GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION No. 2763
TO BE ANSWERED ON WEDNESDAY, May 11, 2016

Creation of Landslide Compendium

2763. SHRI RATTAN LAL KATARIA:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether there are reports that large tracks of mountains are unstable in Jammu and Kashmir, Himachal Pradesh and Uttarakhand and if so, the details thereof;
(b) whether Geological Survey of India (GSI) has launched a project to create a landslide compendium for north western Himalayas and if so, the details thereof; and
(c) whether GSI has recently created a cell for geo-hazards research and management to implement this programme in collaboration with the concerned landslide prone regions of the country and if so, the details thereof?

ANSWER
MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES
(SHRI Y. S. CHOWDARY)

(a) Yes Madam. Landslides are a common geomorphic hazards in all these three Himalayan states which is generally triggered by heavy rainfall in almost every year and also often by major earthquakes in this active Himalayan Fold-Thrust-Belt. Available landslide susceptibility and inventory maps along important pilgrimage routes, road-corridors, river basins and site-specific large scale (1:2000 or larger) landslide maps have already revealed that within these Himalayan states, parts of many mountainous tracts and locations are highly vulnerable and susceptible to landslides or has already failed because of active landsliding.

The highly unstable zones studied by Geological Survey of India (GSI) in Uttarakhand, Himachal Pradesh and Jammu & Kashmir are given in Annexure-I.

(b) Yes Madam. GSI has launched a two-year project to create a landslide compendium for north western Himalayas. The project started on 1 April, 2014. The details of project outcome are given below.

- **The compendium includes all major landslide studies carried out by GSI till 2013 in the NW Himalayas in the States of Uttarakhand, Himachal Pradesh and Jammu & Kashmir.**
- **The type of information included in the compendium are (i) Landslide Susceptibility Maps on scale 1:50,000 covering parts of river basins such as Ramganga, Ganga, Yamuna, Bhagirathi, Sutlej, Beas, Ravi, Chenab river basin etc; (ii) Landslide Susceptibility Maps on scale 1:50,000/25,000/10,000 covering major towns such as Pithoragarh, Bageshwar, Joshimath, Vaishno Devi, Ranikhet, Shimla etc; (iii) Landslide Susceptibility Maps on scale 1:50,000 covering important pilgrimage road corridors such as Yamunotri yatra route, Gangotri yatra route, Kedarnath-Badrinath yatra route, Kailash-Mansarovar yatra route, Harkidun road, Narkanda-Rampur-Khab Road, Kangra-Dharmshala-Sihunta-Dalhousie Road, Kalka-Shimla Narrow Gauge Railway Route, Arakot-Rohru-Narkanda-Theog-Chail-Solan Road etc; (iv) site specific landslide investigations including detailed geological maps; (v) post disaster reconnoitary geological assessment of major landslide events including the recent 2013 Uttarakhand Disaster; and (vi) inventory of major landslides in a tabular form.**

(c) Yes Madam. In August 2013 GSI has created a Geohazards Research & Management (GHRM) Cell in Kolkata. The project for creation of a landslide compendium for north western Himalayas is taken up by GHRM Cell in collaboration with GSI, Northern Region. The details are as given below.

- **The GHRM Cell has been created following the recommendation of the 1st meeting of the Technical Advisory Committee (TAC) for Landslide Mitigation and Management in India, chaired by the Secretary, Ministry of Mines.**
- **GHRM Cell is primarily involved in Research & Development activities in the field of landslides and provides services to all landslide divisions of GSI for landslide related works, including mentoring the National Landslide Susceptibility Mapping (NLSM) programme of GSI.**
- **With an aim to collate the plethora of landslide data available in GSI repository and to publish them for public use, the GHRM Cell has taken the work of preparation of landslide compendium of NW Himalayas.**

Annexure-I

Unstable zones studied by GSI in Uttarakhand

Unstable zones		
1	Okhimath Tehsil, Rudraprayag-Kedarnath road, district Chamoli	10
2	Okhimath Tehsil, Haridwar-Badrinath road, and Rudraprayag-Kedarnath road, district Chamoli.	35
3	Haridwar-Badrinath road, district Chamoli	14
4	Karnapryag-Gwaldam road, district Chamoli	4
5	Haridwar-Badrinath-Mana road, district	2
6	Reni village, Ganai village, Joshimath-Marlari road, district Chamoli	4
7	Tharali village, district Chamoli	1
8	Karmi village, district Almora	2
9	Jalikhan-Jiakhan road district Almora	1
10	Bareilly-Almora road district Almora	2
11	Nainital: Sher ka Danda Hill, Naina Peak, Balia nala and Jangali village	3
12	Barielly-Kathgodam road, district Nainital	5
13	Almora-Pithoragarh road, district Almora	4
14	Kinwani Slide, Distt, Pauri Garhwal	1
15	Bhagirathi Valley, district Uttarkashi	181
16	Bhagirathi Valley, district Uttarkashi	54
17	Kannauldiya gad, district Uttarkashi	3
18	Haridwar-Badrinath road, district Chamoli	4
19	Rudraprayag-Kedarnath road, district Chamoli	1
20	Haridwar-Badrinath road and Rudraprayag-Kedarnath road, district Chamoli	2
21	Durlokh village, district Pithoragarh	1
22	Pithoragarh-Almora road, district Almora	1
23	Dharchula-Tawaghat road, Tawaghat village, district Pithoragarh	8
24	Kedarnath township	1

Unstable zones studied by GSI in Himachal Pradesh

	Unstable zones	
1	Satluj river valley, district Kinnaur	87
2	Naina Devi Temple area, district Bilaspur	1
3	Bilaspur-Kiratpur road, district Bilaspur	1
4	Simla town, district Simla	3
5	Kulu and Mandi districts	19
6	Satluj river valley, district Kulu	4
7	Satluj river valley, Simla and Kulu districts	30
8	Kulu and Kinnaur districts	20
9	Baira dam site, districts Chamba	2
10	Beas valley, district Kangra	175
11	Dalhousie town, district Chamba	2
12	Near Sonwara Rly. St., Kalka-Simla Rail route, district Solan	1
13	Near Kandon, district Sirmur	1

Unstable zones studied by GSI in Jammu & Kashmir

1	Landslide at village Tak, Batote, District Ramban, Jammu and Kashmir.
2	Landslide at village Channgabra, Batote, District Ramban, Jammu and Kashmir.
3	Landslide at village Rakh Jhrog along PMGSY road, Batote, District Ramban, Jammu and Kashmir.
4	Landslides on Road Karu-Tangtse, District Leh, Jammu and Kashmir.
5	Landslides on Shyok-Agham Road, District Leh, Jammu and Kashmir.
6	Landslides on Rema-Rewari Road, District Leh, Jammu and Kashmir.
7	Landslide along Shri Mata Vaishno Devi Shrine Board track (near Devidwar, Ardhkwari), District Reasi, Jammu and Kashmir.
8	Landslide at village Sadal, District Udhampur, Jammu and Kashmir.
9	Landslide at village Sheindera, District Poonch, Jammu and Kashmir.
10	Landslide at village Upper Potha, District Poonch, Jammu and Kashmir.
11	Landslide at village Chela and Dangri, District Poonch, Jammu and Kashmir.
12	Landslide at Kheri on National Highway, District Udhampur, Jammu and Kashmir.
13	Landslide at Shri Mata Vaishno Devi Bhawan, Katra, District Reasi, Jammu and Kashmir.
14	Landslide at Tringula, Batote on national highway, District Ramban, Jammu and Kashmir.
15	Landslide at village Dharam, Gool, District Ramban, Jammu and Kashmir.