

**Programme Schedule for Regional Training Programme on
“Mitigation and Management of GLOF and Disasters in High Altitude Areas”
for IAS Officers serving in the Himalayan States**

Inaugural Programme

Day 1	Agenda	Resource Person
09:30 am to 10:00 am	Registration	
10:00 am to 10:10 am	Welcome Address	Shri Prabhakar Rai, Special Secretary-cum-Director, SSDMA
10:10 am to 10:20 am	Setting the objective of the programme	Shri Abhiram G Sankar, Deputy Director LBSNAA & Director CDM
10:20 am to 10:40 am	Importance of the training related with GLOF and Disasters in High Altitude Areas	Prof. V.K Sharma, Vice Chairman, SSDMA
10:40 am to 10:50 am	Special Address	Shri Anil Raj Rai Relief Commissioner-cum- Secretary, LR & DMD
10:50am to 11:05 am	Inaugural Address	Shri R. Telang IAS, Additional Chief Secretary, Education Department Government of Sikkim
11:05 am to 11:10 am	Vote of Thanks	Ms. Parina Gurung, Additional Secretary, SSDMA
11:10 am to 11:30 pm	High Tea	
Technical Session		
11:30pm to 12:00pm	Activities of SSDMA with special focus on Building Adaptive Capacities of Vulnerable Communities due to GLOF and Landslides.	Shri Keshav Koirala, Sr. Consultant-cum-Assistant Director, SSDMA
12:00 pm to 12:30pm	GLOF Hazard & its management	Shri. D. G Shrestha Principal Director, DST (Department of Science & Technology)
12:30 pm to 01:00 pm	Landslide Management in Himalayan Terrain (online)	Dr. Surya Prakash Professor and Head, CBRN and Cyber Disaster Risks Management Division, NIDM
01:00 pm to 01:45pm	Lunch Break	
01:45 pm to 02:25 pm	Landslide Hazard in Sikkim and its management	Dr. Pankaj Saini Director, GSI (Geological Survey of India)

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Valedictory Programme

Day 2	Agenda	Resource Person
Technical Session		
11:30 am to 12:10 noon	Snow Avalanche Risk Assessment and Management with Special Focus on Avalanche Safety and Rescue	Shri. P.S. Negi, Additional Director, Scientist ‘F’ Head Training Cell, Defence Geoinformatics Research Establishment (DGRE)
12:10 pm to 12:50 pm	Risk Assessment and Management of Land Slide in Sikkim	Dr. Prateek Chaturvedi, Scientist 'E' Posted at Tejpur, Assam.
12:50 pm to 01: 55 pm	Lunch Break	
Valedictory Session		
02:00 pm to 02:10 pm	Welcome Address	Shri Ani Raj Rai Relief Commissioner-cum- Secretary, LR & DMD
02:10 pm to 02:20 pm	Brief Report on the 4 days training	Ms. Parina Gurung Additional Secretary, SSDMA
02:20 pm to 02:30 pm	Feedback from the participants	
02:30 pm to 03:00 pm	Memento and Participation Certificate distribution	
03:00 pm to 03:10 pm	Special Address	Prof. V.K Sharma Vice Chairman, SSDMA
03:10 pm to 03:30 pm	Presidential Address	Hon’ble Minister, Land Revenue and Disaster Management Department
03:30 pm to 03: 40 pm	Vote of Thanks	Ms. Ekta Uniyal, Assistant Director, LBSNAA
Tea Break		

REPORT

The Centre for Disaster Management of the Lal Bahadur Shastri National Academy for Administration, Mussoorie, and the Sikkim State Disaster Management Authority in collaboration with the National Disaster Management Authority held a Regional Training Program on "Mitigation and Management of GLOF and Disaster in High Altitude Areas", in Sikkim. The four-day program which was held from 22nd to 25th of May 2023 was designed to familiarise the IAS and State Civil Service officers serving in the Himalayan regions in mitigation and management techniques with special focus on prevention, mitigation, preparedness, planning, response, build-back-better, rehabilitation and reconstruction.

The state of Sikkim has been working to identify vulnerable glacial lakes to mitigate possible Glacial Lake Outburst flood (GLOF) in the State. The state has also been implementing various mitigation methods to control the damages caused due to landslides in numerous areas. Due to this, Sikkim was chosen as the location for this training programme

DAY I:

The program was inaugurated by Shri. R. Telang, IAS, Additional Chief Secretary, Education Department, Government of Sikkim in the presence of Prof V.K Sharma Sir, Vice Chairman SSDMA, Shri Abiram G Sankar, IAS, Deputy Director, LBSNAA, Relief Commissioner-cum-Secretary, Govt of Sikkim Shri Anil Raj Rai and Special Secretary-cum-Director, SSDMA Shri Prabhakar Rai.

The Technical session began with a presentation by Shri Keshav Koirala, Assistant Director, SSDMA. The presentation dealt with the activities of the SSDMA with special focus on Building Adaptive Capacities of Vulnerable Communities due to GLOF and Landslides.

This was followed by a presentation on GLOF Hazard and its management by Shri D.G Shrestha, Principal Director, Department of Science & Technology. An online presentation by Dr. Surya Prakash, Professor & Head, CBRN and Cyber Disaster Risks Management Division, NIDM on Landslide management in Himalayan Terrain was next. The second half of the day consisted of a session on Landslide Hazard in Sikkim and its management conducted by the Director, Geological Survey of India Dr Pankaj Saini.

DAY II:

The second day of the programme consisted of field trips to various sites in Mangan district.

The first stop en route to Mangan, was Sokpay landslide. The geological explanation of the landslide was provided by Mr Passang Sherpa, Geologist, Mines & Geology Department. The landslide which occurred on 26th March 2023 caused damage to property, livestock drinking water supply, electricity connection as well as the nearby Animal Husbandry Centre and disturbed road communication from Mangan to Gangtok for one month.

The second stop was Mantam landslide. Mr Pemzang Tenzing, Senior Co-ordinator briefed the participants regarding the Landslide which occurred on 13 August 2016. This landslide was responsible for the formation of a lake which subsequently led to the rise in water level and submerged the Kanaka bridge and washed away about 300 meters of road.

The final stop of the day was the Mangan Mitigation Landslide Site. The impact of an urban landslide at Mangan District in Sikkim has caused devastating losses through the years triggered by large rainfall events and urban stormwater. The old SNT Landslide has been a chronic problem for the district headquarters. NDMA and SSDMA have jointly executed the Mangan Landslide Mitigation project. There are now multiple rows of pipes, surface drainage network, self-drilling anchors and pressure relief pipes being used to stabilise the landslide. There is also use of proper instrumentation for the purpose of landslide monitoring.



This town has seen multiple landslides over the years. Many houses were abandoned after the 1983 rains and the landslide was further triggered by heavy rainfall in 2012, 2018 and 2020. To counter a major disaster from unfolding at the Mangan Bazaar, the Sikkim State Disaster Management Authority (SSDMA) in collaboration with the National Disaster Management Authority conducted mitigation measures to the landslide. The National Disaster Management Authority (NDMA) provides SSDMA with additional funding support and use of modern technology in landslide management.

DAY III

On the third day, the team visited Sikkim Urja Limited at Chugthang. The participants were briefed by Dr Pema Dy General Manager, SUL regarding the overall Disaster Management Plan of SUL especially with regard to GLOF, the technical operation of the gates during flood and the safety mechanism. This was followed by a visit to the Dam Top.

DAY IV

On the final day of the programme, the team attended a Technical Session by the Additional Director, Scientist "F" Defence Geoinformatics Research Establishment Shri P.S.Negi on Snow Avalanche Risk Assessment and Management with Special Focus on Avalanche Safety and Rescue. This was followed by a session on Risk Assessment and Management of Landslide in Sikkim which was given by Dr Prateek Chaturvedi, Scientist E, DGRE.

The valedictory function was held on the second half of the day where the chief guest, Mr. Kunga Nima Lepcha, Minister for the State Land Revenue and Disaster Management Department addressed the participants. He pointed out the need for such programmes as disasters can be mitigated when the root cause and consequences are taken into account while planning policies, programmes and practices. He hoped that the training session had highlighted the issues that needed to be considered for the mitigation of disasters in the Himalayan belt. The Chief Guest and other dignitaries presented the participants with mementoes and certificates while urging them to share their learnings in their respective states.

