GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION No. 2147
TO BE ANSWERED ON WEDNESDAY, 2ND AUGUST, 2023

MELTING OF HIMALAYAN GLACIERS

2147. DR. T. SUMATHY (a) THAMIZHACHI THANGAPANDIAN:
SHRI DUSHYANT SINGH:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) the rate of retreat/melting of Himalayan Glaciers since the last five years, year/State-wise;
(b) the mass balance assessment of nine glaciers in the Himalayan region since the last five years;
(c) whether the Ministry has commissioned any new research studies in the past five years to assess Indian glaciers; and
(d) if so, the details thereof, if not, the reasons therefor?

ANSWER
THE MINISTER OF EARTH SCIENCES
(SHRI KIREN RIJIJU)

(a) Several Indian institutes/universities/organizations funded by the Government of India through Ministry of Earth Sciences (MoES), Department of Science & Technology (DST), Ministry of Environment Forest and Climate Change (MoEFCC), Department of Space (DoS) - Indian Space Research Organisation (ISRO), Ministry of Mines (MoM) and Ministry of Jal Shakti (MoJS) monitor Himalayan glaciers for various scientific studies including glacier melting. State-wise details on retreat of the Himalayan glaciers are given in Annexure I.

(b) The mass balance assessment of Himalayan glaciers since the last five years are provided in Annexure II.

(c)&(d) Yes Sir, The Ministry of Earth Sciences through National Centre for Polar and Ocean Research (NCPOR) has commissioned following new research studies in the past five years to assess Indian glaciers:

i. Started the Snow Cover Area (SCA) assessment over Chandra basin using satellite remote sensing data. Analysis of data between 2003 and 2018 reveal that the month of March (2008) recorded maximum (99.99%) snow cover, while the minimum (42.4%) snow cover was found in August (2014).

ii. A nationally coordinated multi-institutional program named ‘Himalayan Cryospheric Observation and Modeling (HiCOM)’ was initiated in 2018.Under this program, seven scientific projects for representative and crucial basins/glaciers in different sectors of Himalaya (Western, Central and Eastern sectors) were funded to several Indian universities and institutes.

Annexure-I

State-wise Retreat of Himalayan Glaciers

S. No	Name of the State	Name of the glacier	Duration	Average Annual Retreat (m/year)
1.	Ladakh UT	Pensilungpa	Little Ice Age (LIA) to 2019	5.60
		DurungDurung	1971-2019	12.0
		Parkachik	1971-2021	4.21
		Sagtogpa	1973-2018	7.4
		Sagtogpa East	1973-2018	8.13
		Thara Kangri	1973-2018	+11.13 (Surged)
		Garam Pani	1973-2018	4.96
		Rassa I	1973-2019	8.13
		Rassa II	1973-2019	2.63
		Arganglas Glacier	1973-2019	18.86
		Phunangma	1973-2019	11.65
		Panamik-I	1969-2021	1.68
		Panamik-II	1969-2021	4.09
		Saser-I	1980-2021	3.25
		Saser-II	1980-2021	2.85
2.	Himachal Pradesh	Takdung	1989-2017	9.64
		Uldhampu	1989-2017	4.66
		Menthosa	1965-2018	4.32
		Gumba	1971-2018	10.38
		Gangpu	1989-2018	2.79
		Trilokinath Glacier	1969-2021	18.00
		Beas Kund Glacier	1964-2021	15.00
		Glacier no. 20	1965-2021	3.20
		Gepang Gath	2017-2022	~30
		Samudra Tapu	2017-2022	~10-15
		Batal and Kunzam	2017-2022	~5-10
		Sutri Dhaka	2017-2022	11.00
3.	Uttarakhand	Mabang	1962-2017	6.96
		Pyungru	1962-2017	4.45
		Chipa	2017-2019	7.90
		Gangotri	2017-2022	33.80
		Dokriani	2007-2013	21.00
		Chorabari	Since 2003	11.00
4.	Arunachal Pradesh	Khangri	2017-2019	6.50

Annexure-II

The mass balance of glaciers in the Himalayan region since 2014-15.

S.No.	Name of Glacier	State (Basin)	Duration	Mass balance (meter water equivalent/year)
1.	Kolahoi Glacier	Jammu &Kashmir UT (Jhelum)	2015-2019	-0.84
2.	Hoksar Glacier	Jammu & Kashmir UT (Jhelum)	2014-2018	-0.95
3.	Stok Glacier	Ladakh UT(Indus)	2015-2019	-0.39
4.	Pensilungpa Glacier	Ladakh UT(Suru)	2016-2022	-0.46
5.	ChottaShigri Glacier	Himachal Pradesh (Chandra)	2015-2019	-0.22
6.	Sutri Dhaka Glacier	Himachal Pradesh (Chandra)	2015-2022	-0.72
7.	Batal Glacier	Himachal Pradesh (Chandra)	2014-2022	-0.41
8.	Samudra Tapu Glacier	Himachal Pradesh (Chandra)	2015-2022	-0.82
9.	Kunzam Glacier	Himachal Pradesh (Chandra)	2015-2018	-0.30
10.	Bara Shigri Glacier	Himachal Pradesh (Chandra)	2015-2019	-0.43
11.	Gepang Gath Glacier	Himachal Pradesh (Chandra)	2015-2022	-0.96
12.	Naradu Glacier	Himachal Pradesh (Baspa)	2011-18	-0.85
13.	Chorabari Glacier	Uttarakhand (Mandakini)	2016-2021	-0.77
14.	Dokriani Glacier	Uttarakhand (Bhagirathi)	2013-2020	-0.37

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