain, structural and non-structural vulnerabilities as well as listen to the unsung stories from the local residents itself and sensitize them about the impending risks in case of a probable earthquake. This was a first-time experience to visit a border area along LoC for almost all of the participants who will relish the experience for their entire life. The participants preserved the memories by taking pictures at the chosen sites particularly at the Kaman Aman Setu Post, the bridge of peace connecting Kashmir Valley with the other part of Kashmir administered by Pakistan.

Day 4 (20/10/2022)

Speaker: Prof. T. Vijay Kumar, SRTM University, Maharashtra

Topic 1: Intra-plate earthquakes

Topic 2: Earthquake Preparedness

Prof. T. Vijay Kumar delivered a detailed lecture on Intraplate Earthquakes & Personal Preparedness. The key Highlights of the his talk were Mathematical Concept of Earthquake parameters-for Explanation of Intraplate Earthquakes in Latur and Gujarat. He also talked about Teleseismic Tomography and Ambient Noise Tomography for advanced earthquake studies.

Dr. Vijay emphasized on systematic and pro-active preparedness measures. He stressed on local peoples participation in earthquake preparedness programme so that the actual stakeholders who happen to be the first-responders get some training and understating of escaping the wrath of earthquakes beforehand it strikes. He further lamented that preparation is the key and it will save huge bucks at the time of response and the recovery phase and also will minimize the damages and losses in terms of human lives, both public and private infrastructure.

Speaker: Prof. A. R Dar, National Institute of Technology, Srinagar

Topic: Major Role of Civil /Structural Engineers in Mitigation of Earthquake Disasters

Dr. Dar highlighted the Progress of a Modern Society v/s Civil Engineering and gave some Basic Tips of Structural Engineering and elaborated on how Big Lessons can be learnt through Past Earthquakes for proficient management of earthquakes. He said we have progressed a lot in terms of technological solutions to the earthquake resistant infrastructure through civil/structural engineering but maintained that it is costly for a common man, however through the government driven initiatives for safe housing, building a dream house is reality. He further said when building your dream house do consider a civil/structural engineer to check earthquake safety standards.

Speaker: Er. Iftikhar A. Hakim, Chief Town Planner Kashmir

Topic: JTFR project-initiatives for upgradation of disaster management in Jammu & Kashmir

Er. Iftikhar A. Hakim, a civil engineer and a planner by profession also affiliated to the World Bank sponsored Jhelum & Tawi Flood Recovery Project (JTFRP) made a detailed demonstration about the integrated operational forecasting system for multi-hazard early warning which they have developed with the support of World Bank funded project (JTFRP). He said that the Digital Risk Database has been created for Jammu and Kashmir. A hands on experience/training was given to the participants about the application of Decision Support System app for reporting of hazard incidents and subsequent government response.

Day 5 (21/10/2022)

Speaker: Dr. Hamid Sana, Research Fellow, Jet Propulsion Laboratory, NASA

Topic: Seismic Hazard Scenario of Kashmir Himalaya

Dr. Hamid Sana talked about seismic hazard assessment- A cross disciplinary approach wherein he emphasized that by providing a comprehensive multi-disciplinary, physically sound approach to Advanced Seismic Hazard Assessment can Bridge the gap between modern interdisciplinary research and problems faced by practitioners in earthquake risk management for Kashmir in particular.

Speaker: Dr. Aijaz A Masoodi, Associate Prof. National Institute of Technology, Srinagar

Topic: Seismic resistant structures

Dr. Aijaz A Masoodi gave a detailed description of the seismic resistant structures in context of different building typologies of Jammu and Kashmir. He further discussed the seismic performance of brick masonry buildings and laid emphasis on ensuing the proper construction practices in the construction of such buildings. He answered to several queries from the audience.

Feedback Session:

The participants were given about one hour to provide their feedback regarding their experiences during the entire training programme. Both male and female participants voluntarily shared their experience on the quality of presentation delivered by distinguished earth scientists. They were all praise for the organizing team for conducting such a training keeping in view the earthquake hazard scenario of the region. The participants were thrilled by getting the opportunity to visit earthquake prone areas of Uri along the Line of Control and to get a glimpse of Kaman Aman Setu Post (Bridge of Peace) and URI HEC power project.

Valedictory Session:

The seven-day workshop on “earthquake risk mitigation and management” organized by the Department of Geography and Disaster Management in collaboration with National Institute of Disaster Management (NIDM).concluded at the University of Kashmir on Friday.

Nazim Zia Khan (IAS), Secretary to Government, Department of Disaster Management, Relief and Rehabilitation, was the Chief Guest at the valedictory session, where Dean Academic Affairs, University of Kashmir **Prof. Farooq A Masoodi** was the guest of honour.

In his presidential address, **Mr. Nazim Zia Khan** called for “community involvement” in disaster management, asserting that everyone in the society must know what to do when a disaster strikes. “Today everyone has to act as his/her own first responder in times of a disaster,” he said, adding that alertness and awareness can go a long way in leading us to create a disaster-conscious citizenry. He also talked about the ‘Apda Mitra’ scheme that aims to make the community a part of disaster management initiatives. He appreciated the University of Kashmir for playing a key role in raising awareness on disaster management and assured full support of the DDMRR for holding a bigger conclave on disaster management in future.

Dean Academic Affairs **Prof. Masoodi** called for a multi-pronged strategy to address different dimensions of disaster management, including the psychological trauma that disasters bring in their wake. He complimented the Department of Geography for organizing the important programme.

Prof Pervez Ahmed, Head of the Department, gave an overview of eight technical sessions held during the five-day deliberations, besides a field trip organized for the participants to the Uri area of Baramulla district which was worst affected in the 2005 earthquake.

Prof Pervez said 13 lead lectures were delivered by eminent scientists and experts on varied aspects of disaster management.

Dr. Amir Ali Khan from NIDM, Co-Convener of the Programme, said the present workshop has enriched the understanding of participants about disaster management.

“This is just a beginning and we intend to hold more such workshops in future,” he said.

Certificates of participation were distributed among the registered participants who attended the training programme.

Dr. Javeed Ahmad Rather conducted proceedings of the valedictory session and **Dr. M Shafi Bhat** delivered the vote of thanks.

10.Photo Gallery



**Group Photo from the One Week Training Programme
on
"Earthquake Risk Mitigation and Management"
October 17-21, 2022**

**Jointly organized by the
Department of Geography & Disaster Management,
University of Kashmir, and
National Institute of Disaster Management (NIDM),
Ministry of Home Affairs, New Delhi.**

Inaugural Session



Welcome Address by Prof. Pervez Ahmed, Programme Convenor (UoK)



Introduction to the Training Programme by Dr. Amir Ali Khan, Programme Convenor (NIDM)



**Address by Guest of Honour, Dr. Vineet K. Gahalaut, Chief Scientist,
NGRI, Hyderabad**



**Address by Chief Guest, Prof. Nilofar Khan, Hon'ble Vice Chancellor,
University of Kashmir**



Moderated by Dr. Javed A. Rather, Programme Coordinator (UoK)



Vote of Thanks by Dr. M. Shafi Bhat, Sr. Assistant Professor, UoK



**Earthquake Risk Mitigation and Management – with special reference to J&K
Dr. Amir Ali Khan, Associate Prof. NIDM**

Paleo-seismic Signatures of Kashmir

BIKRAM SINGH BALI

Department of Earth Sciences,
University of Kashmir,
Srinagar-190006



Paleo-Seismic Signatures of Kashmir

Prof. Bikram Singh Bali, Head, Dept. of Earth Sciences, UoK



P

Earthquake Hazard Assessment in India & Adjacent Areas
Site-specific Earthquake Hazard and Micro-zonation Studies- a Case Study for Kashmir Basin
Dr. Imtiaz A. Parvaz, Chief Scientist, CSIR-FPI, Bangalore



Earthquake Hazard in the Himalaya
Dr. Vineet K. Gahalaut, Chief Scientist, NGRI, Hyderabad

Field Tour to Uri, Baramulla, J&K
A worst-hit border area during Kashmir Earthquake 2005



Participants preparing to leave for Uri Trip using Four JKSRTC Deluxe Buses in the wee-hours on Day 3 of the Training Programme



Experts briefing about the working of Uri Hydro-electric Power Plant and Earthquake resistant/ resilient infrastructure



Identifying and understanding the elements at risk of local residents to multi-hazards (earthquakes and floods)



Main Access Tunnel to the 480 MW URI HEC Project







Group Photos at the Kaman Aman Setu Bridge connecting Kashmir Valley-India with the Pakistan Administered Kashmir



**Intra-plate Earthquakes
Earthquake Preparedness**

Prof. T. Vijay Kumar (SRTM, Univ. Maharashtra)



Major Role of Civil /Structural Engineers in Mitigation of Earthquake Disasters

Prof. A. R. Dar, National Institute of Technology, Srinagar



JTFR project-initiatives for upgradation of disaster management in Jammu & Kashmir

Er. Iftikhar A. Hakim, Chief Town Planner, Kashmir



Seismic Hazard Scenario of Kashmir Himlaya
Dr. Hamid Sana, Jet Propulsion Laboratory, NASA



Earthquake resistant Structures
Dr. Aijaz a. Masoodi, associate professor, nit srinagar

Valedictory Session



Welcome Address by Dr. Javeed A. Rather, Programme Coordinator (UoK)



Proceedings of the Training Programme by Prof. Pervez Ahmed, Programme Convenor



Special Remarks by Dr. Amir Ali Khan, Programme Convenor (NIDM)



**Address by Special Guest of Honour, Prof. Farooq A. Masoodi,
Dean Academics Affairs, University of Kashmir**



**Address by Chief Guest, Mr. Nazim Zai Khan (IAS)
Secretary to Government, Department of Disaster Management & RRR**

Certificate Distribution











Final Vote of Thanks by Dr. M. Shafi Bhat, Sr. Assistant Professor, UoK

11.Key Takeaways from the Training Programme

- J&K is a multi-hazard and disaster-prone region with a long history of disasters.
- Kashmir Earthquake 2005 was historic as a result of wide-spread devastation, human casualties and economic costs.
- Srinagar city and other urban centers of Kashmir region are highly susceptible to earthquakes and the risks are exacerbated by anthropogenic activities, such as mismanagement, unplanned housing and non-engineered construction, urban sprawl etc.
- Earthquakes don't kill people, buildings do.
- Seismic risk assessment is essential to define the strategic urban and emergency planning management actions and should be based on the analysis of the buildings, the exposed population and their emergency interaction.
- There is a need to evaluate rescuers and emergency management actions, including damages scenarios-related aspects to ensure better future response.
- There is a dire need to identify the main risk mitigation solutions for reducing the vulnerability of historic buildings to preserve the heritage.
- Effective emergency management is related to estimations of post-event losses.
- Planning for an earthquake beforehand is the key to efficient response when it is for real.
- Introducing retrofitting strategies at wide scale, by means of cost-benefit analyses in terms of safety increase and economic resource allocations.
- Proposing wayfinding solutions for local population, so as to lead citizens to proper readiness beforehand an emergency.
- Managing earthquakes is our individual as well as a collective responsibility. We should act now or tomorrow will be too late.

12. Media Coverage

One-week training programme on earthquake risk mitigation begins at KU

SO NEWS DESK

SRINAGAR, OCT 17 - A week-long training programme on 'Earthquake Risk Mitigation and Management' started at the University of Kashmir on Monday. Vice-Chancellor Prof Nilofer Khan chaired the inaugural session of the workshop, organised jointly by the Department of Geography and Disaster Management, University of Kashmir and National Institute of Disaster Management (NIDM).

In her presidential address, Prof Nilofer said academic institutions have a larger responsibility to help develop a disaster-conscious and disaster-resilient society by undertaking collaborative endeavours like the present workshop. Stressing on creating grass-



roots awareness on disasters, Prof Nilofer said more varsity departments could be roped in for such collaborative programmes in future to address concerns of the public related to disasters, from the disciplines like social science, law, humanities, home science and others.

Dr Amir Ali Khan from NIDM spelt out the objectives of the week-long activity, including com-

municating to the participants from academia and different government departments the need to "face the emerging challenges vis-à-vis earthquake mitigation and management."

He underlined the importance of seismic microzonation of vulnerable areas to incorporate the same in the respective master plans so that areas with loose soil are avoided for any type of devel-

opmental activity.

Prof Vineet K Gehlaut from NGRI also shared the dais and his views on the workshop theme, while KU Registrar Dr Nisar A Mir also joined the inaugural session deliberations.

Head Department of Geography Prof Pervez Ahmad said a mixed group of participants has been chosen for the current workshop in view of the "specific need" to acquaint them with new challenges in areas of earthquake mitigation and management.

He said these include teachers from colleges, government functionaries, research scholars and students.

Dr Javeed A Rather conducted proceedings of the inaugural session, while Dr Mohammad Shafi Bhat delivered the vote of thanks.

کشمیر یونیورسٹی میں زلزلے کے خطرات کو کم کرنے کے بارے میں ایک ہفتہ کا تربیتی پروگرام شروع

سرینگر 17 اکتوبر/آئی/آئی



حکاموں کو شامل کیا جاسکتا ہے تاکہ آفات سے متعلق عوام کے خدشات کو دور کیا جاسکے، سماجی سائنس، قانون، بیوروکریسی، ہوم سائنس اور دیگر شعبوں سے۔ این آئی ڈی ایم سے ڈاکٹر امیر علی خان نے ہفتہ بھر کی سرگرمی کے مقاصد کو بیان کیا۔

آفات سے آگاہ اور آفات سے مزاحم معاشرے کی ترقی میں مدد کریں۔ آفات کے بارے میں غلطی سے پر بیداری پیدا کرنے پر زور دیتے ہوئے، پروفیسر نیلو فر نے کہا کہ مستقبل میں اس طرح کے اشتراکی پروگراموں کے لیے یونیورسٹی کے مزید

کشمیر یونیورسٹی میں زلزلے کے خطرے کو کم کرنے اور انتظام پر ایک ہفتہ طویل تربیتی پروگرام سیر کو شروع ہوا۔ وائس چانسلر پروفیسر نیلو فر خان نے ورکشاپ کے افتتاحی اجلاس کی صدارت کی، جس کا اہتمام جغرافیہ اور ڈیزاسٹر مینجمنٹ ڈیپارٹمنٹ، کشمیر یونیورسٹی اور نیشنل انسٹی ٹیوٹ آف ڈیزاسٹر مینجمنٹ (NIDM) نے مشترکہ طور پر کیا۔ اپنے صدارتی خطاب میں، پروفیسر نیلو فر نے کہا کہ تعلیمی اداروں کی ایک بڑی ذمہ داری ہے کہ وہ موجودہ ورکشاپ کی طرح باہمی تعاون کے ساتھ کوششیں کر کے

One-week training programme on earthquake risk mitigation begins at KU

Srinagar, Oct 17: A week-long training programme on 'Earthquake Risk Mitigation and Management' started at the University of Kashmir on Monday.

Vice-Chancellor Prof Nilofer Khan chaired the inaugural session of the workshop, organised jointly by the Department of Geography and Disaster Management, University of Kashmir and National Institute of Disaster Management (NIDM). In her presidential address, Prof



Nilofer said academic institutions have a larger responsibility to help develop a disaster-conscious and disaster-resilient society by undertaking collaborative endeavours like the present workshop.

Stressing on creating grassroots awareness on disasters, Prof Nilofer

said more varsity departments could be roped in for such collaborative programmes in future to address concerns of the public related to disasters, from the disciplines like social science, law, humanities, home science and others. Dr Amir Ali Khan from NIDM spelt out the objectives of the week-long activity, including communicating to the participants from academia and different government departments the need to "face the emerging challenges vis-à-vis

earthquake mitigation and management." He underlined the importance of seismic microzonation of vulnerable areas to incorporate the same in the respective master plans so that areas with loose soil are avoided for any type of developmental activity.

Prof Vineet K Gehlaut from NGRI also shared the dais and his views on the workshop theme, while KU Registrar Dr Nisar A Mir also joined the inaugural session deliberations. Head Department of Geography

Prof Pervez Ahmad said a mixed group of participants has been chosen for the current workshop in view of the "specific need" to acquaint them with new challenges in areas of earthquake mitigation and management. He said these include teachers from colleges, government functionaries, research scholars and students.

Dr Javeed A Rather conducted proceedings of the inaugural session, while Dr Mohammad Shafi Bhat delivered the vote of thanks.

Experts call for community involvement in disaster management



PRECIOUS KASHMIR NEWS | SRINAGAR

A seven-day workshop on earthquake risk mitigation and management concluded at the University of Kashmir on Friday.

The workshop was organised by the Department of Geography and Disaster Management in collaboration with National Institute of Disaster Management (NIDM).

Mr Nazim Zia Khan, Secretary to Government, Department of Disaster Management, Relief and Rehabilitation, was the Chief Guest at the valedictory session, where Dean Academics Prof Farooq A Masoodi was a guest of honour.

In his presidential address, Mr Khan called for "community involvement" in disaster management, asserting that everyone in the society must know what to do when a disaster strikes. "Today everyone has to act as his/her own first responder in times of a disaster," he said, adding that alertness and awareness can go a long way in leading us to create a disaster-conscious citizenry.

Mr Khan also talked about the 'Apda Mitra' scheme that aims to make the community a part of disaster management initiatives. He appreciated the University of Kashmir for playing a key role in raising aware-

ness on disaster management and assured full support of the DDMRR for holding a bigger conclave on disaster management in future.

Dean Academic Affairs Prof Masoodi called for a multi-pronged strategy to address different dimensions of disaster management, including the psychological trauma that disasters bring in their wake. He complimented the Department of Geography for organising the important programme.

Prof Parvez Ahmad, Head of the Department, gave an overview of eight technical sessions held during the five-day deliberations, besides a field trip organised for the participants to the Uri area of Baramulla district which was worst affected in the 2005 earthquake. Prof Pervez said 13 lead lectures were delivered by eminent scientists and experts on varied aspects of disaster management.

Dr Amir Ali Khan from NIDM, Co-Convenor of the Programme, said the present workshop has enriched the understanding of participants about disaster management.

"This is just a beginning and we intend to hold more such workshops in future," he said.

Dr Javeed Ahmad Rather conducted proceedings of the valedictory session.

Experts call for community involvement in disaster management

Week-long workshop on earthquake risk mitigation concludes at KU

GK NEWS NETWORK

Srinagar, Oct 21: A seven-day workshop on earthquake risk mitigation and management concluded at the University of Kashmir on Friday.

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Workshop on earthquake risk mitigation concludes at KU

What to do after a disaster society must know : Khan

BK News Service

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"This is just a beginning and we intend to hold more such workshops in future," he said.

Dr Javeed Ahmad Rather conducted proceedings of the valedictory session.

The event was covered by various reputed daily newspapers of Jammu and Kashmir with a detailed account on the inaugural/valedictory session as well as proceedings of One Week training programme on “Earthquake Risk Mitigation and Management” organized by the Deptt. Of Geography & Disaster Management, University of Kashmir in Collaboration with National Institute of Disaster Management, Delhi, from 17th to 21st October, 2022.

1. **Rising Kashmir:** <http://risingkashmir.com/one-week-training-programme-on-earthquake-risk-mitigation-begins-at-ku>
2. **Precious Kashmir:** <https://preciouskashmir.com/2022/10/17/one-week-training-programme-on-earthquake-risk-mitigation-begins-at-ku/>
3. **Brighter Kashmir:** <https://brighterkashmir.com/one-week-training-programme-on-earthquake-risk-mitigation-begins-at-ku>
4. **Kashmir Reader:** <https://kashmirreader.com/2022/10/02/workshop-on-disaster-management-concludes-at-ku/>
5. **Greater Kashmir:** <https://www.greaterkashmir.com/srinagar/experts-call-for-community-involvement-in-disaster-management>

Besides this, the said event was covered by, Educational. Multimedia Research Centre (EMMRC), University of Kashmir, All India Radio & Doordarshan Srinagar.

1.



13. List of Participants

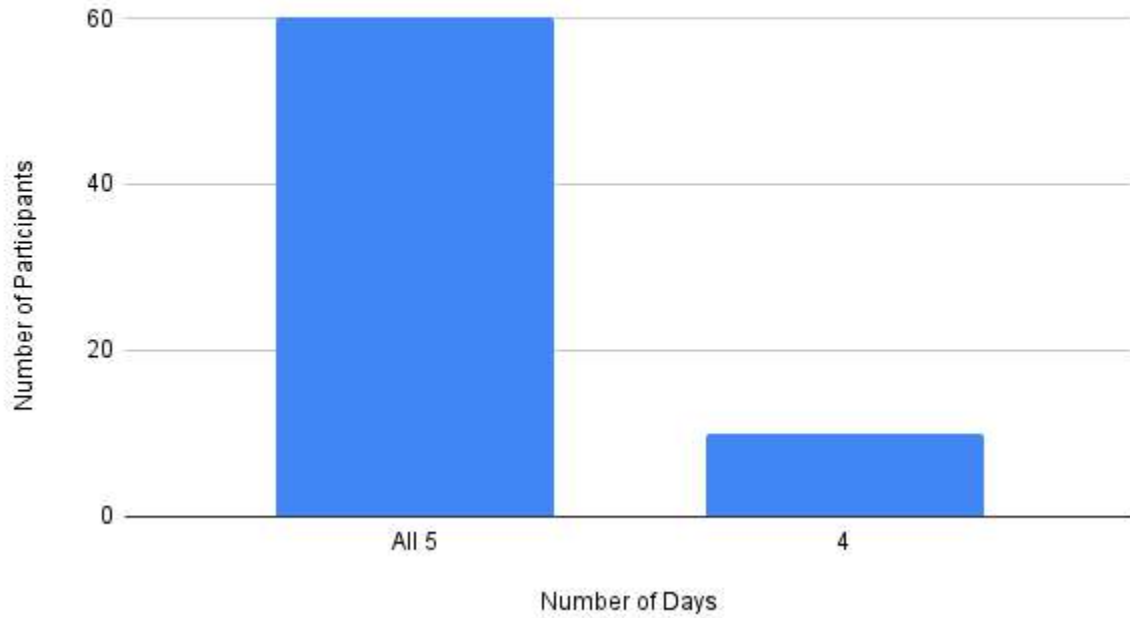
S. No.	Name of Participant	Department/ Organization	Designation	Email id	Resident (R)/ Non-resident (NR)
01	Mrs. Shazia Mehnaz	Urban Environmental Engineering Development	Junior Engineer	eimtiyazahmad@gmail.com	NR
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03	Mr. Feroz Ahmad Jagoo	Geology & Mining department	Geological Assistant	Ferozegull3@gmail.com	R
04	Mr. Ahsan Afzal Wani	Dept. of Earth Sciences, UoK	Lecturer of Geology	ahsanawani@gmail.com	NR
05	Dr. Mifta-Ul-Shafiq	Department of Higher Education, J&K	Assistant Professor	shahmifta@gdcbijbehara.edu.in	R
06	Er. Syed Saki Abass	I&FC Kashmir	Assistant Engineer	Syedsaki5@gmail.com	R
07	Mr. Irshad M. Shah	Design, Inspection & Quality Control, Sgr.	Assistant Executive Engineer	Arsh.mshah@gmail.com	R
08	Dr. Sami Ullah Bhat	Dept. of Environmental sciences, UoK	Sr. Assistant Professor	samiullahbhat@gmail.com	NR
09	Dr. Umar Farooq	Dept. of Computer Sciences, North Campus	Sr. Assistant Professor	Suf.cs@uok.edu.in	R
10	Dr. Anayat Ahmad Qureshi	Dept. of Geology, Amar Singh College, Sgr	Sr. Assistant Professor	Kureshgygeol@gmail.com	NR
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18	Mr. Bilal A. Yattoo	Revenue Department	Junior Engineer	d.d.m.a.sectionbudgam@gmail.com	R
19	Mr. Irshad Ahmad Bhat	Dept. of Geography & Disaster Management	Research Scholar	Bhatirshada1@gmail.com	NR
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22	Ashiq Hussain Rather	Fire & Emergency Department	Junior Assistant	lashu1968@gmail.com	R
23	Mir Sumaira	Dept. of Geography & Disaster Management	Research Scholar	msumairagest@gmail.com	NR

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30	Basra Jan	-do-	-do-	Basra2909@gmail.com	NR
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33	Tuba Farooq	-do-	-do-	Tubaafarooq1@gmail.com	NR
34	Waqar Ahmed	-do-	-do-	Waqardar521@gmail.com	NR
35	Majid Hussain Mir	-do-	-do-	moklupakan@gmail.com	NR
36	Aashiq Hussain Bhat	-do-	-do-	Bhataashiq119@gmail.com	NR
37	Bisma Mehraj Banday	-do-	-do-	Bandaybisma995@gmail.com	NR
38	Kashifa Hameed	-do-	-do-	bhatkys haf@gmail.com	NR
39	Irfana Altaf	-do-	-do-	Irfana92@gmail.com	NR
40	Pakeeza Mushtaq	-do-	-do-	Paki.pakeeza131@gmail.com	NR
41	Sheema Zafar	School Education Department	Teacher	Sheema.cord@gmail.com	NR
42	Gulam Mohammad Rafiqi	Revenue Department	DDMA Official	Gmragiqi12@gmail.com	R
43	Mr. Waseem Shafi Dar	DMRRR	Sr. Consultant	Sconsultant- dmrrr@jk.gov.in	R
44	Mr. Mohmad Suhail Wani	Department of DMRRR J&K	Consultant	suhail.wani@jk.gov.in	NR
45	Mr. Bashir Ahmad Mir	Directorate of Rural Development	Jr. Engineer	iyournaz@gmail.com	R
46	Mr. Waseem Ahmad Bhat	Department of Geography & DM, UoK	Research Scholar	wasim.scholar@kashmiruniversity.net	NR
47	Dr. Akhtar Alam	Department of Geography & DM, UoK	Sr. Assistant Professor	alamwani@gmail.com	NR
48	Hirak Sarkar	School Education Department, WB	Teacher	yuktibadihirak@gmail.com	R
49	Mohmad Akbar	Department of Geography & DM, UoK	Research scholar	Mmeer1634@gmail.com	NR
50	Noureen	-do-	-do-	nonniemir@gmail.com	NR

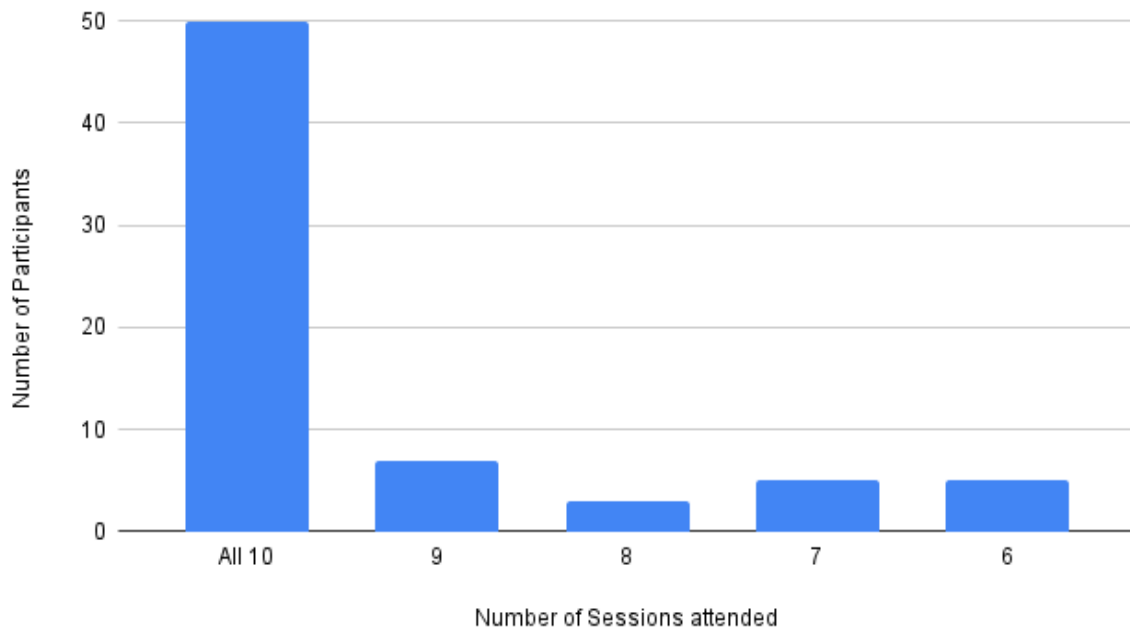
51	Shahid Saleem	-do-	-do-	Shahidsulmani630@gmail.com	NR
52	Irshad A Thoker	-do-	-do-	Thokerirshad391@gmail.com	NR
53	Mushtaq Ahmad	-do-	-do-	Kumarmushtaq27@gmail.com	NR
54	Syed Towseef Ahmad	-do-	-do-	Stawseef77@gmail.com	NR
55	Abid Farooq	-do-	-do-	aabidafr@gmail.com	NR
56	Hilal A Parray	-do-	-do-	Hilalarray810@gmail.com	NR
57	Hilal A Sheikh	-do-	-do-	Sheikhhilal399@gmail.com	NR
58	Sumaira Javaid	-do-	-do-	Sumairajavid1234@gmail.com	NR
59	Dr. Ummar Ahad	Centre of Central Asian Studies, University of Kashmir	Doctorate	Ummar.scholar@kashmiruniversity.net	NR
60	Rayees Ahmed	-do-	-do-	Rayeesrashid84@gmail.com	NR
61	Umar Hamza Lone	-do-	-do-	hloneumar@gmail.com	NR
62	Ghulam Nabi Shah	Dept. of Skill Development, Kangan	Superintendent	recianshah@gmail.com	R
63	Mohsin Ali Khan	Dept. of Skill Development, Kangan	Superintendent	mohsinalidsd@gmail.com	R
64	Asma Zafar	Department of Environmental Sciences	Research scholar	Asma.ddm@gmail.com	NR
65	Mumtaz Ahmad Pir	Revenue Department Baramulla	Assistant Revenue Commissioner	mumtazspr@gmail.com	R
66	Altaf Hussain Mir	Department of Higher Education	Assistant Professor	altafhmir@gmail.com	R
67	Peer Jeelani	Department of Geography & DM, UoK	Research scholar	jeelanipeer@gmail.com	NR
68	Shafkat Ahsan	Department of Geography & DM, UoK	Research scholar	Shafkatwani52@gmail.com	NR
69	Dr. Aadil M. Nanda	GDC Women Anantnag	Lecturer of Geography	aadilgeoku@gmail.com	R
70	Momhmad Imran Ganie	Department of Geography & DM, UoK	Research scholar	emraanmohmad@gmail.com	NR

14. Feedback from the Participants

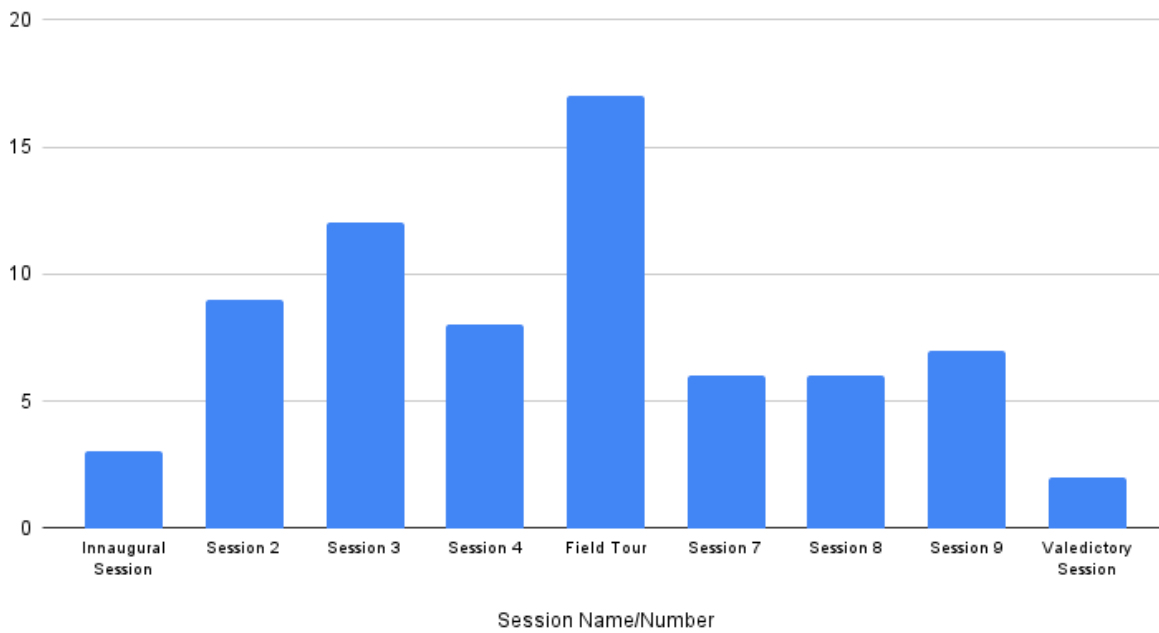
Q. How many days did you participate? (70 Responses)



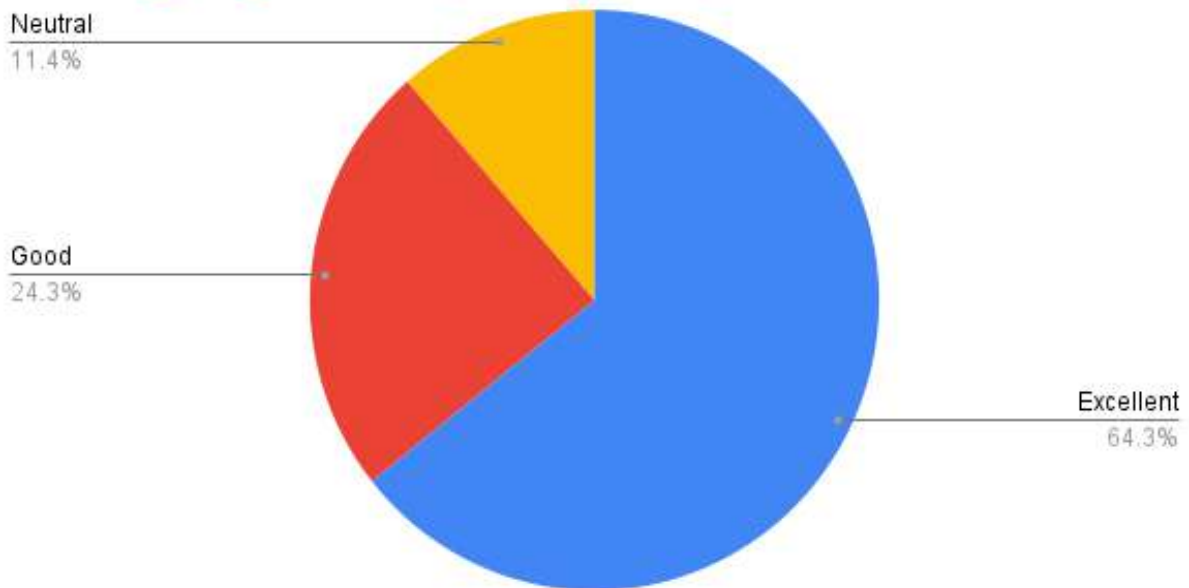
Q. How many training session did you attend? (70 Responses)



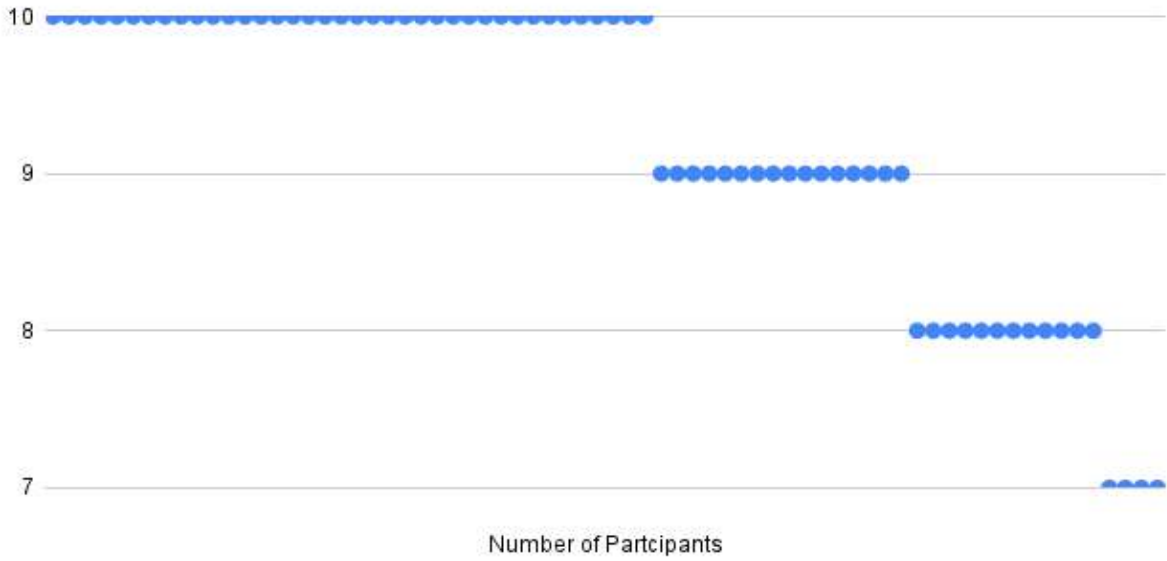
Q. Which part of the training was most interesting to you? (70 Responses)



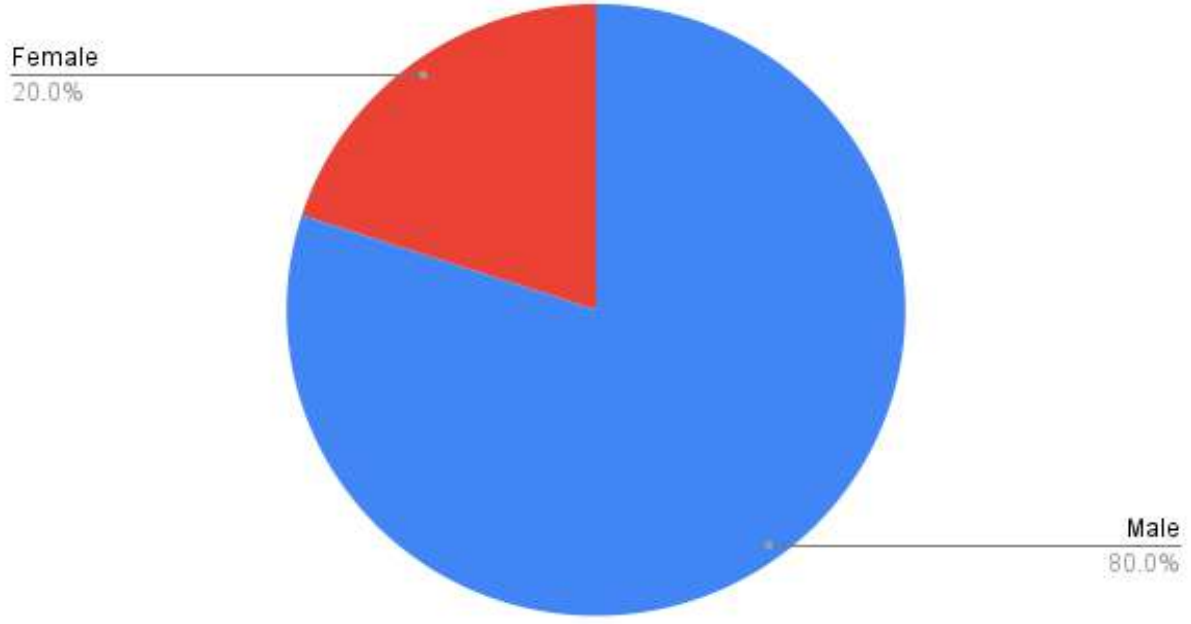
Q. How would you rate your overall experience at the training programme? (70 Responses)



Q. On a scale of 0-10, how likely are you to recommend this training to a friend or colleague? (70 Responses)



Q. Male and Female Participation?



15. Certificate of Participation

